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Relationships Between Early Academic Indicators and Accelerated-Baccalaureate Student Nurse Success

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COLLEGE OF EDUCATION

This is to certify that the doctoral study by

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MSN, Framingham State University, 2010

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Project Study Submitted in Partial Fulfillment

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Abstract

In 2013, the National Council Licensure Examination for Registered Nurses' (NCLEX-RN) passing standard was increased, leading to a decrease in NCLEX-RN pass rates. The passing standard increase was prompted by an advisory panel's determination that a gap in safe, competent practice existed among new graduate nurses. New graduates' success on NCLEX-RN is critical to meet workplace demand for new nurses. The purpose of this study was to examine whether cumulative grade point average at completion of 200-level nursing courses and scores on the standardized final exam in the 200-level fundamentals course were related to on-time nursing program completion and a Health Education Systems, Inc. Exit Exam score of 900 or higher. Research questions specific to relationships between early academic indicators and accelerated-baccalaureate student nurse success guided this explanatory correlational study. Classical test theory provided the framework for understanding the relationship between an observed score on an examination and an underlying proficiency that is unobserved. Archival data from a nonprobability convenience sample of 842 accelerated-baccalaureate nursing students at a university who graduated between 2011 and 2014 were analyzed using point-biserial correlation. Statistically significant, moderate positive relationships were found between early academic indicators and accelerated-baccalaureate student nurse success. A remediation curriculum has been developed as a recommended intervention. Curriculum promoting student retention can contribute to social change by improving student success and producing a more competent nursing workforce. These successes are important to retaining diverse students and addressing health disparities in the larger patient community.

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Dedication

I dedicate this project study to my family and friends who have endured this long journey with me. My special thanks to Dave for your love, tolerance, and encouragement during many stressful times. Your unwavering belief in my ability to achieve my goals propelled me forward. To Mom, David, Bryan, Regina, and my extended family and wonderful friends, thank you for loving and supporting me while I pursued my dream.

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Section 1: The Problem

Introduction

Nursing education faces many challenges in the United States. A dynamic health care environment, the diverse aging population, increased access to health care, and a nursing shortage are trends impacting nursing practice, and subsequently, nursing education. Educators need to prepare growing numbers of nursing students with the knowledge, skills, and abilities to continually adapt to change and deliver age appropriate and culturally competent care to a rapidly growing patient population with complex health care needs. Increased student enrollment needs to be associated with strategies that support students' progress to graduation (Pitt, Powis, Levett-Jones, & Hunter, 2012). Student success, including on-time program completion and passing the National Council Licensure Examination for Registered Nurses (NCLEX-RN) on the first attempt, is crucial to ensuring an adequate nursing workforce to meet the demands of the health care environment. Failure on NCLEX-RN impacts graduates, health care organizations, and nursing programs (Roa, Shipman, Hooten, & Carter, 2011). Nurse educators must use a variety of teaching and learning strategies to accommodate diverse learning styles and learning needs to ensure student success.

A recent change in the NCLEX-RN passing standard has influenced student nurse success. This revision followed an evaluation by the National Council of State Boards of Nursing (NCSBN; 2013a, 2013b) who determined registered nurses (RNs) required a greater level of knowledge, skills, and abilities than previously required. Nationally,

NCLEX-RN pass rates decreased in the year following the change (NCSBN, 2013d, 2014).

Many nursing programs experienced dramatic decreases in pass rates (Executive Office of Health and Human Services [EOHHS], 2014a, 2014b). Nurse educators must respond to the passing standard change and identify strategies to promote the development of the knowledge, skills, and abilities necessary for competent practice in the current health care environment (White, 2014a). Strategies for improving NCLEX-RN pass rates include identifying factors contributing to pass rate decline. Other strategies include implementing nursing education program interventions and educator specific interventions (EOHHS, 2014c).

In this study, I examined whether cumulative grade point average (GPA) at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level nursing fundamentals course are related to on-time nursing program completion and an Elsevier's Health Education Systems, Inc. Exit Exam (HESI E^2) score of 900 or higher at a university in Northeast United States. Specific early academic indicators are cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course. On-time program completion and a score of 900 or higher on HESI E^2 reflect student nurse success (White, 2014b). In Section 1, I define the problem, discuss the study's rationale, key terms, and significance, and present the research questions and hypotheses.

Definition of the Problem

One issue impacting nursing education was a recent change to the NCLEX-RN (White, 2014b). In April 2013, the NCLEX-RN passing standard was increased from "-0.16 logits to 0.00 logits," prompted by reports from health care professionals indicating entry-level nurses did not have the knowledge and skills required to care for acutely ill patients (NCSBN, 2013a, 2013b, para. 1; White, 2014b). Following the passing standard change, national NCLEX-RN pass rates for first time registered nurse candidates decreased from 90.34% in 2012 to 83.04% in 2013 (NCSBN, 2013d, 2014; White, 2014b).

In the Northeastern United States, NCLEX-RN pass rates also decreased. The total passing percentage for NCLEX-RN test takers in Massachusetts decreased from 90.50% in 2012 to 82.82% in 2013 (EOHHS; 2014a, 2014b). Other states had similar decreases. Pass rates for test takers in Maine decreased from 89.96% for the year October 1, 2011 through September 30, 2012, to 82.52% for the year October 1, 2012 through September 30, 2013 (State of Maine, n.d.a, n.d.b). NCLEX-RN pass rates in New Hampshire also decreased from 93.85% in 2012 to 83.04% in 2013 (State of New Hampshire, 2014).

My study site, a university in the Northeastern United States with multiple campuses and two different types of accelerated Bachelor of Science in Nursing (BSN) programs, also had decreased NCLEX-RN pass rates following the change in the passing standard. One 32-month accelerated BSN (Accelerated BS) program enrolled students annually in September, and two 16-month accelerated second-degree nursing (ASDN)

programs enrolled students in January and September. Total ASDN enrollment in the 200-level fundamentals course in 2012 and 2013 was 364 students, and 232 accelerated Bachelor of Science (BS) students were enrolled during this same time frame (Elsevier, 2016). Students in the accelerated BS and the ASDN programs followed the same nursing curriculum and took the same standardized tests. The accelerated BS program was a direct-entry program for first-year students and transfer students who have completed at least one semester of college coursework. According to information I collected from the university, there were no specific prerequisite requirements for entry into the accelerated B.S. program, but prior performance in math and science was reviewed. Transfer students were required to have a minimum GPA of 2.5 for admission; however, according to the data I collected from the program, the average GPA was 3.2. Students in the ASDN program already had a Bachelor's degree, and they completed prerequisites including anatomy, physiology, chemistry, microbiology, human development, and statistics. The university required a minimum overall GPA of 2.7 for admission to the ASDN program.

The passing percentage in the accelerated BS program offered on one campus decreased from 90% in 2012 to 55% in 2013 (EOHHS, 2014a, 2014b). During this same time period, both ASDN programs offered at the other campuses also had decreased pass rates. The passing percentage of one ASDN program decreased from 97% to 90%, and the other ASDN program's passing percentage decreased from 98.04% to 82.46% (EOHHS, 2014a, 2014b; State of New Hampshire, 2014). These declines represented gaps in practice inasmuch as "graduates of the program did not demonstrate the

knowledge, skills, and abilities necessary for safe, entry level practice" (White, 2014b, p.3). White (2014a) has noted that nursing programs must keep pace with the demand for new nurses necessitated by an increasing and aging patient population, and has defined nursing student success as on-time program completion and passing NCLEX-RN on the first attempt. Several researchers have shown that first-time NCLEX-RN pass rates are indicators of a nursing program's effectiveness and quality (Langford & Young, 2013; Simon, McGinnis, & Krauss, 2013; White, 2014b), and that on-time completion is also reflective of program effectiveness (Robertson, Canary, Orr, Herberg, & Rutledge, 2010; White, 2014b).

Educators can monitor GPA and performance in nursing courses to assess progress toward on-time completion and intervene when students are not meeting the requirements for progression. Landry, Davis, Alameida, Prive, and Renwanz-Boyle (2010) noted that factors associated with student nurse success include nursing course GPA and performance in a nursing fundamentals course. Both were associated with success on NCLEX-RN. Once a student graduates, educators cannot monitor individual student success on NCLEX-RN. Only aggregate NCLEX-RN passing percentages are reported. Educators need measureable indicators to evaluate individual student success. HESI E^2 is a measure suitable for evaluation of individual student nurse success. Administered at the end of the nursing program, HESI E^2 provides a final opportunity for educator assessment of student nurse success. Students who score 900 and higher on the HESI E^2 are predicted to pass NCLEX-RN; therefore, a HESI E^2 score of 900 or higher is viewed as equivalent to passing NCLEX-RN (Langford & Young, 2013). At my study

site, the baccalaureate nursing cohort with a 55% NCLEX-RN passing percentage in 2013 had a mean HESI E^2 score significantly less than the 900 benchmark.

The HESI E^2 has an established validity. Langford and Young (2013) found that students achieving a benchmark score of 900 and higher had a 97.44% NCLEX-RN pass rate. A study focused on academic indicators of success including on-time program completion and a HESI E^2 score of 900 or higher provides valuable information that may be used by educators to implement early intervention targeted to at-risk students. I found that cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course were related to on-time program completion and a HESI E^2 score of 900 or higher at my university.

Rationale

Evidence of the Problem at the Local Level

My rationale for conducting this study was that, given the decrease in NCLEX-RN pass rates, educators and administrators needed to explore issues related to the decreased pass rates. NCLEX-RN pass rates in the Northeast were similar to national statistics. Massachusetts' EOHHS (2014a, 2014b) reported the total passing percentage for the state's nursing programs decreased from 90.50% in 2012 to 82.82% in 2013. In Maine the NCLEX-RN passing percentage decreased from 89.96% in 2012 to 82.52% in 2013 (State of Maine, n.d.a, n.d.b). Similar to Maine and Massachusetts, New Hampshire's NCLEX-RN passing percentage also decreased from 93.85% in 2012 to 83.17% in 2013 (State of New Hampshire, 2014). All of these statistics mirrored national outcomes. In an interview with the dean of one program in the Northeast, I learned that

the NCSBN anticipated a 3-5% decline in pass rates as a result of the passing standard change; however, there had been close to a 10% decline for first time test takers.

Massachusetts' EOHHS (2014c) responded to the decrease in NCLEX-RN pass rates and identified strategies to improve the pass rates. Nursing education program interventions and educator-specific interventions were developed to address factors contributing to the decline in pass rates. Recommendations for improvement included standardized testing throughout the program and early intervention programs for at-risk students (EOHHS, 2014c). Following a release of quarterly NCLEX results, administrators at my study site sent a memo to faculty members at my study site informing them that interventions including remediation and a mandatory NCLEX review course failed to significantly improve NCLEX pass rates. Persistent low pass rates marked the need for a study examining whether cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course were related to on-time nursing program completion and a HESI E^2 score of 900 or higher.

Evidence of the Problem from the Professional Literature

The NCLEX-RN reflects current practice for entry-level nurses (Wendt, Kenny, & Brown, 2010). New nurses needed knowledge, skills, and abilities to care for patients with unstable chronic conditions and behavioral and emotional conditions. Entry-level nurses have been tasked with caring for sicker patients in a variety of health care settings (NCSBN, 2013e). Practice in the current environment requires a greater level of knowledge, skills, and abilities than previously identified during the passing standard

evaluation in 2009. Every 3 years, the NCSBN evaluates the passing standard for NCLEX-RN to ensure the exam reflects the nursing abilities necessary for safe and competent entry-level practice (NCSBN, 2015c).

In 2012, an expert panel of nurses supported a higher passing standard after performing a criterion-referenced standard-setting procedure (NCSBN, 2013a). Other evidence also showed the need for a higher passing standard. The NCSBN Board of Directors considered a variety of historical NCLEX performance data, results from annual surveys of nursing employers and educators, and the recommendations of the expert panel (NCSBN, 2013e). Patient acuity, an aging population, and the need for entry-level nurses to manage care activities that enhanced care delivery in the community for patients recently discharged from an acute care setting were factors contributing to the passing standard change (NCSBN, 2013e).

First-time NCLEX-RN pass rates mark students' competence for entry into practice, but they also indicate a nursing program's effectiveness and quality (Langford & Young, 2013; Simon et al., 2013; White, 2014b). Programs must adapt to changes in the health care environment with a curriculum that promotes the development of the knowledge, skills, and abilities necessary for safe and competent entry-level practice (White, 2014a). Teaching practices also require change to prepare diverse students in traditional and accelerated programs for practice in the current health care environment. The *NCLEX-RN Test Plan* (NCSBN, 2012) and the *Essentials of Baccalaureate Education for Professional Nursing Practice* (American Association of Colleges of Nursing [AACN], 2008) have guided nurse educators in making these changes. The

NCLEX-RN Test Plan provided a summary of the content and scope of the current licensing exam, and the *Essentials of Baccalaureate Education for Professional Nursing Practice* focused on key concepts necessary for safe and competent entry-level practice. Strategies to accommodate diverse learning needs were also outlined in these key documents.

The purpose of my study was to examine whether cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course were related to on-time nursing program completion and a HESI E^2 score of 900 or higher. Cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course are early indicators of student nurse success. An increased understanding of academic indicators of nursing student success allows early intervention with students at-risk of not completing the nursing program on-time or achieving a HESI E^2 score of 900 or higher.

Definitions

Accelerated Bachelor of Science in Nursing program (Accelerated BS): The accelerated BS nursing program is a year round, 32-month full-time baccalaureate degree program.

Accelerated second-degree nursing program (ASDN): Accelerated-baccalaureate second-degree programs for non-nursing graduates take between 11 and 18 months to complete and "offer the quickest route to licensure as a RN" (AACN, 2009, para. 3).

Benchmark: A benchmark is an external reference point used to compare a unit, person, or organization to an established guideline or standard (Bosso, Chisholm-Burns, Nappi, Gubbins, & Ross, 2010).

Criterion-referenced standard: Criterion-referenced tests measure performance against a fixed standard to evaluate learning of a specific body of knowledge or acquisition of a specific skill set (Great Schools Partnership, 2014).

Cumulative grade point average (GPA): The cumulative GPA is the weighted mean value of all grade points earned (Pennsylvania State University, 2013).

Health Education Systems, Inc. Exit Exam (HESI E 2): The HESI E^2 is a comprehensive 150 question exit exam intended to match the latest NCLEX test plan ("HESI Exit," 2015). Nursing programs administer the HESI E^2 during the final semester. A score of 900 or higher is predictive of passing NCLEX-RN (Langford & Young, 2013).

Health Education Systems, Inc. (HESI). Fundamentals Exam: The HESI Fundamentals Exam is a 55-item content-focused standardized final exam in the 200-level fundamentals course (Zweighaft, 2013). Nursing fundamentals are basic concepts, principles, and skills employed in providing basic client care (Texas A&M University-Commerce, 2014).

On-time completion: On-time completion is meeting all requirements for a degree within the normal or expected time according to the institution's catalog (U.S. Department of Education, n.d.a).

Standardized tests: Standardized tests are prepared and administered by an organization independent of the academic institution. Tests provide information about students relative to a national sample (U.S. Department of Education, n.d.a).

Significance

Current challenges related to the aging population and increased access to health care are further complicated by a decreasing nurse workforce relative to the retirement of Baby Boomer generation nurses, and the need for a diverse workforce to meet the health care needs of an increasingly diverse patient population (White, 2014b). The Administration on Aging reported that minority populations are projected to increase to 13.1 million by 2020 (U.S. Department of Health and Human Services, 2011; White, 2014a). Nursing programs need to admit diverse students to meet the need for a diverse nursing workforce. However, there may be challenges associated with educating diverse students. Many students may speak English as second language (ESL). Any barriers related to language must be addressed to ensure student success (Hansen & Beaver, 2012).

Accelerated nursing programs appeal to many non-traditional nursing students. Diverse and nontraditional students comprise the current student nurse population. Common characteristics of nontraditional nursing students include being age 25 or older, living off campus, attending school part-time, being male, speaking English as a second language, and having dependent children (Bednarz, Schim, & Doorenbos, 2010; White, 2014a).

The number of accelerated undergraduate and graduate programs is increasing in response to the nursing shortage. These programs build on students' previous learning and provide non-nursing graduates a fast-track into nursing (AACN, 2009; White, 2014a). Course work is rigorous in these programs. Nurse educators are also challenged by the intensive, accelerated format. Teaching strategies must meet the needs of traditional and nontraditional students to address the gap in practice and ensure nursing students acquire the knowledge, skills, and abilities demonstrated by on-time program completion and a HESI E^2 score of 900 or higher.

There has been limited research since the NCLEX-RN passing standard change relative to accelerated-baccalaureate nursing programs and the relationships of early academic indicators of success to late academic indicators of success; therefore, more research is needed. In this study, I examined the relationships of cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course (early academic indicators) to on-time nursing program completion and a HESI E^2 score of 900 or higher (late academic indicators) for accelerated-baccalaureate nursing students at one university. The purpose of the study was to examine whether cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course were related to on-time nursing program completion and a HESI E^2 score of 900 or higher.

A diverse nursing workforce reflective of the diverse patient population is needed to reduce health disparities (White, 2014a). In addition to program inclusion, diverse traditional and nontraditional students should have support to achieve success. This

support may be academic, social, or financial. I am hopeful my project study will help nurse educators understand factors related to nursing student success, and will provide a foundation for academic support that includes early identification of at-risk students and intervention to facilitate student success. Program completion, passing NCLEX-RN on the first attempt, and subsequent successful practice as a RN may promote positive social change for the student, the student's family, the student's community, and the larger patient community.

Guiding/Research Question

On-time program completion and a HESI E^2 score of 900 or higher were the dependent variables representing nursing student success. I used quantitative methods to examine relationships between cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course to on-time nursing program completion and a HESI E^2 score of 900 or higher. Following a review of current literature, I developed several research questions informed by factors that contribute to student success:

RQ1: What is the relationship between the score on the standardized final exam in the 200-level fundamentals course and on-time nursing program completion?

H_o1: There is no relationship between the score on the standardized final exam in the 200-level fundamentals course and on-time nursing program completion.

H_a1: There is a relationship between the score on the standardized final exam in the 200-level fundamentals course and on-time nursing program completion.

RQ2: What is the relationship between cumulative GPA at completion of 200-level nursing courses and on-time nursing program completion?

H_o2: There is no relationship between cumulative GPA at completion of 200-level nursing courses and on-time nursing program completion.

H_a2: There is a relationship between cumulative GPA at completion of 200-level nursing courses and on-time nursing program completion.

RQ3: What is the relationship between the score on the standardized final exam in the 200-level fundamentals course and a HESI E^2 score of 900 or higher?

H_o3: There is no relationship between the score on the standardized final exam in the 200-level fundamentals course and a HESI E^2 score of 900 or higher.

H_a3: There is a relationship between the score on the standardized final exam in the 200-level fundamentals course and a HESI E^2 score of 900 or higher.

RQ4*:* What is the relationship between cumulative GPA at completion of 200-level nursing courses and a HESI E^2 score of 900 or higher?

H_o4: There is no relationship between cumulative GPA at completion of 200-level nursing courses and a HESI E^2 score of 900 or higher.

H_a4: There is a relationship between cumulative GPA at completion of 200-level nursing courses and a HESI E^2 score of 900 or higher.

The independent variables reflected in the research questions and hypotheses were cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course. Both independent variables were continuous data measured at the interval level. On-time program

completion and a HESI E^2 score of 900 or higher were the dependent variables. These variables representing student nurse success were dichotomous data measured at the nominal level. I tested strength of the relationships between the independent and dependent variables in the study.

Review of the Literature

Introduction

Students in accelerated-baccalaureate nursing programs have limited time to acquire the knowledge, skills, and abilities for safe and competent entry-level practice. Understanding early indicators of nursing student success provides educators with opportunities to monitor student progress and intervene early when indicated. I searched the Cumulative Index to Nursing and Allied Health Literature Plus with Full Text (CINAHL) and Education Research Complete databases, and identified articles related to indicators of academic success for prelicensure undergraduate student nurses in the context of developing the knowledge, skills, and abilities necessary for safe and competent entry-level practice in the current health care environment. CINAHL content includes nursing and allied health journals with coverage from 1937 (EBSCO, 2015a). The Education Research Complete database provides access to content on curriculum, administration, policy, and social issues (EBSCO, 2015b). Keywords I used in searches included *academic indicators, accelerated BS, baccalaureate retention, NCLEX-RN, NCLEX-RN passing standard, nursing student success,* and *progression and retention.* I delimited searches to peer reviewed journals articles published in English within the last 5 years. I reviewed other sources for additional information specific to study variables.

NCLEX-RN pass rates nationally and by state, and other NCLEX related articles were obtained from the NCSBN, the EOHHS, and the State of New Hampshire websites.

I organized the review of the literature by theoretical framework and indicators for academic success. In what follows, I begin with a discussion of classical test theory as it related to the local problem of low NCLEX-RN pass rates. Next, I identify different prelicensure undergraduate nursing programs and then offer a broad overview of academic and non-academic indicators related to student success. Finally, I discuss the literature focused on early and late indicators specific to student nurse success in accelerated-baccalaureate nursing programs. These early and late academic indicators include standardized testing, nursing GPA, on-time program completion, and NCLEX-RN.

Theoretical Foundation

Classical test theory (CTT) provided the theoretical foundation for this project study. Schuwirth and Van Der VLeuten (2011) reviewed prominent theories in 40 years of medical education literature and noted CTT is the oldest and most widely used theory. Brennan (2011) noted the wide use of the theory over time and its simplicity are primary strengths of CTT. Undifferentiated error is the primary weakness of the theory. The foundation of CTT is the tenet that a score consists of a true score and a random error score (De Champlain, 2009; Ding & Beichner, 2009; Schuwirth & Van Der Vleuten, 2011). Every test has some measurement error; therefore, an observed score will not represent a true score of competence.

A test theory model supports use of multiple-choice examinations to assess clinical proficiency under the assumption that there is a relationship between the score on the examination and the underlying proficiency (De Champlain, 2010). Other aspects of learning requiring assessment are not visible and must be assumed from observed behaviors (Schuwirth & Van Der VLeuten, 2011). Similar to nursing, medical education draws on theories from other disciplines; therefore, theories related to the development of medical expertise may be equally applicable to the development of nursing expertise. Schuwirth and Van Der Vleuten (2011) focused on theories used in medical education to assess the development of medical expertise and found CTT is one of several theories appropriate for this purpose. Knowledge and problem-solving abilities which provide the foundation for nurses' clinical judgment and decision making cannot be observed directly. Often, clinical competence must be assessed using other methods of evaluation.

Collecting data to draw a conclusion about a student requires a process that is reliable and valid (Schuwirth & Van Der Vleuten, 2011). Use of standardized tests with established reliability and validity is essential for accurate assessment of knowledge, skills, and abilities that cannot be directly observed. Reliable and valid standardized testing may help nurse educators assess competence, which is necessary to address the local problem of decreased first time NCLEX-RN pass rates for accelerated-baccalaureate nursing students in the Northeast. I used scores on the standardized final exam in the 200-level fundamentals course and a HESI E^2 score of 900 or higher as indicators of accelerated-baccalaureate student nurse success. Lavandera et al. (2011) used CTT as the theoretical framework for a study on the HESI E^2 as a

predictor of first time success on NCLEX-RN. CTT was the conceptual framework used to develop HESI exams (Langford & Young, 2013; Morrison, Adamson, Nibert, & Hsia, 2008). Validity of the standardized final exam in the 200-level fundamentals course (a HESI Specialty Exam) and the HESI E^2 is grounded in CTT (Morrison et al., 2008). My use of CTT as a theoretical framework for research relative to student nurse success was supported in the literature (Langford & Young, 2013; Lavandera et al., 2011; Morrison et al., 2008). Accurate assessment of clinical competence is necessary to determine readiness for progression in the nursing program or entry into practice. Standardized tests are frequently used to assess clinical knowledge, skills, and abilities. A test theory model provided the theoretical foundation for assessment of clinical competence using standardized tests.

Prelicensure Nursing Programs

There are multiple routes to becoming a registered nurse. Hospital-based diploma programs, community college-based associate degree in nursing (ADN) programs, and baccalaureate programs offered at colleges and universities are well known examples of prelicensure nursing programs (AACN, 2014). In addition to 4-year BSN programs for traditional students, described by Pelletier (2010) as 18-to 22- years old, attending college full time, and living on campus, other approaches to baccalaureate nursing education have been developed to meet the current and projected need for registered nurses. Bednarz et al. (2010) noted students in all types of programs are increasingly nontraditional and diverse. Growth of accelerated programs exceeds growth of all other types of prelicensure nursing programs (AACN, 2010). Accelerated-baccalaureate

nursing programs, including the accelerated BS program and the ASDN program, are examples of innovative nursing education approaches developed to meet the needs of traditional and nontraditional students, and the demand for new nurses. The significance of academic indictors may vary by program type. Accelerated-baccalaureate nursing programs are increasing in popularity; therefore, it is imperative to also explore outcomes in nontraditional programs (Payne, Glaspie, & Rosser, 2014). Educators must understand academic indicators of baccalaureate student nurse success specific to the program type and the program's students.

Indicators of Academic Success

Understanding indicators of academic success provides opportunities for educators to develop admission policies, monitor student progress, or intervene to support student success. There are many potential indicators of academic success that may be linked to academic performance, demographic characteristics, and psychosocial or socioeconomic factors. Indicators of academic success can be broadly categorized as either non-academic or academic (Emory, 2013; Grossbach & Kuncel, 2011; Penprase & Harris, 2013).

Non-academic indicators. Demographic characteristics, psychosocial factors, and socioeconomic status are non-academic factors with potential to impact academic success. Age, gender, and ethnicity are examples of demographic factors; dependents, domicile, and previous experience of caring are psychosocial factors (McGahee, Gramling, & Reid, 2010; Wray, Barrett, Aspland, & Gardiner, 2012). Level of employment is another factor associated with the nontraditional student (Bednarz et al.,

2010; U.S. Department of Education, n.d.b). Many nontraditional students are from disadvantaged backgrounds; therefore, socioeconomic status may be an important non-academic indicator (Harding, 2012). Each of these factors has potential to affect the academic success of the nontraditional student.

Diversity in nursing is essential to addressing health disparities. The National Advisory Council on Nurse Education and Practice (2013) noted the health workforce should mirror the diversity in the patient population. A survey of nursing programs by the National League for Nursing (2013) indicated 16% of BSN students are over age 30, 33% are members of a minority group, and 13% are male. Increasing diversity in the nursing workforce requires retention of nontraditional students.

Nontraditional students may encounter barriers to academic success. Older students may face challenges related to finances and balancing educational needs with needs of family or employers (Deggs, 2011; Stone & O'Shea, 2013). Culturally diverse students have higher attrition rates than Caucasian students related to non-academic factors including financial needs, discrimination, English proficiency, and cultural tensions (Duerksen, 2013). Stipends and scholarships, loans of computer equipment, counseling, and development of life management skills may be needed to overcome non-academic barriers to academic success related to students' personal and socio-cultural needs (Melillo, Dowling, Abdallah, Findeisen, & Knight, 2013). Non-academic indicators may be particularly relevant to nontraditional students enrolled in nursing programs.

Academic indicators. There are many academic indicators of success including class rank, course grades, GPAs, and standardized test scores. Some may be related to student nurse success. Several researchers have explored high school rank, preadmission and nursing prerequisite GPAs, achievement in specific non-nursing courses, Scholastic Aptitude Test (SAT) and American College Testing (ACT) scores, and critical thinking assessment scores as predictors of associate degree and baccalaureate student performance on NCLEX-RN (Grossbach & Kuncel, 2011; Hinderer, Dibartolo, & Walsh, 2014; Romeo, 2013; Trofino, 2013). Grossbach and Kuncel (2011) found the SAT, ACT, prenursing GPA, and nursing grades had positive correlations with NCLEX-RN success. HESI Admission (A^2) scores were associated with nursing GPA and NCLEX-RN success (Hinderer et al., 2014). In Romeo's (2013) study, nursing GPA and overall score on a critical thinking assessment examination were predictors of NCLEX-RN success. Researchers have also identified student performances in several non-nursing courses as predictors of student nurse success including biology, chemistry, and psychology courses (Abele, Penprase, & Ternes, 2013; Penprase, & Harris, 2013; Simon et al., 2013). Relevant academic indicators can be identified at various points in the educational continuum. In my review of current literature, I found that academic indicators can be classified as those related to college readiness, preadmission testing, performance in non-nursing courses, performance in nursing courses, GPA, exit testing, and NCLEX-RN (Chen & Voyles, 2013; Harding, 2010; Hinderer et al., 2014; Landry et al., 2010; & Langford & Young, 2013).

College readiness. High school rank, GPA, ACT, and SAT test scores are examples of academic indicators used to assess college readiness. Scott, Tolson, and Huang (2009) found a strong correlation between pre-college characteristics including high school rank and SAT scores, and retention of 630 mathematics and science majors at one university in the South. Scott et al. (2011) reported different outcomes when a similar study was performed with transfer students instead of freshman. High school performance and college admissions exams were not significant in predicting success when students transferred from two-year schools to four-year schools.

High school graduation does not guarantee college readiness. Nationally, only 26% of all students who took the ACT met all four benchmark scores consisting of English, math, reading, and science components (ACT, 2014). Harvey, Slate, Moore, Barnes, and Martinez-Garcia (2013) noted ACT benchmarks indicate a high probability of success in college level courses. During the past two years, the average ACT scores categorized by race and ethnicity are concerning. Of the following groups: Black and African American, American Indian and Alaska Native, White, Hispanic and Latino, and Asian, only Asian students met or exceeded the benchmarks for all components (ACT, 2013, 2014). Achieving a benchmark score on the SAT is also associated with a probability of success at a four-year college. Only 42.6% of students in the class of 2014 met the 1550 benchmark score on the SAT (College Board, 2014). Outcomes on the ACT and the SAT indicated many underrepresented minority students failed to achieve the benchmark scores. African American students (84.2%), Hispanic students (76.6%), and Native American students (66.5%) did not meet established benchmarks indicating a

need to further assess and address college readiness for all students (College Board, 2014). High school performance alone may not predict future college success; however, these academic indicators demonstrate a need for further research related to college readiness in general, and specific interventions to improve readiness in minority students.

Preadmission testing. Other types of tests may be useful for college admission decisions. Sternberg (2012) stated that standardized college admission tests, such as the ACT and SAT, correlate highly with socioeconomic status, and the scores on these tests reflect general knowledge and analytical skills. However, creative and practical skills (not reflected by these tests) also contribute to intelligence, as well as academic and career success. Creativity, flexibility, and the ability to adapt to change are essential skills contributing to success and require alternate assessment methods including creative writing, storytelling, and case studies (Sternberg, 2012). Hiss and Franks (2014) examined outcomes of admission decisions made without standardized testing and found no significant difference in cumulative GPA or graduation rates between students submitting or not submitting standardized test scores. The sample was 122,916 student and alumni records from 33 institutions. Cohen's *d* and chi-square analyses measured statistical variance. Optional testing policies may be beneficial to underrepresented minority students. Students not submitting standardized test scores are often first-generation-to-college members of a minority group or women (Hiss & Franks, 2014). A multifocal approach to admission decisions may reduce bias and promote social change by improving access to education for marginalized groups.

Preadmission assessments specific to a discipline or program are also used for admission decisions. The HESI Admission Assessment Examination (A^2) may be used for admission decisions in nursing programs. Multiple researchers have explored the use of the A^2 to predict nursing student success (Chen & Voyles, 2013; Knauss & Wilson, 2013; Hinderer et al., 2014; Underwood, Williams, Lee, & Brunnert, 2013). Chen and Voyles (2013) investigated the relationship between A^2 scores and final grades in first semester nursing courses of 506 ADN students and found A^2 scores were higher for students who completed three first-semester nursing courses. Knauss and Wilson (2013) used correlations to examine relationships between A^2 scores and final grades in first semester nursing courses in 157 ADN students. Similar to Chen and Voyles, Knauss and Wilson found the score on the A^2 was predictive of students' early academic success. An exploratory retrospective descriptive design was used by Hinderer et al. (2014) to explore relationships between A^2 and preadmission GPA, science GPA, and nursing GPA in 89 baccalaureate students. A^2 scores had statistically significant moderate positive correlations with nursing GPA and NCLEX-RN success. There was no relationship between the A^2 and timely progression. Underwood et al. (2013) stated baccalaureate students' A^2 scores were predictive of first semester nursing courses' final grades, and A^2 scores provided an objective measure of prospective students' ability to succeed in the BSN program. Underwood et al. calculated correlations to determine the strength of the relationship between A^2 scores and final grades in first semester nursing courses in a sample of 184 BSN students at one university and found as students' A^2 scores increased, final grades in first semester nursing courses increased. Relationships between A^2 scores

and first semester nursing course grade existed; however, Underwood et al. did not find a relationship between A^2 scores and overall student success consisting of on-time program completion and success on NCLEX-RN was identified. There is insufficient evidence to support the A^2 as a single predictor of success for associate degree and baccalaureate degree nursing students.

Performance in non-nursing courses. Non-nursing courses or prerequisite courses may be predictive of student nurse success. Abele et al. (2013) found a developmental psychology course was a significant predictor of completion in a BSN program for traditional and ASDN students who were on academic probation. The sample for this retrospective study was records of 327 baccalaureate students placed on probation or dismissed from one university. Abele et al. used logistic regression to examine the relationship between two predictor variables, total number of course failures and grade in a developmental psychology course, and successful program completion. Penprase and Harris (2013) tracked outcomes of 363 ASDN students and found a moderate relationship between a prenursing developmental psychology course and NCLEX-RN success. Penprase and Harris used correlation and regression analyses to examine relationships between non-nursing courses, nursing courses, and standardized tests and passing NCLEX-RN on the first attempt. The predictive value of the prenursing developmental psychology course found by Penprase and Harris lends support to Abele et al.'s research. Hinderer et al. (2014) and Simon et al. (2013) found biology courses and chemistry courses were predictive of nursing student success. Hinderer et al. used an exploratory retrospective descriptive design to compare undergraduate predictors

including A^2 scores, preadmission GPA, and science GPA with NCLEX-RN success and progression through the nursing program. Frequencies, percentages, and means described the data from records of 89 students; correlation and logistic regression were the tests used for statistical analyses. Simon et al.'s descriptive correlational study used transcripts of 171 baccalaureate students for data analysis. Biology courses, chemistry courses, and GPA appeared predictive of nursing student success; however, the presence of transfer credits for prerequisite science courses was more significant. Clearly, performance in non-nursing courses may be early indicators of student nurse success.

Performance in nursing courses. Several nursing courses, individually and collectively, predicted nursing student success in different types of nursing programs. ADN students who passed the pharmacology course and the advanced medical-surgical nursing course were likely to pass NCLEX-RN on the first attempt (Trofino, 2013). Penprase and Harris (2013) determined a nursing assessment course contributed to ASDN students' success on NCLEX-RN. Pitt et al. (2012) reviewed studies published from 1999 to 2011 and identified demographic, academic, cognitive, and personality or behavioral factors that may impact academic performance. The strongest indicator for predicting NCLEX-RN success for all types of nursing programs was performance in nursing courses throughout the program. Simon et al. (2013) found clinical courses predicted potential performance on NCLEX-RN scores. A variety of nursing courses throughout the curriculum may be academic indicators of nursing student success.

GPA. GPA is a common academic indicator. Usually based on a 0 to 4.0 scale, GPA is calculated from the total of all accumulated final grades divided by the number of

grades awarded (Great Schools Partnership, 2013b). Cumulative GPA or GPA at specific points during the curriculum may be useful indicators of student nurse success in traditional baccalaureate programs. Researchers have explored preadmission GPA, prerequisites GPA, nursing GPA, and GPA combined with other academic indicators as predictors of nursing student success (Grossbach & Kuncel, 2011; Hinderer, Dibartolo, & Walsh; 2014; Lavandera et al., 2011; Pitt et al., 2012). McGahee et al. (2010) found a combination of variables had more predictive power than a single variable. Preadmission GPA, science GPA, first semester GPA, and nursing GPA, individually and in combination with other academic indicators were identified as predictive of student success in traditional baccalaureate programs. Different types of nursing programs may have different expectations related to GPA.

To gain an understanding of the relationship of academic indicators to success in nontraditional programs, researchers have compared GPAs of students in various types of nursing programs. All college GPAs and nursing course GPAs were predictors of NCLEX-RN success in nontraditional programs (Landry et al, 2010; Payne & Mullen, 2014). ASDN programs generally require a GPA of 3.0 for admission and students typically maintain high GPAs throughout the program (AACN, 2009, 2010; Penprase & Harris, 2013). In contrast, Payne et al. (2014) found only a slightly higher average GPA for accelerated students (3.11) compared to traditional students (3.09). Simon et al. (2013) noted transfer students tend to be older and have higher GPAs than other students. Transfer credits may indicate a nontraditional student. Age and GPA may be factors related to nursing student success. There are many uses for GPA as an academic

indicator in nursing education. Admission decisions, progression, class rank, honors, and awards may be based on GPA. GPA, measured at various points in the curriculum may be one useful indicator of baccalaureate student nurse success.

Exit testing and NCLEX-RN. All nursing program graduates must pass a standardized licensure exam to practice; therefore, many programs implement standardized testing to prepare students for NCLEX-RN. Standardized exit testing can be used for benchmarking, assessing readiness for NCLEX-RN, and predicting NCLEX-RN success (Diefenbeck, Hayes, Wade, & Herrman, 2011; Harding, 2010; Langford & Young, 2013). Benchmarks allow comparison to other students and other programs and it can be used to assess program quality. Passing NCLEX-RN on the first attempt is an indicator of student success in addition to being an indicator of program quality. Harding (2010) stated, "The most widely reported relationships between standardized test scores and NCLEX-RN success are associated with the HESI Exit Examination" (p. 494).

Indicators of Success in Accelerated-Baccalaureate Nursing Programs

Some academic indicators may relate to student nurse success in the accelerated BS and ASDN programs associated with my project study. Score on the standardized final exam in the 200-level fundamentals course, cumulative GPA at completion of 200-level nursing courses, on-time program completion, a HESI E^2 score of 900 or higher, and passing NCLEX-RN on the first attempt are specific indictors used to evaluate accelerated-baccalaureate student nurse success (Payne et al., 2014; Payne & Mullen, 2014; Penprase & Harris, 2013). An understanding of relationships between academic indicators explored in my project study may assist educators to evaluate student success

at various points in the curriculum. These indicators can be further described as early or late indicators of academic success. In my project study, I focused on relationships between two early academic indicators, score on the standardized final exam in the 200-level fundamentals course and cumulative GPA at completion of 200-level nursing courses; and two late academic indicators, on-time program completion and a HESI E^2 score of 900 or higher.

Fundamentals exam. Educators use commercial standardized exams as final exams in individual courses throughout the curriculum (Carr, 2011; Grossbach & Kuncel, 2011; Harding, Rateau, & Heise, 2011). Eight standardized HESI Specialty Exams are available. Zweighaft (2013) found "HESI Specialty Exams were significantly predictive (P = .0001 to .0034) of NCLEX-RN success" (p. S12). The researcher employed an ex post facto nonexperimental design with a random stratified sample of diploma, ADN, and BSN students and investigated the value of administering HESI Specialty Exams throughout the curriculum. Zweighaft used HESI E^2 scores to measure the value of using HESI Specialty Exams. The mean HESI E^2 score for BSN users of HESI Specialty Exams was 848.4 compared to a mean HESI E^2 score of 824.5 for nonusers, and the odds ratio of passing NCLEX-RN when scoring 850 or higher on the HESI Fundamentals exam was 3.710 (Zweighaft, 2013). An odds ratio quantifies the relationship between exposure to a variable and the outcome of interest (Szumilas, 2010). In Zweighaft's study, exposure (HESI Fundamentals exam score of 850 or higher) was associated with higher odds of outcome (passing NCLEX-RN). Estimated reliability of HESI Specialty Exams ranged from 0.84 to 0.92 at the time of Zweighaft's study. This reliability

supported the use of HESI Specialty Exams to assess content mastery and as predictors of NCLEX-RN success.

Educators need to prepare students for success on NCLEX-RN, a computerized multiple choice test; therefore, use of computerized, standardized exams throughout the curriculum may promote student success. Thomas and Baker (2011) stated standardized testing creates the foundation for NCLEX-RN. The format of HESI test items is consistent with the format of NCLEX-RN test items. Score on the standardized final exam in the 200-level fundamentals course is one early academic indicator examined in my study. Nursing courses begin at the 200-level in the ASDN program and the accelerated BS program at the study site. Introducing standardized testing early in the nursing curriculum begins the process of preparing students to take NCLEX-RN.

Cumulative GPA. GPAs at early points in the curriculum may be useful indicators of student nurse success. Several researchers have explored preadmission GPA, prerequisite GPA, nursing GPA, and GPA combined with other academic indicators as predictors of success (Grossbach & Kuncel, 2011; Hinderer, Dibartolo, & Walsh; 2014; Lavandera et al., 2011; Pitt et al., 2012). Nursing GPA was one predictor of NCLEX-RN success for traditional university-based BSN students (Landry et al., 2010). Pitt et al. (2012) identified first semester GPA specifically as a predictor of success. This finding is consistent with McGahee et al. (2010) who noted students who were successful in the first level of nursing courses were likely to graduate from the nursing program. First semester nursing courses provide a foundation for subsequent nursing courses; therefore, performance at this level may be crucial to subsequent

success. There is limited research related to cumulative GPA in early nursing courses as a predictor of nursing student success in accelerated-baccalaureate nursing programs. Cumulative GPA at completion of 200-level nursing courses is an early academic indictor that will be examined in my project study.

On-time program completion. One late indicator of accelerated-baccalaureate student nurse success is completion of all degree requirements within the time frame identified in the institution's catalog (U.S. Department of Education, n.d.a). Student success may also be viewed as retention, persistence, or graduation, (Robertson, Canary, Orr, Herberg, & Rutledge, 2010). Most attrition occurs during the first year of the nursing curriculum (Chen & Voyles, 2013; Knauss & Wilson, 2013). Age may also be a factor in attrition. Pitt et al. (2012) stated attrition is more likely in younger students and those experiencing financial stress. Wray et al. (2012) stated older students were more likely to progress from the first to the second year of the nursing program than younger students. Pitt et al.'s integrative review included studies representing associate, diploma, and baccalaureate programs ranging in length and content. The researchers did not identify results specific to accelerated programs. Attrition in the first year would be an early indicator of success; however, attrition and nonprogression can occur at other points in the program and prevent on-time completion. Many factors are likely associated with on-time program completion; however, there is limited research relevant to on-time completion in accelerated-baccalaureate programs.

HESI E^2. Late academic indicators of baccalaureate student nurse success include exit exam scores and passing NCLEX-RN on the first attempt. A HESI E^2 score

of 900 of higher is 96.61% accurate in predicting passing NCLEX-RN (Zweighaft, 2013). Students take the HESI E [2], a comprehensive standardized exit exam, at program completion. The exam is one final indicator for assessment of student readiness for NCLEX-RN, and one final opportunity for intervention (Lauer & Yoho, 2013).

Two studies provide support for use of the HESI E^2 as an indicator of baccalaureate student nurse success. Langford and Young (2013) examined the use of HESI E^2 to assess students' readiness for NCLEX-RN and to predict NCLEX-RN success. The researchers investigated predictive accuracy of three different versions of the HESI E^2. The first version of HESI E^2 (V1) represented the initial test, followed by retests using versions V2 and V3. Langford and Young's random sample of 154 nursing programs was stratified by program type and included 26 BSN programs with 1500 BSN students. NCLEX-RN pass rates for students scoring 900 or higher on E^2 V1 was 98.32%. Pass rates for students retested with E^2 V2 and V3 dropped to 94.93% and 95.89% respectively (Langford & Young, 2013). Lauer and Yoho (2013) studied mean E^2 scores of students in programs that attached consequences to E^2 scores compared to mean E^2 scores of students in programs without consequences attached to the scores. Designated E^2 benchmark scores varied by participating schools; designated benchmarks were 900 (7 schools), 850 (31 schools), and benchmarks other than 850 or 900 (5 schools). The mean E^2 score for students attending schools with consequences for not meeting designated HESI benchmarks was 880.24 compared to a mean score of 833.76 for students attending schools without consequences for not meeting designated HESI benchmarks.

Passing NCLEX-RN on the first attempt is the ultimate academic indicator; however, once students graduate no opportunities for individual assessment or intervention exists. In addition, the NCSBN only reports aggregate NCLEX-RN pass rates. Individual student data is not available. Achieving the HESI E^2 benchmark score of 900 is consistent with passing NCLEX-RN; therefore, in my project study it is considered equivalent to NCLEX-RN as an academic indicator.

Cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course are early academic indicators. On-time program completion and a HESI E^2 score of 900 or higher are late academic indicators. Understanding relationships between early academic indicators and late academic indicators provides opportunities for educators to identify students at-risk for attrition or nonprogression. A correlational design is one methodology used to examine relationships between variables. Simon et al. (2013) used data obtained from 171 transcripts of baccalaureate students eligible to take the NCLEX-RN to examine relationships between potential educational predictors including course grades and NCLEX-RN readiness exam scores. Variables influencing NCLEX-RN readiness included grades in a foundational nursing course, GPA, and the presence of transfer credits. Second-degree students with a prior science degree and older students were other variables that influenced NCLEX-RN readiness scores.

Conclusion

Accelerated nursing programs have limited time for remediation; therefore, early intervention is critical to ensure student nurse success. Limited information is available

specific to indicators of academic success in different types of accelerated-baccalaureate nursing programs. A variety of indicators of academic success may be useful for monitoring accelerated-baccalaureate nursing students' progress, identifying students not meeting expected benchmarks, and implementing remediation for at-risk students. Educators in accelerated-baccalaureate nursing programs may benefit from an understanding of relationships between early academic indicators and accelerated-baccalaureate student nurse success to promote early intervention for at-risk students and improve the likelihood of student success.

Implications

My project study could provide the foundation for a remediation policy recommendation with detail or a remediation and retention curriculum plan. Both projects could address early identification of at-risk students and intervention to promote accelerated-baccalaureate nursing student success. A current and projected nursing shortage, and the need for a diverse nursing workforce requires a steady supply of diverse new graduates with the knowledge, skills, and abilities to pass NCLEX-RN and transition to safe and competent entry-level practice. Teaching practices and student support services must meet the needs of the student population and include strategies to increase retention of diverse students. Early identification and intervention with at-risk students may increase the likelihood of on-time program completion and passing NCLEX-RN on the first attempt.

An understanding of relationships between early academic indicators and baccalaureate student nurse success may help educators identify students who may

benefit from remediation. Programs may designate benchmarks for cumulative GPA at completion of 200-level courses and score on the standardized final exam in the 200-level fundamentals course. Students unable to meet these established benchmarks could be required to participate in remediation with an evidence-based structured curriculum. Remediation should consist of multiple strategies intended to meet the learning needs of diverse students. The remediation curriculum may include tutoring, mentoring, course review, test taking skills, and retesting.

Further research would be required to evaluate the effectiveness of remediation. Studies examining the relationships between scores on retests or subsequent tests and on-time program completion and a HESI E ^{2} score of 900 or higher may provide direction to educators to enhance or revise the remediation curriculum. Educators may also need to adapt their teaching to meet the needs of diverse students. An understanding of relationships between early academic indicators and baccalaureate student nurse success may help educators evaluate the effectiveness of their teaching.

Summary

Contemporary nursing education is faced with many challenges. Nurses need to be prepared with the knowledge, skills, and abilities to care for a diverse aging patient population. To ensure new nurse graduates are ready for safe and competent entry-level practice in the current health care environment, the NCSBN increased the NCLEX-RN passing standard in 2013 (NCSBN, 2013a, 2013b). Following the passing standard change, first time NCLEX-RN pass rates decreased reflecting a gap in practice. Nursing student success consisting of on-time program completion and passing NCLEX-RN on

the first attempt is necessary to meet the demand for new nurses. Educators need to respond to the passing standard change and subsequent decrease in NCLEX-RN pass rates to promote baccalaureate student nurse success and ensure an adequate nursing workforce.

One strategy to address decreased NCLEX-RN pass rate is my project study exploring the relationships between early academic indicators and accelerated-baccalaureate student nurse success. Cumulative GPA at completion of 200-level nursing courses and score on the final exam in the 200-level fundamentals course are two early academic indicators that may relate to on-time program completion and passing NCLEX-RN on the first attempt. Evidence of relationships between early academic indicators and student nurse success may provide support for monitoring student progress using early academic indicators. Early identification and early intervention for at-risk students is essential for remediation in the limited timeframe of an accelerated-baccalaureate nursing program.

Section 2 begins with a discussion of the research design used in my study of relationships between cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course, and on-time program completion and a HESI E^2 score of 900 or higher. I provide a rationale for my design choice and approach, and I describe setting and sample, as well as data collection and analysis. To complete the methodology section of the research proposal, I explain assumptions, limitations, scope, delimitations, and protection of participants' rights.

In Section 3, I describe my proposed project based on the findings from my research. I also discuss a rationale for my choice of the project genre and a review of literature related to my selected project genre. Finally, I explain the project evaluation plan and project implications to complete Section 3.

Reflections and conclusions comprise Section 4. I present project strengths and limitations, alternative approaches to address the problem, and a reflective analysis about personal learning, growth, and the importance of the work. My discussion of implications for positive social change and recommendations for future research concludes the project study.

Section 2: The Methodology

Introduction

Academic indicators may be used to monitor progress or predict success for accelerated-baccalaureate nursing students. Accelerated-baccalaureate nursing programs are rigorous, with a shortened time frame that limits opportunities for remediation. Understanding relationships between early academic indicators and accelerated-baccalaureate student nurse success may allow early identification of students requiring remediation. The purpose of this study was to examine whether cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course were related to on-time nursing program completion and a HESI E^2 score of 900 or higher in accelerated-baccalaureate nursing programs.

Research Design and Approach

My goal in this quantitative correlational study was to examine relationships between early and late academic indicators of accelerated-baccalaureate student nurse success. I chose an explanatory correlational research method to describe and measure the degree of association between two or more variables and the extent the variables co-varied (see Creswell, 2012). As Kim and Mallory (2014) have observed, "correlational research often provides a foundation for designing and testing interventions" (p. 176). Early academic indicators in this study were the independent variables of score on the standardized final exam in the 200-level fundamentals course and students' cumulative GPAs at completion of 200-level nursing courses. Late academic indicators of accelerated- baccalaureate student nurse success were the dependent variables of on-time

program completion and HESI E^2 scores of 900 or higher. In this study, I correlated scores on the standardized final exam in the 200-level fundamentals course and cumulative GPA at completion of 200-level nursing courses with on-time nursing program completion and a HESI E^2 score of 900 or higher.

Nonexperimental research includes descriptive and correlational studies. Descriptive research is used to gather or summarize opinions, beliefs, or perceptions; researchers use correlational studies to examine relationships among variables (Lodico, Spaulding & Voegtle, 2010; Polit & Beck, 2010). Correlational research includes explanatory and predictive designs. An explanatory correlational design is appropriate to explain or clarify the degree of association among two or more variables at one point in time (Creswell, 2012). In predictive studies, researchers examine correlations to identify variables that can predict changes in other variables measured at a later time (Lodico et al., 2010). I determined that a summary of perceptions or beliefs would not have been as useful for a study intended to identify accelerated-baccalaureate nursing students needing early intervention to promote the likelihood of their success; therefore, I did not use a descriptive design for the project study. As I noted in the previous paragraph, academic indicators may be used to monitor progress or predict success. The purpose of this study was to examine relationships between variables rather than to identify variables that predicted outcomes. The project study may promote an understanding of relationships of early academic indicators to accelerated-baccalaureate student nurse success and provide a foundation for a remediation curriculum for at-risk students. Understanding

relationships of early academic indicator variables to accelerated-baccalaureate student nurse success variables is necessary to assess progress early for timely intervention.

Setting and Sample

The setting for this study was one university in the Northeast with accelerated-baccalaureate nursing programs on three campuses. An accelerated BS program is offered on one campus, and ASDN programs are offered on the other two campuses. All enrolled students follow the same nursing curriculum, and take a standardized final exam in the 200-level fundamentals course and the HESI E^2 at the end of the program. The sample for the study consisted of 842 students who graduated in the years 2011 to 2014. I selected these years because programs on all campuses have been in existence, and the program dean reported that the standardized final exam in the 200-level fundamentals course and the HESI E^2 have been consistently administered during this time. This time frame also represented 2 years prior to, and 2 years following the NCLEX-RN passing standard change and subsequent decrease in NCLEX-RN first time pass rates.

I used nonprobability convenience sampling. Archival data from 2011 to 2014 consisting of student records maintained by the registrar and summary reports available from the standardized testing vendor were accessible and provided all necessary information. A nonrandom convenience sample limited generalizability, but the purpose of the study was to use the results to make decisions within the university; therefore, the sampling method was appropriate (see Lodico et al., 2010).

The sample of 842 students consisted of all students who took the standardized final exam in the 200-level fundamentals course and the HESI E^2, and who completed the program between 2011 and 2014. One approach to identifying an appropriate sample size is a power analysis. I conducted an a priori power analysis to estimate the sample size required to detect statistical significance and reject the null hypothesis (Kim & Mallory, 2014). Power analysis considers the level of statistical significance (alpha [α]), the desired power, and effect size (Creswell, 2012). Parameters for this study included α of .05, power of .80, and a small effect size. A significance level (α) of .05 indicated a probability that 5 out of 100 times the observed values were due to chance, and "the power needed to reject the hypothesis when it is false, [is] typically set at .80" (Creswell, 2012, p. 611). Cohen (1992) also proposed α = .05 and .80 power for general use. Effect size measures the strength or magnitude of an effect, difference, or relationship between variables (Kim & Mallory, 2014). A large sample (the population) was available; therefore, a small effect size was appropriate for this study. Rodriguez (2007) noted small effects may be important when applied to a population. Using the parameters for the study (α = .05, p = .80, and small effect size), N = 783 was the necessary sample size (see Cohen, 1992). I used a sample of 842 students, which was supported by power analysis.

The eligibility criteria for study participants included taking the standardized final exam in the 200-level fundamentals course and the HESI E^2, and completing the program between 2011 and 2014; there were no other inclusion or exclusion criteria. Archival data in the form of student records was the only source of study data; therefore, there was

not any recruitment of individual study participants. Student records I used in the study consisted of scores on the standardized final exam in the 200-level fundamentals course, the HESI E^2 score, and course grades for all 200-level nursing courses. Cumulative GPA at completion of 200-level nursing courses was calculated from course grades. On-time program completion was determined from the date of the fundamentals final exam, the date of the HESI E^2, and dates of the 200-level nursing courses. All students in the accelerated-baccalaureate nursing programs (accelerated BS and the ASDN) followed the same nursing curriculum, and they took the same standardized tests. Differences in the characteristics of the sample may have applied to students enrolled in the two different programs. The accelerated BS program was a direct-entry program for first year college students or transfer students who completed one semester of college coursework. There were no specific prerequisite requirements for entry into the accelerated BS program, but prior performance in math and science was reviewed. According to my study site's website, transfer students required a minimum GPA of 2.5 for admission; however, the average GPA was 3.2. Students in the ASDN program already had a bachelor's degree and they completed prerequisites including anatomy, physiology, chemistry, microbiology, human development, and statistics. A minimum overall GPA of 2.7 was required for admission to the ASDN program. All programs were accelerated with a consistent curriculum; however, differences in the characteristics of the sample may have existed. Differences related to traditional and nontraditional students may have included age, background, residence, level of employment, and financial status (Pelletier, 2010; U.S. Department of Education, n.d.b). Both accelerated-baccalaureate nursing programs

included traditional and nontraditional students. The sample may have had differences in age, background, residence, level of employment, and financial status, which I note in the limitations section.

Instrumentation and Materials

I obtained HESI test scores from HESIinet.com, and 200-level nursing course grades were obtained from the registrar's office at the university. I calculated cumulative GPAs at completion of 200-level nursing courses from course grades. On-time program completion was identified from the date of the fundamentals final exam, the date of the HESI E^2, and dates of the 200-level nursing courses.

I entered all data in one spreadsheet using student identification numbers to match data across all data points (scores on the HESI fundamentals final exam and HESI E^2, and cumulative GPA at completion of 200-level courses). Data for on-time program completion was extrapolated from the date of the fundamentals final exam, the date of the HESI E^2, and dates of the 200-level nursing courses.

All raw electronic data were kept in a password-protected file, and hard copies of data were stored in a locked filing cabinet. Access to the data was limited to me, a statistician, the HESI test administrator, and members of my dissertation committee. I obtained confidentiality agreements from the statistician and the HESI test administrator, and submitted signed agreements with the Walden University Institutional Review Board (IRB) application. I will delete electronic data and shred hard copy data 3 years after completion of the project study.

Data Collection and Analysis

I obtained approvals from the IRB at the study site (IRB102814W) and the IRB at Walden University (01-21-16-0382752). In addition, I received authorization from the dean and the registrar at the study site to access student records related to HESI outcomes, GPAs, course grades, or other information related to attrition, progression, and program completion.

The primary sources of information for the variables were post hoc archival data from the university. The independent variables, fundamentals final exam scores and GPAs, were continuous data and were measured on interval/ratio continuous scales. GPA was measured on a scale from 0 - 4.0 and the fundamentals final exam score was measured on a scale from 0 - 100. The dependent variables, program completion and a HESI E^2 score of 900 or higher, were measured as dichotomous categorical variables such as *complete* or *did not complete*, and *score achieved* or *score not achieved*. A HESI E^2 score of 900 or higher is a composite score measured on a scale ranging from 0 – 1500, and correlates to predicted success on NCLEX-RN (Elsevier, 2017b; "HESI Exit," 2017). Scores ranging from 900 – 940 reflect an excellent probability of passing NCLEX-RN.

Descriptive statistics related to test scores, cumulative GPA, and on-time completion included measures of central tendency and variability. Lodico et al. (2010) reported that researchers use descriptive statistics to summarize and demonstrate patterns in data. I used point-biserial correlation for statistical analysis of the data. I chose this statistical test based on the research questions and the levels of measurement for the

independent and dependent variables. Point-biserial correlation is an appropriate correlation statistic when one variable is measured on a continuous scale and one is measured on a dichotomous scale (Creswell, 2012). An $\alpha = .05$ was used to determine statistical significance. Cohen (1992) supported an $\alpha = .05$ for general use.

Data Analysis Results

Descriptive Data

I included mean, standard deviation, and range of interval variables of cumulative GPA at completion of 200-level nursing courses and score on the final exam in the 200-level fundamentals course for descriptive purposes. The mean score on the standardized final exam in the 200-level fundamentals course was 81.37, and the standard deviation of 11.82, and range 58.03 indicated a wide spread of exam scores. Statistics for cumulative GPA at completion of 200-level nursing courses were a mean of 3.09, standard deviation of 0.44, and range of 2.16 (see Table 1). To provide some context for these statistics, at the study site, students need an overall professional GPA of 2.7 to graduate and the minimum passing grade for all courses is a 78.

Table 1

Frequency Statistics of Early Academic Indicators

		Fundamentals Final Exam Score	Cumulative GPA 200-level
N	Valid	842	842
	Missing	0	0
Mean		81.37	3.09
Std. Deviation		11.82	0.44
Range		58.03	2.16

I used frequencies to describe the variables measured at the nominal level. On-time program completion (yes = 2, no = 1) and a HESI E^2 score of 900 or higher (yes = 2, no = 1) were nominal data. Seven hundred seventy-nine students (92.5%) completed the program on time and 63 students (7.5%) did not complete on time (see Table 2). Only 289 students (34.3%) scored a 900 or higher on the HESI E^2. The other 553 students (65.7%) did not reach this benchmark representing the equivalent of passing NCLEX-RN in the study (see Table 3).

Table 2

Frequency: On-time Completion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	63	7.5	7.5	7.5
	2.00	779	92.5	92.5	100
	Total	842	100	100	

Note. On-time completion Yes = 2, No = 1

Table 3

Frequency: HESI $E^2 \geq 900$

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	553	65.7	65.7	65.7
	2.00	289	34.3	34.3	100
	Total	842	100	100	

Note. HESI E^2 score of $\geq$ 900 Yes = 2, No = 1

Research Questions

RQ1: What is the relationship between the score on the standardized final exam in the 200-level fundamentals course and on-time nursing program completion?

H_o1: There is no relationship between the score on the standardized final exam in the 200-level fundamentals course and on-time nursing program completion.

H_a1: There is a relationship between the score on the standardized final exam in the 200-level fundamentals course and on-time nursing program completion.

I calculated point-biserial correlations to examine the relationship between the score on the standardized final exam in the 200-level fundamentals course and on-time nursing program completion. I found a significant moderate positive correlation (r_{pb} 840 = .30, $p < .001$) between the two variables. Students who have higher scores on the standardized final exam in the 200-level fundamentals course tend to complete the program on time. The null hypothesis was rejected and the alternate hypothesis was accepted (see Table 4).

Table 4

Correlations: Fundamentals Final Exam Score and On-time Completion

		Fundamentals Final Exam Score	On-Time Completion
Fundamentals Final Exam Score	Pearson Correlation	1	.30***
	Sig. (2-tailed)		.000
	N	842	842
On-time Completion	Pearson Correlation	.30***	1
	Sig. (2-tailed	.000	
	N	842	842

Note. ***Correlation is significant at the < 0.001 level (2-tailed).

RQ2: What is the relationship between cumulative GPA at completion of 200-level nursing courses and on-time nursing program completion?

$H_0$2: There is no relationship between cumulative GPA at completion of 200-level nursing courses and on-time nursing program completion.

H_a2: There is a relationship between cumulative GPA at completion of 200-level nursing courses and on-time nursing program completion.

I calculated a point-biserial correlation to examine the relationship between cumulative GPA at completion of 200-level nursing courses and on-time nursing program completion. I found a significant moderate positive correlation (r_{pb} 840 = .41, $p < .001$) between the two variables. Students who have higher cumulative GPAs tend to complete the program on time. The null hypothesis was rejected and the alternate hypothesis was accepted (Table 5).

Table 5

Correlations: Cumulative GPA 200-level and On-time Completion

		Cumulative GPA 200-level	On-Time Completion
Cumulative GPA 200-level	Pearson Correlation	1	.41***
	Sig. (2-tailed)		.000
	N	842	842
On-time Completion	Pearson Correlation	.41***	1
	Sig. (2-tailed)	.000	
	N	842	842

Note. ***Correlation is significant at the < 0.001 level (2-tailed).

RQ3: What is the relationship between the score on the standardized final exam in the 200-level fundamentals course and a HESI E^2 score of 900 or higher?

H_o3: There is no relationship between the score on the standardized final exam in the 200-level fundamentals course and a HESI E^2 score of 900 or higher.

H_a3: There is a relationship between the score on the standardized final exam in the 200-level fundamentals course and a HESI E^2 score of 900 or higher.

I calculated a point-biserial correlation to examine the relationship between the score on the standardized final exam in the 200-level fundamentals course and a HESI E^2 score of 900. I found a significant moderate positive correlation (r_{pb} 840 = .41, $p < .001$) between the two variables. Students who have higher scores on the standardized final exam in the 200-level fundamentals course tend to have a HESI E^2 score of 900 or higher. The null hypothesis was rejected and the alternate hypothesis was accepted (Table 6).

Table 6

Correlations: Fundamentals Final Exam Score and HESI E $^2 \geq$ 900

		Fundamentals Final Exam Score	HESI E ^{2} $\geq$ 900
Fundamentals Final Exam Score	Pearson Correlation	1	.41***
	Sig. (2-tailed)		.000
	N	842	842
HESI E $^2 \geq$ 900	Pearson Correlation	.41***	1
	Sig. (2-tailed	.000	
	N	842	842

Note. ***Correlation is significant at the < 0.001 level (2-tailed).

RQ4: What is the relationship between cumulative GPA at completion of 200-level nursing courses and a HESI E^2 score of 900 or higher?

H_o4: There is no relationship between cumulative GPA at completion of 200-level nursing courses and a HESI E^2 score of 900 or higher.

H_a4: There is a relationship between cumulative GPA at completion of 200-level nursing courses and a HESI E^2 score of 900 or higher.

I calculated a point-biserial correlation to examine the relationship between cumulative GPA at completion of 200-level nursing courses and a HESI E^2 score of 900 or higher. I found a significant moderate positive correlation (r_{pb} 840 = .49, $p < .001$) between the two variables. Students who have higher cumulative GPAs tend to have a HESI E^2 score of 900 or higher. The null hypothesis was rejected and the alternate hypothesis was accepted (Table 7).

Table 7

Correlations: Cumulative GPA 200-level and HESI E $^2 \geq$ 900

		Cumulative GPA 200-level	HESI E ^{2} $\geq$ 900
Cumulative GPA 200-level	Pearson Correlation	1	.49***
	Sig. (2-tailed)		.000
	N	842	842
HESI E $^2 \geq$ 900	Pearson Correlation	.49***	1
	Sig. (2-tailed)	.000	
	N	842	842

Note. ***Correlation is significant at the < 0.001 level (2-tailed).

Discussion

The purpose of this study was to examine whether early academic indicators including cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course were related to accelerated-baccalaureate student nurse success identified as on-time program completion and a

HESI E^2 score of 900 or higher. Knowledge, skills, and abilities for safe and competent entry-level practice are important components of nursing student success and these attributes cannot always be directly observed. Through a review of the literature, I identified many methods intended to assess nursing knowledge and readiness for nursing practice including standardized testing, performance in nursing courses, and GPA. CTT provides the framework for my project study and lends support for use of scores on examinations to assess clinical proficiency that is unobserved (see DeChamplain, 2010).

Standardized tests and GPAs are academic indicators used in my project study to assess nursing knowledge, skills, and abilities. The standardized tests include the final exam in the 200-level fundamentals course and the HESI E^2. These methods of assessing nursing knowledge and competence are well founded based on CTT and the review of the literature (Landry et al., 2010; Lauer & Yoho, 2013; Simon et al., 2013; Zweighaft, 2013). I found statistically significant, moderate positive correlations between the early academic indicators (cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course), and accelerated-baccalaureate student nurse success (on-time program completion and a HESI E^2 score of 900 or higher). Nurse educators who understand the relationships between early academic indicators and accelerated-baccalaureate student nurse success may intervene with students at-risk of not completing the nursing program on-time or achieving a HESI E^2 score of 900 or higher. Students with low cumulative GPA at completion of 200-level nursing courses and low scores on the standardized final exam in

the 200-level fundamentals course can be identified early in the program when there is time to benefit from intervention.

Cumulative GPA at completion of 200-level nursing courses was related to a HESI E^2 score of 900 or higher and also to on-time program completion. I viewed a HESI E^2 score of 900 or higher as the equivalent of passing NCLEX-RN in the project study. Score on the standardized final exam in the 200-level fundamentals course correlated with a HESI E^2 score of 900 or higher and on-time program completion. Similar to the project study, Landry et al. (2010) and Simon et al. (2013) found nursing program GPA and course grades were associated with NCLEX-RN success. Lauer and Yoho (2013) suggested mandatory remediation for students who did not meet established benchmarks on standardized exams contributed to student success. Zweighaft (2013) indicated HESI Specialty Exams were useful to assess student progress and guide remediation. In addition, Zweighaft noted scores on the HESI E^2 were higher when HESI Specialty Exams were used as final exams. Use of cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course as early academic indicator to identify students at risk and in need of remediation is consistent with prior research (see Landry et al., 2010; Lauer & Yoho, 2013; Simon et al., 2013; Zweighaft, 2013).

Similar findings were noted in the project study and in prior research; however, differences in the studies were identified (Landry et al., 2010; Lauer & Yoho, 2013; Simon et al., 2013; Zweighaft, 2013). Landry et al. (2010) explored relationships between nursing program GPA and grades in multiple nursing courses, and NCLEX-RN

success among students in three different prelicensure programs which included a master's entry program, a BSN program, and a satellite BSN program. The researchers found nursing program GPA correlated with NCLEX-RN success among all cohorts; however, individual courses predictive of NCLEX-RN success varied by program type. Simon et al. (2013) investigated grades in prerequisite courses, grades in clinical nursing courses, and overall GPA as predictors of NCLEX-RN readiness for students in a BSN program and found biology grades, chemistry grades, and overall GPA predicted student success. While Landry et al. and Simon et al. identified relationships between GPA and performance on NCLEX-RN; findings were not specific to one program type or to early academic indicators which are essential for early identification and intervention for at-risk accelerated-baccalaureate nursing students.

Lauer and Yoho (2013) investigated standardized testing and remediation policies, as well as outcomes on NCLEX-RN among diploma, ADN, and BSN nursing programs. Study findings suggested remediation should be mandatory for students who do not achieve a predetermined HESI E^2 benchmark score. Typically the designated benchmark score was 850 or 900. The HESI E^2 is usually administered during the final semester of the nursing program to assess readiness for NCLEX-RN; therefore, required remediation and retesting occurs at the end of the nursing program, which may interfere with on time program completion if a student fails to achieve the benchmark. Zweighaft (2013) found the HESI E^2 was predictive of NCLEX-RN success. Study findings also demonstrated that students who take HESI Specialty Exams had higher HESI E^2 scores compared to students who do not take standardized exams specific to individual nursing

courses. All HESI Specialty Exams were associated with higher HESI E^2 scores and subsequent success on NCLEX-RN.; however, not all HESI Specialty Exams were used as final exams. Zweighaft also noted the most predictive HESI Specialty Exams were those associated with courses taken after the 200-level courses (critical care, pediatrics, and medical-surgical nursing). My study's findings, as well as prior research findings, indicated relationships between GPA and outcomes of standardized testing, and student nurse success (Landry et al, 2010; Lauer & Yoho, 2013; Simon et al., 2013; Zweighaft, 2013). One important difference is my project study focused on identifying early academic indicators of accelerated-baccalaureate student nurse success for the purpose of early identification and intervention for at-risk students.

Assumptions, Limitations, Scope and Delimitations

Some assumptions related to the project study included the following: nursing students want to be successful in completing their program on-time and passing NCLEX-RN on the first attempt; nursing students exert an honest effort to do well on standardized exams; and nurse educators are invested in their students' success. One justification for these assumptions was students enter a nursing program to become a nurse which requires passing tests, achieving designated GPAs or benchmarks, program completion, and passing NCLEX. Another justification was student success reflects teacher effectiveness and program quality; therefore, educators want to promote student nurse success.

Methodological limitations can impact credibility or generalizability of the research findings (Burns & Grove, 2009). One limitation of the project study was the

single setting of one school of nursing. Another limitation was the sample was not representative of all nursing students; only data related to accelerated-baccalaureate nursing students was used. A potential limitation was related to differences between traditional and nontraditional students. Age, gender, race, or ethnicity may have influenced study findings; however, these characteristics were not specifically addressed in my project study. Further research is needed to explore the relationships between these student characteristics and accelerated-baccalaureate student nurse success.

The scope of the project study was relationships between cumulative GPA at completion of 200-level nursing courses and score on the final exam in the 200-level fundamentals course (early academic indicators) and on-time program completion and a HESI E^2 score of 900 or higher (accelerated-baccalaureate student nurse success) to meet the objectives of early identification and intervention with at-risk students to improve NCLEX-RN pass rates. I chose this project study and addressed the local problem of decreased NCLEX-RN pass rates following an increase in the NCLEX-RN passing standard. Delimitations were the inclusion of all accelerated-baccalaureate nursing students at my study site who completed programs between 2011 and 2014.

Protection of Participants' Rights

I used several measures for protection of participants' rights. Confidentiality of data was maintained by limiting access to research data. Only individuals directly involved in the research process or those who signed a confidentiality statement had access to the research data. Following completion of data transfer from multiple sources to a SPSS spreadsheet, all students' identifying information was deleted and replaced

with arbitrary numbers. A password is necessary to access electronic data and paper files are stored in a locked filing cabinet. All raw data will be deleted or destroyed three years after completion of the project study.

Disclosure of education records is governed by The Family Educational Rights and Privacy Act (FERPA). Under FERPA, disclosure of personal information from students' educational records generally requires informed consent; however, one exception to written consent is the use of educational records by an individual with a legitimate educational interest in the information (U.S. Department of Education, 2011) Data use agreements regarding access to student records were obtained from the dean and the registrar at my study site. The project study was approved by the IRB at my study site and the IRB at Walden University.

The rationale for the project study was improving accelerated-baccalaureate students' NCLEX-RN pass rates. I viewed improved NCLEX-RN pass rates as a benefit of my study. Data used in the project study already existed and access to student records occurred after students graduated; therefore, I did not identify any risks related to my study. Burns and Grove (2009) noted studies involving student records have no anticipated effects on the participants as the researcher does not interact with the participants. To ensure I protected research participants from risks associated with my study, I completed of the National Institute for Health's (n.d.) *Protecting Human Research Participants* training.

Conclusion

A correlational design was used for my study of relationships between early academic indicators and accelerated-baccalaureate student nurse success. I interpreted outcomes in relation to the research problem of decreased NCLEX-RN pass rates for students at one university following an increase in the NCLEX-RN passing standard in 2013, and in relation to the overarching research question whether cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course were related to on-time nursing program completion and a HESI E ^{2} score of 900 or higher.

I obtained data from records of students who completed nursing programs between 2011 and 2014. Student data used in my study included 200-level nursing course grades, scores on the standardized final exam in the 200-level fundamentals course, and scores on the HESI E^2. I calculated cumulative GPAs at completion of 200-level nursing courses from course grades; and I determined on-time program completion using dates of the 200-level fundamentals final exam, dates of the HESI E^2, and dates of the 200-level nursing courses. Point-biserial correlation was the test I used for statistical analysis. This statistical test was chosen based on the interval level independent variables and nominal level dependent variables.

Following completion of the research, I developed the project component. Based on the moderate positive correlations indicating relationships between cumulative GPA at completion of 200-level nursing courses and score on the final exam in the 200-level fundamentals course, and on-time program completion and a HESI E^2 score of 900 or

higher, I considered two potential project genre including a remediation policy recommendation with detail or a remediation and retention curriculum plan. Both projects could address early identification of at-risk students using cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course, and intervention consisting of participation in remediation intended to increase the likelihood of on-time program completion and a HESI E^2 score of 900 or higher. There is currently no formal remediation policy at my study site and there is limited literature to provide specific recommendations for a remediation policy for accelerated-baccalaureate nursing students; therefore, I selected a curriculum plan for the project genre.

Section 3: The Project

Introduction

The purpose of this project study was to examine whether two early academic indicators, cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course, were related to accelerated-baccalaureate student nurse success, which I identified as on-time program completion and a HESI E^2 score of 900 or higher. I analyzed data from student records using point-biserial correlation. Based on the significant moderate positive correlations indicating there were relationships between early academic indicators and the indicators of accelerated-baccalaureate student nurse success, I developed a curriculum plan for a proposed remediation and retention program that I titled Taking Steps for Success. Participation in the program is mandatory for students who fail a 200-level course, students scoring below a 78 on the standardized final exam in the 200-level fundamentals course, and students with a cumulative GPA below 2.7 at the end of 200-level courses. Criteria for mandatory participation are based on the study site's 2016 academic standards.

In Section 3, I describe Taking Steps for Success and my goals for the project, and then I provide my rationale for choosing a curriculum plan for the project study and a review of current literature related to curriculum development. The project, evaluation plan, and project implications related to social change for the local stakeholders (student, student's family, and student's community) and the larger patient community are also discussed in Section 3. Appendix A provides specific details of the curriculum plan.

Project Goals

The goals of the project are development and implementation of a 10-week concept-based curriculum plan focused on study strategies, tips for test success, and remediation of fundamental nursing concepts. This remediation and retention intervention begins with a review of basic skills of time management, note-taking, and studying to optimize student learning (see Custer, 2016). Other strategies involve a variety of evidence-based teaching methodologies using resources and technology already in place to engage students in active learning. Case studies, critical thinking activities, work sessions to reinforce classroom instruction, and an additional testing program consisting of NCLEX-RN-style review questions allow students to examine, understand, apply, and analyze nursing concepts (see Cherkis & Rosciano, 2015; Olinger, 2011).

Rationale

A remediation and retention curriculum was the project genre I chose to provide support in the form of supplemental instruction for at-risk students identified using two early academic indicators including cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course. I selected this curriculum plan following consideration of the data analysis and the significant moderate positive correlations indicating relationships between these two early academic indicators and accelerated-baccalaureate student nurse success described as on-time program completion and a HESI E^2 score of 900 or higher. Students deemed at-risk may lack an in-depth understanding of the fundamental nursing concepts

presented in the 200-level nursing courses. Without this foundation, students may not be able to understand more advanced concepts that will be presented in subsequent nursing courses.

Remediation is appropriate for students without the necessary knowledge to pass an individual course, and for students with poor study habits, learning disabilities, or difficulty with the English language (Ciampa & Revels, 2012). Many factors contribute to the need for remediation. Older students, immigrants, and students transferring from other colleges or universities may be underprepared in prerequisite courses, or prerequisites may have been waived for students with specific work and life experiences.

Researchers have explored various remediation and retention strategies to address nursing student attrition and promote NCLEX-RN success (Baker, 2010; Harding, 2012; Horton, Polek, & Hardie, 2012). Harding (2012) evaluated student success following an optional 15-week one-credit-hour supplemental nursing course for students enrolled in an associate degree program. This intervention, prompted by a downward trend in NCLEX-RN pass rates, included use of case studies and open-book exams, followed by analysis of test questions and self-paced tutorials. Measures used to assess success were grades in the final two nursing courses and score on the HESI E^2. The supplemental instruction had an immediate effect on academic success; however, there was no statistically significant difference between students in the supplemental course and the remainder of the class on the HESI E^2. Baker (2010) investigated strategies used for the purpose of retaining minority students. Faculty availability, timely feedback on test performance, computer-based self-study programs, and special instruction in test-taking skills were

identified as the strategies most frequently used by baccalaureate programs. Horton et al. (2012) compared a standard remediation process using two to four tutorials in each course and a commercial RN predictor exam in the final semester, to an enhanced remediation process consisting of 7 to 10 tutorials followed by additional review material that was timed. The tutorials were a component of the final course grade calculations. Students in the enhanced remediation group had a 13.1% higher NCLEX-RN pass rate.

Harding (2012) and Horton et al. (2012) studied remediation in associate degree programs, and Baker (2010) explored retention strategies in baccalaureate and associate degree programs. It appears that use of a variety of remediation strategies is necessary for student nurse success; however, it is unclear if all strategies are effective for both associate degree and baccalaureate nursing students. Poor student retention is a worldwide problem. Mooring (2016) examined the literature and noted no single intervention will address the problem. Following admission, aggressive academic advising programs that identify at-risk students early, and retention programs woven into the curriculum are needed to combat attrition.

Cannon and Boswell (2016) stated curriculum is what occurs between persons in the educational setting, and it is a working process intended to result in learning. A curriculum plan is the totality of philosophical approaches, design, delivery, goals and outcomes, content, teaching-learning strategies, and evaluation methods used to prescribe a body of knowledge and the methods used to communicate this body of knowledge (Iwasiw, Goldenberg, & Andrusyszyn, 2009). Taking Steps for Success, the curriculum plan I developed for the project study, is designed to promote learning related to the

fundamental concepts of nursing practice and provide a strong foundation for future learning of advanced nursing concepts, which may increase the likelihood of student success demonstrated by on-time program completion and a HESI E^2 score of 900 or higher.

A concept-based curriculum assists students in moving beyond memorization of facts and promotes students' abilities to integrate nursing theory into evidence-based nursing practice across the lifespan, and across the continuum of care. The dynamic health care environment combined with the rapid generation of new information makes it impossible to teach everything that is known in nursing. Content saturation occurs when faculty attempt to cover all information included in nursing textbooks (Giddens, Caputi, & Rodgers, 2015). Limiting the number of concepts and allowing students to gain an in-depth understanding of those concepts addresses content saturation and provides students with the necessary foundation to develop conceptual thinking skills that lead to clinical judgement (Giddens et al., 2015). Conceptual teaching and learning fosters students' ability to make connections to previous learning, apply concepts in multiple contexts, and understand interrelated concepts (Giddens & Brady, 2007). These abilities are necessary for students' acquisition of the knowledge, skills, and abilities for safe, competent entry-level practice. Taking Steps for Success is an add-on to the university's core curriculum for students identified as at-risk based on cumulative GPA at completion of 200-level nursing courses and score on the standardized final exam in the 200-level fundamentals course.

Review of the Literature

In this literature review, I discuss the literature search strategies used, theoretical foundation, and elements related to curriculum development and the specific curriculum plan for a remediation and retention program for accelerated-baccalaureate nursing students. Examples of these elements are backward design (BD), Bloom's taxonomy, concept-based teaching and learning, and assessment and evaluation. Two guiding documents for baccalaureate nursing education, the *201*6 *NCLEX-RN Detailed Test Plan* (NCSBN, 2015b) and the *Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008) served as other important resources for curriculum development.

Introduction

Accelerated-baccalaureate nursing students must develop the knowledge, skills, and abilities for safe and competent entry-level practice. Students must also have the ability to adapt to changing situations and changing environments. A curriculum plan for a remediation and retention program may help accelerated-baccalaureate nursing students develop the conceptual thinking skills necessary for program success and success on NCLEX-RN.

I searched CINAHL and Education Research Complete databases for articles related to elements of curriculum development and concept-based teaching and learning. Keywords used in the searches (singularly and in combination) included *backward design*, *Bloom's Taxonomy*, *BSN*, *concept-based curriculum*, *concept-based learning*, *concept-based teaching*, *concept-based education*, *curriculum development*, and

essentials of baccalaureate education. Initially, I limited the database searches to peer-reviewed journal articles published in English from 2011 to 2016. However, I expanded the search to include other types of resources and older publications due to insufficient information. Textbooks on curriculum development, assessment and evaluation, and concept-based teaching were also reviewed, as were the 2016 *NCLEX-RN Detailed Test Plan* (NCSBN, 2015b) and the *Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008).

Theoretical Foundation

Constructivism is a learning theory that supports active learning and knowledge construction through real-life experience (Billings & Halstead, 2012; Cannon & Boswell, 2016). A major theme of constructivism is that learners construct new ideas and concepts from past knowledge (Brandon & All, 2010). This theory aligns well with nursing education. Students build on previous knowledge of fundamental concepts, integrate new information to develop new ideas, and construct new knowledge of more advanced concepts. Cognitive frameworks help students organize and interpret information, and subsequently integrate new information into preexisting frameworks (Giddens et al., 2015).

A conceptual teaching approach is consistent with constructivism. Iwasiw et al. (2009) stated that a curriculum based on constructivism helps students interpret and make meaning of knowledge and experiences. Giddens et al. (2015) noted three categories of concepts that are used to organize teaching and learning: professional nursing and health care concepts, health and illness concepts, and health care recipient concepts.

Some of the same nursing content in traditional curricula is also presented using a concept-based curriculum. The significant difference is how content is organized and presented. A traditional linear teaching approach focuses on body systems and disease. Using the nonlinear approach associated with conceptual teaching, faculty focus on specific concepts. Some of the traditional content related to body systems and disease may be presented as exemplars of the concepts. Erickson (2002) stated that when a conceptual lens is used, "the focus of teaching and learning becomes new ideas that can be taken forward and applied in new but related contexts" (pp. 66-67). Students link new information to interrelated concepts, which facilitates transfer of information to other concepts and content. This process of linking new knowledge to prior knowledge, and applying information to different contexts is essential for safe and competent entry-level practice in a dynamic health care environment. An ability to construct new knowledge from new perspectives and experiences is also critical for nurses to adapt to a complex and often chaotic and dysfunctional health care system, and to maintain good nursing practice (Benner, Sutphen, Leonard, & Day, 2010). In short, constructivism is a learning theory particularly relevant to nursing education, concept-based teaching, and nursing practice.

Curriculum Development

Curriculum development ranges from refinements of an existing curriculum to creation of a new curriculum. The primary purpose of curriculum development in nursing education is creation of a learning environment that promotes acquisition of knowledge, skills, and abilities necessary for safe and competent entry-level practice

(Iwasiw et al., 2009). Taking Steps for Success is a refinement of an existing curriculum in the form of supplemental instruction. I developed this curriculum using McTighe and Wiggins' (2012) Understanding by Design (UBD) framework and the three-stage backward design process for curriculum planning.

Backward design (BD) method. Educators who use the three-stage BD method and the UBD framework for curriculum development begin with identifying the desired results based on a review of applicable standards and outcomes (Florian & Zimmerman, 2015). Working backward from this point, educators determine assessment evidence followed by planning learning experiences and instruction (McTighe & Thomas, 2003; McTighe & Wiggins, 2012; Wiggins & McTighe, 1998). This approach is similar to a nursing plan of care; nurses identify patient goals including how and when goals will be measured, followed by the interventions needed to reach these goals. I developed the Taking Steps for Success curriculum beginning with the desired end result of accelerated, baccalaureate student nurse success demonstrated by on-time program completion and a HESI E^2 score of 900 or higher. The BD approach focuses on essential learning rather than teaching (Florian & Zimmerman, 2015; Great Schools Partnership, 2013a).

Brown, Eaton, Jacobsen, Roy, and Friesen (2013) used BD in a three stage collaborative approach to a master's level online course design. These stages included establish learner outcomes in the course syllabus (Stage 1), construct rubrics with detailed criteria (Stage 2), and plan synchronous and asynchronous experiences (Stage 3). Richards (2013) explored BD as one of three approaches used in the development and implementation of language teaching programs. Needs analysis, task-based language

teaching, competency-based instruction, and the use of standards (benchmarks and core skills) are curriculum approaches and procedures used in language teaching that reflect the principles of BD. Brown et al. and Richards used the BD approach in designing education and language courses; however, the stages of the UBD framework and the BD approach can be applied to other disciplines including nursing education.

Emory (2014) found the outcome and competency driven UBD framework can guide alignment of relevant content and concepts, and strengthen and improve nursing curricula. In baccalaureate nursing education, desired program outcomes are identified in the *NCLEX-RN Detailed Test Plan* (NCSBN, 2015b) and the *Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). Use of these documents as guides to curriculum development is consistent with Stage 1 of the UBD framework (McTighe & Wiggins, 2012).

NCLEX-RN Detailed Test Plan. NCLEX-RN assesses the knowledge, skills, and abilities necessary for safe and competent entry-level practice. The *2016 NCLEX-RN Detailed Test Plan* described the content and scope of the current NCLEX-RN (NCSBN, 2015b). Content is organized into categories that guide students preparing to take the test and guide faculty in writing test items. Specific concepts related to each content category are identified and activity statements reflecting required knowledge, skills, and abilities link the NCLEX-RN to nursing practice.

Every 3 years, the NCLEX testing blueprint is changed based on analyses of the practice requirements of RNs (Billings & Halstead, 2012; Oermann & Gaberson, 2014). Document reviews, daily logs of newly licensed RNs, subject matter experts, and a

survey sent to 6,000 newly licensed RNs who passed the NCLEX-RN from October 2013 through March 2014 provided the data for the *2014 RN Practice Analysis* (NCSBN, 2015a). Following completion of the practice analysis, new test plans are published to guide nurse educators and RN candidates preparing for the licensure examination. In addition to describing the content and scope of the NCLEX-RN, the *2016 NCLEX-RN Detailed Test Plan* provides a classification of the cognitive levels of test items and the percentage of test questions assigned to each category and subcategory (NCSBN, 2015b). NCLEX-RN test items are written at the application level of cognitive ability or higher for assessment of the complex thought processing required to apply knowledge to practice. The *2016 NCLEX-RN Test Plan* reflects current practice requirements for the newly licensed RN; therefore, it is a significant guiding document for curriculum development.

Essentials of Baccalaureate Education for Professional Nursing Practice. Educational content and nursing practice strategies that promote safe, quality patient care are a substantial component of the *Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008; Billings & Halstead, 2012). Nine Essentials reflect the expected outcomes of BSN education. Graduates who achieve these outcomes should be prepared for safe, competent entry-level practice. The *Baccalaureate Essentials* tool kit provides learning strategies, exemplars, and resources to assist faculty to integrate the Essentials into the nursing curriculum (AACN, 2009). In addition to guiding curriculum development, the *Essentials* document specifies the

desired results of baccalaureate nursing education and aligns with stage 1 of McTighe and Wiggins' (2012) UBD framework.

Kumm and Fletcher (2012) described a curriculum revision using the *Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). The researchers linked student outcomes for the BSN program to the *Essentials* document. Once outcomes were developed, the products that demonstrated these outcomes were identified. Products of student learning represent acceptable evidence consistent with stage 2 of the UBD framework (McTighe & Wiggins, 2012).

Assessment and evaluation. The development of strategies to assess achievement of the Stage 1 desired outcomes reflects Stage 2 of the UBD framework. An evaluation plan is essential in curriculum development (Giddens et al., 2015). Components of an evaluation plan include assessment, testing, measurement, and evaluation (Oermann & Gaberson, 2014). Assessment involves collecting information to make decisions about learning. Tests are one strategy to assess students' knowledge and skills. Measurement assigns numbers representing student performance. Oermann and Gaberson (2014) stated evaluation is the process of making judgements about student learning using assessment data.

Faculty can measure outcomes using formative assessment data and summative assessment data. Examples of high-stake measurement tools for summative assessment are examinations, standardized testing, and the NCLEX; however, often it is beneficial to collect data before the class or clinical is over (Bristol, 2012). Formative assessment using online discussion forums, audience response systems, and computer-adaptive

testing (CAT) can alert nursing faculty to unmet learning needs. A computer-administered test that is adaptive presents test items determined by an individual's responses to previous test items (Cook, O'Malley, & Roddy, 2005). The immediate feedback available with CAT allows students to identify their individual problem areas (Pence, 2016). Thompson, Mallet-Boucher, McCloskey, Tamlyn, and Wilson (2013) noted effective formative assessment enhances the teaching and learning process and promotes deep learning. Kantar (2014) concurred assessment must be ongoing to monitor progress and to maximize the learner's potential.

I designed the Taking Steps for Success concept-based curriculum to promote learning related to the fundamental concepts of nursing practice. Lewis (2014) stated outcomes of a concept-based curriculum are students understand material conceptually and students apply conceptual knowledge to new situations. Retention rates, completion rates, on-time graduation rates, student end-of-program satisfaction rates, and NCLEX-RN pass rates were the nursing program outcomes examined by Lewis. Giddens and Morton (2010) evaluated a new concept-based curriculum at one university with multiple paths to baccalaureate education. The evaluation plan included formative and summative evaluation. Formative evaluation included course assessment at the end of each term, a student survey and student focus groups at the end of each level, and standardized examinations at every level. Summative evaluation included annual measurements of graduation rates and NCLEX pass rates, and a commercial exit survey. Emory (2014) noted assessment of students' knowledge should include evidence that knowledge can be applied to nursing practice.

All teaching and learning strategies should align with the methods of assessment and the desired outcomes. Teaching and learning strategies must also promote knowledge transfer to practice; therefore, educational content must be consistent with the knowledge type and cognitive level that promotes knowledge transfer. Bloom's taxonomy can be used to plan educational activities that promote knowledge transfer (Su & Osisek, 2011).

Bloom's taxonomy. Bloom's taxonomy is used as a basis for item writing on NCLEX-RN (NCSBN, 2015b). Nursing requires the application of knowledge, skills, and abilities; therefore, NCLEX-RN test items are written at the application level of cognitive ability or higher. Higher-order cognitive skills including application, analysis, synthesis, and evaluation require deeper learning and more cognitive processing than knowledge and comprehension lower-order skills (Adams, 2015; Su & Osisek, 2011).

Students use prior knowledge, skills, and abilities in new situations through application (Adams, 2015). Critical thinking, crucial for clinical decision making and clinical reasoning, requires the skill of analysis. Synthesis is essential to put ideas and concepts together to form a novel product, and evaluation involves the ability to judge the value of information or data for a given purpose (Su & Osisek, 2011; University of Arizona, n.d.). In addition to providing a framework for classification of cognitive skills, Bloom's taxonomy also incorporates factual, conceptual, procedural, and metacognitive knowledge. Nurses practice in a continually changing environment; therefore, they need to understand material conceptually to transfer knowledge to new contexts and situations (Duncan & Schulz, 2015; Hardin & Richardson, 2012; Lewis, 2014). In the Taking Steps

for Success curriculum, I emphasize conceptual knowledge to promote development of higher-order cognitive skills required for nursing practice.

Concept-based teaching and learning. Stage 3 of the UBD framework involves planning learning experiences and instruction (McTighe & Wiggins, 2012). New nurses need to be prepared to practice in varied settings where knowledge and innovation are rapidly increasing (Benner et al., 2010). Nurses often function within complicated health care systems while they attempt to provide quality care to a diverse patient population. Nurse educators in the classroom setting attempt to cover vast amounts of information to keep pace with new research findings and changing technology. Lectures often focus on physiology, disease categories, and signs and symptoms to be memorized; students do not always engage in thinking how this knowledge should be applied to patient care (Benner et al. 2010).

Giddens and Brady (2007) stated one challenge for nurse educators is management of curricular content. McGrath (2015) identified several curriculum challenges including the need for curricula to adapt to a changing health care environment; content saturation; repetition; and fragmentation and lack of coordination between classroom learning, the skills laboratory, and the clinical setting. The learning needs and styles of millennial students were also discussed. Curriculum transformation is needed to prepare nurses to manage care for an increasing number of patients with complex health problems in the context of diminishing resources and an information explosion (Phillips et al., 2013). Nursing pedagogy needs to change to emphasize competent performance through active learning (Institute of Medicine [IOM], 2010).

Nurse educators need to shift from teaching content-laden material to teaching concept-based courses to enhance students' ability to synthesize information, link concepts, and think critically (Brandon & All, 2010). A concept-based curriculum supports development of thinking abilities of students by moving away from topic-centered curricula focused on the memorization of facts to idea-centered curricula focused on deeper conceptual ideas and understanding (Erickson, 2002).

Undergraduate faculty at one university undertook a curriculum revision to move from a medical model to an innovative curriculum grounded in AACN's (2008) *Essentials of Baccalaureate Education for Professional Nursing Practice*. A concept analysis of AACN's *Essentials* produced 22 themes reflecting the roles of the baccalaureate-prepared nurse (Kumm & Fletcher, 2012). To determine which concepts should be used as a basis for nursing curriculum, nurse educators in New Mexico were asked to share the concepts used in their curriculum (Giddens, Wright, & Gray, 2012). Fifty-four concepts were identified on at least 50% of the curriculum lists submitted by study participants. These concepts were organized into three categories: "attribute concepts, health and illness concepts, and professional nursing concepts" (Giddens et al., 2012, p. 514). Giddens et al. (2015) stated a systematic selection process should be used to determine the concepts to include in a curriculum. Concepts should be familiar and understandable to nursing faculty, represent the scope of nursing practice, and not be specific to a specialty.

Goodman (2014) noted a concept-based curriculum addresses the problem of content saturation related to the expanding body of knowledge associated with changes in

the health care environment. Concepts reflecting biophysical processes prepare the nurse to manage patients with alteration in these processes. An understanding of psychosocial concepts assists the nurse to manage holistic aspects of care. Clinical judgement and health promotion are examples of professionalism concepts; and ethics, leadership, and management are health care system concepts. Trossman (2015) also recognized a conceptual approach is useful in managing a growing nursing curriculum. Students learn broad concepts and then apply these concepts to specific conditions across the life span. This model eliminates trying to teach facts about every health issue which contributes to a content heavy, population focused, and specialty specific curriculum. Educators use exemplars to present content associated with concepts, and to help students understand the concepts and how nursing relates to the concepts (Bristol & Rosati, 2013). With conceptual learning, the classroom becomes a clinical setting through the use of case studies, unfolding cases, and simulations. Students are engaged in the learning through discussing, interacting, and reflecting on the learning activities (Bristol & Rosati, 2013).

Conclusion

My review of the literature focused on specific elements of a curriculum plan and provided evidence to guide the development of the remediation curriculum. Constructivism, BD, and Bloom's taxonomy form the foundation for a concept-based teaching and learning approach. Curriculum content and assessment criteria align with the *2016 NCLEX-RN Detailed Test Plan* (NCSBN, 2015) and the *Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). The evidence-based Taking Steps for Success remediation curriculum is an intervention I

designed to help accelerated-baccalaureate nursing students develop the conceptual thinking skills required to link new knowledge to prior learning and apply information to different contexts.

Project Description

Project Overview

My project, Taking Steps for Success, is a 10-week hybrid course that integrates face-to-face meetings with self-paced online learning components for the purpose of remediation and retention of at-risk students through early identification and intervention (Billings & Halstead, 2012). Appendix A provides the detailed curriculum plan including course description, objectives, student learning outcomes, teaching and learning activities, methods of assessment and evaluation, and the specific details of the curriculum plan. Ediger (1995) noted the scope of the curriculum identifies what should be taught while sequence applies to when students should experience specific learning activities. Iwasiw et al. (2009) stated the scope of curriculum development relates to the creation of a new curriculum or a significant revision of an existing curriculum. Taking Steps for Success is a new curriculum plan with focused supplemental instruction for at-risk students identified after completion of the first semester of nursing courses. A new curriculum is appropriate for the remediation and retention program as the university's existing core curriculum including philosophical approaches, outcomes, and evaluation methods, remain unchanged. The Taking Steps for Success program is sequenced in a concurrent pattern and scheduled simultaneously with second semester nursing theory and clinical courses.

In addition to curriculum content related to fundamental nursing concepts, I identified other curriculum components of Taking Steps for Success through my review of the literature and include a learning assessment, study skills, test taking strategies, adaptive quizzing, and retesting (Condon et al., 2013; Cox-Davenport & Phelan, 2015; Horton et al., 2012; Igbo et al., 2011; Jeffries, 2015). Giddens et al. (2015) described concepts as key ideas used to organize information that is subsequently applied to multiple situations and contexts. I identified fundamental nursing concepts included in the university's 200-level nursing courses, and these concepts will be integrated in the Taking Steps for Success curriculum.

Potential Resources and Existing Supports

Many of the resources needed for the project to be successful are already in place for students. Self-paced online learning modules, discussion forums, and quizzes will be situated within the existing learning management system. All nursing students at the university purchase an online adaptive quizzing program and this resource will also be used by students enrolled in Taking Steps for Success. Students will continue to use the textbooks that were required for the 200-level nursing courses. Face-to-face classes will require classroom space. All classrooms at the university are equipped with computers, projectors, audience response systems, and internet access. Nursing faculty on each campus are needed to implement the remediation and retention curriculum, and university funding for the additional faculty workload is also needed.

I received support for the project from the dean at the study site and a tentative implementation date has been identified. A remediation and retention curriculum is

consistent with the university's mission and core values focused on preparing students for successful careers in health care. Nursing faculty are also committed to preparing nursing students with the knowledge, skills, and abilities for safe, competent entry-level practice. Taking Steps for Success is a remediation curriculum for at-risk students who may lack an in-depth understanding of essential fundamental nursing concepts. Students need this conceptual knowledge as a foundation for the development of the higher-order cognitive skills required for nursing practice.

Potential Barriers

Barriers to successful implementation of Taking Steps for Success may involve students, faculty, and administration. Students in an accelerated nursing program have limited time available for remediation activities in addition to their other coursework and clinical schedules. Some students may also be challenged with family and employment responsibilities which decrease the time available for remediation.

Full time faculty have a workload with specific teaching, scholarship, and service responsibilities. Participation in the Taking Steps for Success program would require a time commitment from faculty. Some faculty may not be interested in becoming involved in the program, and others may not feel qualified to participate in the program. Another potential barrier is cost associated with increased salaries related to increased workload.

Another potential barrier is approval of the curriculum by the university. Following review and approval of the Taking Steps for Success curriculum by the dean and the associate dean of curriculum and assessment, the curriculum will be submitted to

the undergraduate curriculum committee for approval, and subsequently to academic council for review and final approval by the university's deans and provosts. If the Taking Steps for Success curriculum is not approved, revisions will be made to obtain approval from all committees.

Potential Solutions to Barriers

Students participating in Taking Steps for Success may be successful in subsequent courses, complete the nursing program on-time, and pass NCLEX-RN on the first attempt. These indicators of nursing student success demonstrate the potential long-term benefits of the remediation and retention program for students and the university. These benefits may mitigate some of the short-term barriers. One solution to the time barrier for students is the hybrid design of Taking Steps for Success. The asynchronous format of the on-line component allows self-paced learning at a time and place chosen by each student. Use of the existing learning management system and adaptive quizzing program, in addition to the hybrid design, also offers solutions to the time barrier for faculty. Once the learning modules and quizzes are developed, minimal faculty time is needed for implementation of these learning activities across multiple campuses over multiple semesters. This efficiency is also associated with financial savings related to faculty salaries. The dean will recruit faculty who have expressed an interest in concept-based teaching to implement the remediation curriculum on each campus. I will provide an orientation for all faculty members teaching the new curriculum.

Implementation

Implementation of Taking Steps for Success begins with review and approval of the curriculum by the dean, associate dean of curriculum and assessment, the undergraduate curriculum committee, and academic council consisting of the university's deans and provosts. Following approvals of the Taking Steps for Success curriculum, the dean will select course faculty on each campus. Teaching faculty will be compensated at a rate equivalent to one credit of workload (15 hours) to facilitate the remediation curriculum each semester. Prior to the initial semester, I will orient Taking Steps for Success faculty to the curriculum plan.

At the end of fall and spring semesters, faculty teaching the 200-level fundamentals course will identify students who did not pass the course with a minimum grade of 78. Participation in Taking Steps for Success will be mandatory for these students. Taking Steps for Success will begin in the third week of the new semester to allow sufficient time for calculation and reporting of GPAs and identification of at-risk students. The program will end with two weeks remaining in the semester to avoid any conflicts with final exams and due dates of major assignments in students' other courses.

Roles and Responsibilities of Students and Others

The role of the dean is to promote the program to administration and to advocate for financial support. My primary role is to facilitate implementation of the Taking Steps for Success program. In this role, I identify criteria for participation in the program; promote the program to school of nursing leadership, other faculty, and students; assist in the selection of program faculty; coordinate curriculum and instruction, and evaluate the

program. Course faculty have the role of facilitator of learning with responsibilities for teaching and assessment. Finally, the role of the student is active and engaged participant with responsibilities for attending all face-to-face classes, completion of online learning activities, self-assessment, and reflection on learning.

Project Evaluation

Nursing faculty judge student knowledge gained in the course and attainment of the educational outcomes through the process of evaluation (Oermann & Gaberson, 2014). An evaluation plan is necessary to identify methods of assessment and measurement to obtain quantitative and qualitative data to make these judgements related to student learning and the effectiveness of the new concept-based curriculum. Curriculum evaluation is an ongoing process of appraising the elements of the course and students' abilities after completing the course (Iwasiw et al., 2009). The outcomes-based evaluation plan uses a combination of formative and summative evaluation strategies. Formative evaluation determines student progress in meeting desired outcomes while learning is in process and summative evaluation determines what the student has learned (Oermann & Gaberson, 2014). One-minute papers and muddiest points are examples of formative evaluation that I will use during the Taking Steps for Success program (see Cannon & Boswell, 2016). Summative evaluation occurs at the end of a course or at the end of a specific learning experience. This final evaluation is often used for grading and other high-stakes decisions (Oermann & Gaberson, 2014). Two summative evaluation strategies that I will use are an end-of-course evaluation and retesting with the standardized final exam used for the 200-level fundamentals course.

Learning outcomes indicate the knowledge, skills, and abilities students should have at the end of the course (Billings & Halstead, 2012). These behavioral indicators provide the foundation for the curriculum and guide choices related to learning materials and learning activities. In a concept-based remediation and retention curriculum, faculty should evaluate students' ability to transfer learning by assessing if students can use what they have learned in a new situation (Giddens et al., 2015). An outcomes-based evaluation plan, using formative and summative strategies to obtain valid and reliable quantitative assessment data and credible qualitative assessment data, allows for a comprehensive curriculum evaluation.

Outcomes expected of graduates of baccalaureate nursing programs are outlined in the *Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). "Achievement of these outcomes will enable graduates to practice within complex healthcare systems and assume the roles: provider of care; designer/manager/coordinator of care; and member of a profession" (AACN, 2008, p. 3). Essential IX: Baccalaureate Generalist Nursing Practice integrates the "knowledge, skills, and attitudes from Essentials I – VIII" (AACN, 2008, p. 3) and is particularly relevant to Taking Steps for Success and the focus on remediation and retention. Two outcomes expected of the baccalaureate graduate nurse are associated with Essential IX:

> The first outcome is the baccalaureate-graduate nurse is prepared to practice with patients including individuals, families, groups, communities, and population across the lifespan and across the continuum of healthcare environments. The second outcome is the baccalaureate-graduate nurse understands and respects the

> variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients. (AACN, 2008, p. 4)

Iwasiw et al. (2009) defined curriculum goals as broad statements that describe students' desired achievements in an educational environment. A goal of the Taking Steps for Success curriculum is providing at-risk students with supplemental instruction to enhance the likelihood of student success demonstrated by on-time program completion and a HESI E^2 score of 900 or higher. Meeting this goal will contribute to achievement of the important overarching goal of pre-licensure nursing education: student development of the knowledge, skills, and abilities necessary for safe and competent entry-level practice.

Key stakeholders are the student, and by extension, the student's family and community. Other stakeholders representing the university are faculty and administration. External stakeholders are patients and employers. Results of curriculum evaluation and subsequent actions in response to the evaluation should be reported to stakeholders. Faculty, learners, and other stakeholders may desire an opportunity to discuss evaluation results and have input into recommendations based on the evaluation results (Iwasiw et al., 2009).

Project Implications and Social Change

This project has implications for the local community including the nursing students, the university, and health care organizations. Success of this program may have far-reaching implications that extend to the nursing profession and the patient population. A remediation curriculum intended to promote retention of nursing students may also

contribute to positive social change. Student success, including on-time program completion and passing the NCLEX-RN on the first attempt, is important to ensure an adequate nursing workforce. Retention of diverse students and their subsequent success are important to address health disparities and enhance health behaviors among ethnic and racial minorities (Dapremont, 2014; Diaz, Sánchez, & Tanguma, 2012). Attrition, graduation rates, and NCLEX-RN pass rates are important to university administrators as these criteria reflect program quality and college standing, and these factors may impact accreditation (Gajewski & Meera, 2015; Griffiths, Papastrat, Czekanski, & Hagan, 2004).

Success as a student and as a professional may result in improved socio-economic status and standard of living for the student and the student's family (Gajewski & Meera, 2015). The nursing workforce should mirror the diverse patient population; however, enrollment in nursing programs and the nursing workforce is not representative of the United States population (Dapremont, 2014; Diaz et al., 2012; Harris, Rosenberg, & O'Rourke, 2014). Increased enrollment of diverse students and subsequent student and professional success also reflect positive social change impacting the individual, family, and the nurse's community. Successful students who become successful professionals may become role models and leaders within their communities. Diversity in nursing is essential to address health disparities and increasing diversity in the nursing workforce requires retention of nontraditional students. Teaching practices and student support services must meet the needs of the student population and include strategies to increase retention of diverse students.

Conclusion

In Section 3 I described the Taking Steps for Success curriculum plan, goals for the project, and the rationale for selecting a curriculum plan for the project study. A constructivism theoretical framework and a comprehensive review of current literature provided support for the concept-based curriculum at the center of the remediation and retention program. I discussed supports for the program, barriers to program success, the time frame for implementation, and the roles and responsibilities of faculty and students. Finally, I described the outcomes-based evaluation plan using formative and summative evaluation strategies, and I presented implications for local and far-reaching communities to complete the description of the project study.

I provide my reflections on the project and conclusions in Section 4. Strengths and limitations of the project, a reflective analysis of personal learning and growth, my recommendations, and implications for future research will be discussed.

Section 4: Reflections and Conclusions

Introduction

The purpose of the project study was to address decreased NCLEX-RN pass rates. I examined whether two early academic indicators, cumulative GPA at completion of 200-level nursing courses and the score on the standardized final exam in the 200-level fundamentals course, were related to accelerated-baccalaureate student nurse success, which I identified as on-time program completion and a HESI E^2 score of 900 or higher. Based on the completed research, students identified as at-risk using the two early academic indicators may not complete the nursing program on time or achieve a HESI E^2 score of 900 or higher. Students required to participate in Taking Steps for Success have failed a course and will not complete the nursing program on time; however, other students who choose to participate in remediation may increase the likelihood of their success in completing the nursing program on time. All students who complete Taking Steps for Success may acquire the conceptual thinking skills and the higher-order cognitive skills required for nursing practice. These skills will also enhance students' ability to achieve a HESI E^2 score of 900 or higher, which is viewed as equivalent to passing NCLEX-RN on the first attempt.

Section 4 includes my reflections and conclusions for the project study. In it, I discuss project strengths and limitations and personal reflections about the research process and project development. In this final section of the project study, I also outline implications, applications, and directions for future research.

Project Strengths

Project strengths include early identification of at-risk students and early intervention through participation in the Taking Steps for Success program. Students in accelerated programs have limited time to acquire the required knowledge, skills, and abilities for practice. An accelerated program format also restricts the time available for remediation. A projected need for more than 1 million new nurses by 2020 has fueled the growth of accelerated programs (AACN, 2010). In addition, the current student nurse population consists of diverse and nontraditional students. Nearly 30% of baccalaureate nursing students represent diverse populations (AACN, 2016). Culturally diverse students have higher attrition rates than Caucasian students (Duerksen, 2013). Participation in the Taking Steps for Success program may lead to increased retention of diverse and nontraditional nursing students, on-time program completion, and a HESI E^2 score of 900 or higher.

The concept-based curriculum is a project strength. A shift from a medical model to a conceptual approach is necessary to overcome content saturation and content repetition that is often associated with a traditional linear teaching approach (Giddens & Brady, 2007). Conceptual pedagogy emphasizes concepts across the life span and across clinical settings, and fosters critical thinking and application of concepts in multiple contexts. Nurses need conceptual thinking skills for successful practice in a complex and dynamic health care environment (Giddens et al., 2015).

I also view use of existing resources as a project strength. Standardized testing and CAT are already integrated into the program's core curriculum. NCLEX-RN is a

CAT; therefore, use of CAT throughout the core curriculum and the Taking Steps for Success program provides students with ample opportunities to become familiar with this testing approach. The immediate feedback with CAT is motivational and provides a focus that helps students identify problem areas (Al-A'ali, 2007).

Recommended strategies for improving NCLEX-RN success, a goal of all prelicensure nursing programs, include standardized testing throughout the program and early intervention programs for at-risk students (EOHHS, 2014c). Emphasizing links among concepts and experiences, building skills within a real-world context, independence, and problem solving are components of successful remediation interventions (Ciampa & Revels, 2012). These components are also consistent with a concept-based curriculum and CAT. Individual elements of the project are grounded in evidence, which lends support to the quality of the overall project. Finally, my goal of developing a concept-based remediation curriculum was met.

Project Limitations

I also identified a few limitations of the project. Faculty and students participating in Taking Steps for Success will experience a different teaching and learning experience related to the shift from a medical model and linear teaching approach to a concept-based curriculum. Faculty selected to teach must be willing to participate and agreeable to adopting the curriculum plan. Students must be self-directed and actively engaged to benefit from the online learning modules. Some students may be resistant to the new curriculum format that requires their active participation. Mandatory

participation in Taking Steps for Success may be a challenge for students who are also enrolled in courses in the core curriculum.

Recommendations for Alternative Approaches

In 2013, an increase in the NCLEX-RN passing standard influenced student nurse success. This change was prompted by an evaluation by the NCSBN (2013a, 2013b) and the determination that RNs required a greater level of knowledge, skills, and abilities than previously required for safe, competent entry into practice. Nationally, NCLEX-RN pass rates decreased in the year following the change (NCSBN, 2013d, 2014). All nursing programs were impacted by this change, and many nursing programs experienced dramatic decreases in pass rates (EOHHS, 2014a, 2014b). All nurse educators needed to respond to the passing standard change related to the gap in practice and identify strategies to prepare students to pass NCLEX-RN on the first attempt, and for subsequent safe, competent practice (White, 2014a). Attrition and failure to complete the program on time are also issues facing nurse educators.

A variety of approaches may address problems of attrition, failure to complete on time, and low NCLEX-RN pass rates. Revision of an existing content-based core curriculum to a concept-based curriculum, integration of remediation strategies into each course, and increased use of CAT throughout the curriculum are alternative approaches using the same evidence-based interventions that I used in the project. Professional development for faculty related to strategies for student success was not included in the project; however, this may be necessary for programs with high attrition or persistent low pass rates. Use of preadmission assessments and changes in admission requirements may

also be necessary for some programs. All programs need to review their specific indicators of student success, identify those requiring improvement, implement strategies to promote student nurse success, and evaluate the outcome of those interventions.

Scholarship, Project Development, Evaluation, Leadership, and Change

Several of the core competencies for the Certified Nurse Educator (CNE) were demonstrated during the project study. These competencies include:

- Facilitate learning;
- Facilitate learner development and socialization;
- Use assessment and evaluation strategies;
- Participate in curriculum design and evaluation of program outcomes;
- Engage in scholarship, service, and leadership. (NLN, 2017, pp. 6-9)

Scholarship is much more than engaging in the steps of the research process. What is most important goes beyond collecting and analyzing data. A critical element of scholarship relates to how data are used. My scholarship is best described through the lens of Boyer's (1990) model of scholarship. Scholarship is more than participation in original research; it is multifaceted and represents four overlapping functions: "discovery, integration, application, and teaching" (Boyer, 1990, p. xii).

Scholarship

Scholarship of discovery. Building new knowledge through scholarly investigation reflects the scholarship of discovery (Boyer, 1990). I developed new knowledge related to early academic indicators and indicators representing

accelerated- baccalaureate student nurse success by thoroughly reviewing literature to identify the variables that constitute early academic indicators and the variables that reflect accelerated-baccalaureate student nurse success. Data collection and data analysis provided new knowledge necessary to understand the relationships of early academic indicators to accelerated-baccalaureate student nurse success. Following completion of the study, I gained additional knowledge related to remediation and retention strategies to promote accelerated-baccalaureate student nurse success via an additional review of the literature. Generating new knowledge is essential; however, it is only one aspect of scholarship.

Scholarship of integration. Giving meaning to the new knowledge demonstrates the scholarship of integration. Boyer (1990) stated the scholarship of integration answers the question: What do the findings mean? Integration also emphasizes understanding the interconnectedness of ideas, creating new patterns, and placing knowledge in a larger context (AACN, 1999; Boyer, 1990). The scholarship of integration also promotes relationships among disciplines. In the project study, understanding relationships of early academic indicators to accelerated-baccalaureate student nurse success became significant when I integrated this knowledge to identify and plan remediation for students at risk for attrition or not passing NCLEX-RN.

Scholarship of application. Using new knowledge to address societal or professional problems constitutes the scholarship of application (AACN, 1999). Low NCLEX-RN pass rates, a nursing shortage, and lack of diversity in the nursing workforce are examples of societal and professional problems of great significance to nurse

educators. Retention of nursing students through remediation, and their subsequent success on NCLEX may contribute to solving societal and professional problems.

Scholarship of teaching and learning. Teaching should "build bridges between the teacher's understanding and the student's learning" (Boyer, 1990, p. 23). In the absence of learning, teaching has little value. Development of an evidence-based remediation curriculum that promotes active learning and critical thinking is consistent with the scholarship of teaching and learning.

Boyer's model reflects the full range of scholarship applicable to academic nursing (AACN, 1999). Each element of the model is important to further the knowledge of the nursing discipline, foster relationships among colleagues, address societal problems, and create bridges between teachers' knowledge and students' learning. All aspects of scholarship are reflected in the project study. My use of evidence-based resources to improve and support teaching, and my participation in research activities related to nursing education also demonstrated the CNE core competency: engage in scholarship (NLN, 2017).

Project Development and Evaluation

The development of this project began with my identification of a problem that affects many nursing programs; low NCLEX-RN pass rates. Overcoming this problem is essential to ensure an adequate nursing workforce prepared to manage the complex health needs of a diverse and aging population. Student success on NCLEX-RN also has significance for students, their families, the community, the university, and employers. I was challenged to develop a curriculum plan for a remediation and retention program

appropriate for a diverse group of at-risk students in an accelerated, baccalaureate nursing program. In addition to retention of students, the remediation curriculum is intended to foster critical thinking and application of fundamental nursing concepts in multiple contexts. These attributes are necessary for safe, competent entry-level practice. It was equally important that the curriculum plan could be easily implemented using existing resources. Development of the curriculum plan was a time consuming endeavor; however, I expect the benefits of the project will be well worth the investment of time. The tangible product may promote student nurse success. This is my primary goal as a nurse educator and the goal of all nursing programs. In addition, curriculum design also reflects a CNE core competency (NLN, 2017).

An important component of the project is the evaluation plan. The project must be effective to be valuable. As a new curriculum, the effectiveness is undetermined. A core competency of academic nurse educators is: use assessment and evaluation strategies (NLN, 2017). I will use frequent formative evaluations to assess student progress and student satisfaction with the program while the program is in process. Summative evaluation at completion of the program will provide me a more comprehensive evaluation of the curriculum.

While developing the project, I worked backwards from the desired result of accelerated-baccalaureate student nurse success to align the project with my study. Use of BD also provided me with a logical approach to create a new curriculum. Exploring current evidence related to curriculum development, remediation, and retention strategies was educational and made me more aware of contemporary trends in nursing education.

The overall experience was rewarding and will prove to be useful for future curriculum planning.

Leadership and Change

Leadership and change are incorporated into the core competencies for academic nurse educators (NLN, 2017). These competencies are demonstrated by my evaluation of organizational effectiveness reflected by NCLEX-RN pass rates, and these competencies will also be demonstrated when I implement the project. I identified a significant problem impacting nursing education on a local and national level, developed a strategy to analyze the problem, and constructed a project to respond to the problem. During this process, I also advocated for the future implementation of the project as a supplement to the current curriculum at the study site. Engaging in this process represents a significant area of growth. Completion of the project study has contributed to my personal learning and growth as a scholar, practitioner, and project developer.

Analysis of self as scholar. Before I embarked on the doctoral journey, I did not view myself as a scholar. Although I have taught nursing research for several years, I had some doubts about my ability to conduct meaningful research. It quickly became apparent that engaging in research is a process, and as a process it evolves one step at a time. When viewed this way, the research became manageable. Some of the challenges I faced during the research process were events I could not control. Significant delays waiting for others to complete tasks were frustrating. This proved to be the most difficult aspect of the research process. In the future, I will anticipate that some delays are likely and I will view these delays as part of the research process. From this experience, I

realize I am a scholar and able to engage in meaningful research. After identifying a significant problem impacting nursing education, I explored strategies to overcome this problem.

Analysis of self as practitioner. Evidence-based practice (EBP) is important in nursing and in health care. Nurses should use evidence to guide the delivery of patient care (Boswell & Cannon, 2017). Educators should also use evidence to guide their teaching and promote learning (Cannon & Boswell, 2016). Evidence-based teaching (EBT) goes beyond the clinical realm when best teaching practices grounded in research are used in other settings. Through the research process and the development of my project, I now realize the value of being an evidence-based practitioner and using evidence to guide how I teach and what I teach. Nursing education typically consists of a content-based curriculum using a medical model with a disease specific focus. Often content saturation occurs as nurse educators try to incorporate more information into the curriculum. As an evidence-based practitioner, I recognize how a concept-based curriculum may help students develop the knowledge, skills, and abilities necessary for safe, competent entry into practice. The research process and development of the project has contributed to my growth as a practitioner. I have become a better leader and a better teacher by using evidence-based best practices related to teaching and learning.

Analysis of self as project developer. Developing a project from inception to implementation is a new experience. I was inspired to create a project that could easily be integrated into my study site and perhaps be useful to a larger community of nursing students. Multiple discussions with the dean at the study site and many hours reviewing

literature were necessary to develop a meaningful project that will be utilized. My sole responsibility for this project has been challenging; however, the opportunity to create something that is valued by others gives me a sense of accomplishment.

Reflection on Importance of the Work

Understanding relationships between early academic indicators and accelerated-baccalaureate student nurse success and implementation of the Taking Steps for Success curriculum are approaches that may be useful to address nursing student attrition and low NCLEX-RN pass rates. Retention of nursing students and students' subsequent success on NCLEX-RN are important outcomes for all nursing programs. The importance of the research project relates to its potential to promote student nurse success.

Gibbs' reflective cycle includes six stages of reflection: description, feelings, evaluation, analysis, conclusion, and action plan (University of Cumbria, n.d.). I will reflect on the importance of the work using this model as a guide. First, I am reflecting on my doctoral journey that culminates with completion of the project study. This was a very personal journey that really began almost 17 years ago when I returned to school to get a BSN degree.

At first, I struggled to meet the demands of the courses while trying to balance work and family. Eventually I developed a routine and being a student became a part of who I was. It wasn't sufficient to just complete an assignment; it had to be a great assignment. I challenged myself to produce something I could be proud of, and I was successful. This was the beginning of a transformative process.

My success in school led to success in other aspects of my life. My confidence and self-esteem blossomed and this affected my nursing practice. I stopped viewing my work as just a job, and I began to focus on building a career. With my new confidence, I sought new opportunities. Each new position brought new experiences and new challenges, and I rose to each challenge. As I became more satisfied with my work life, I also became more satisfied in my personal life.

Many events occur in our lives that we cannot control. When you are a student, you have control of your learning. Being a student became a constant in my life. The sense of control became an anchor for me during some difficult times. As my educational journey continued, my personal growth was accompanied by great professional growth. I believed I could make a contribution to my profession. My view of self as student began to change to a view of self as scholar.

The completion of the project study will bring me to the end of one educational journey, but it is likely to be just the beginning of another journey. I know I can identify a problem, explore a problem, and develop a realistic plan to address the problem. What is different for me at this point in my journey is others look to me for solutions to problems.

My journey as a scholar will continue. Through my doctoral work and completion of the project study, I have developed the skills to continue to make original contributions to the body of nursing knowledge. I have also gained the knowledge and skills to be a better nurse educator, and I can use the knowledge and skills to mentor other nurse educators and novice scholars.

Implications, Applications, and Directions for Future Research

Nursing student attrition and low NCLEX-RN pass rates have implications for students, their families, and their community. The project may promote nursing student success defined as on-time program completion and a HESI E ^{2} score of 900 or higher. In addition, the project has the potential for positive social change. Successful students may become successful professionals who are able to support themselves and their families. They may also become role models and leaders within their communities. Academic and professional successes are particularly important when the student is a member of a marginalized group. On a larger scale, student success is important to ensure an adequate nursing workforce and retention and subsequent success of diverse students is essential to address health disparities.

Concept-based learning promotes the development of critical thinking and enhances students' ability to apply concepts in multiple contexts. Taking Steps for Success will allow students to develop conceptual thinking skills needed for clinical judgement and adaptation to a dynamic health care environment. All nurses need critical thinking skills and the ability to adapt to an ever changing health care environment; therefore, a concept-based remediation and retention program has applications for any nursing program. In addition, all student nurses need to complete their nursing program and pass a licensure exam to practice. Early identification and early intervention may benefit at-risk students in any nursing program.

The Taking Steps for Success program addresses problems including nursing student attrition and low NCLEX-RN pass rates using a concept-based curriculum that is

a supplement to the core curriculum. Components of the project can be incorporated into nurse educator practice with an increased focus on concepts applied across the life span and across clinical settings.

Future research is needed to determine the effectiveness of the remediation and retention program reflected by on-time program completion and a HESI E^2 score of 900 or higher. Additional research may also explore the effect of integrating conceptual pedagogy into core curriculum. This project study was specific to accelerated-baccalaureate nursing programs at one university. Replication of the study using the same methodology with other populations may determine the generalizability to different types of nursing programs

Conclusion

Nurse educators need to prepare students for safe, competent entry-level practice in a dynamic health care environment. This competence is assessed by the NCLEX-RN. A change in the NCLEX-RN passing standard and the subsequent decrease in NCLEX-RN pass rates presented a threat to nursing programs and the nursing workforce. In Section 1, I described the problem and significance of low NCLEX-RN pass rates. My review of the literature focused on indicators related to student success provided the foundation for a correlational study using data obtained from student records.

I outlined the study methodology in Section 2. I interpreted the findings in the context of whether cumulative GPA at completion of 200-level nursing courses and score on the final exam in the 200-level fundamentals course were related to on-time nursing program completion and a HESI E^2 score of 900 or higher. Based on the moderate

positive correlations indicating cumulative GPA at completion of 200-level nursing courses and score on the final exam in the 200-level fundamentals course were related to on-time nursing program completion and a HESI E^2 score of 900 or higher, I selected a remediation and retention curriculum as the project genre.

My Taking Steps for Success curriculum plan addresses decreased NCLEX-RN pass rates with a concept-based curriculum. I described components of this project in Section 3 including theoretical framework, review of the literature, curriculum, project goals, and rationale for the project. The project evaluation plan and project implications are also discussed.

In Section 4, I acknowledged project strengths, limitations, and other approaches to address problems of attrition, failure to complete on time, and low NCLEX-RN pass rates. I document my reflections about scholarship, project development, leadership, and change using Boyer's (1990) model of scholarship and the NLN (2017) core competencies for CNEs as frameworks. Reflection on my overall educational journey was necessary to demonstrate the extent of my personal and professional growth as a student and as a scholar.

In this final section of the project study, I also outlined implications, applications, and directions for future research. Nursing student success has significance for students, communities, organizations, and patients. A concept-based remediation and retention curriculum is applicable to any nursing program to promote development of critical thinking, an essential skill for all nurses. Opportunities for future research include evaluating the effectiveness of the remediation and retention program in improving

student nurse success as well as evaluating the outcomes of integrating conceptual pedagogy into core curriculum. Low NCLEX-RN pass rates, the issue prompting the study and the project, affects students, their families, and the community; faculty and nursing programs; health care administrators and their organizations; and the patient population. Strategies that promote student nurse success and subsequent success on NCLEX-RN have broad implications for many stakeholders and may lead to positive social change.

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Appendix A: The Project

Taking Steps for Success

Course Description

In this 10-week course, students will strengthen learning skills necessary for academic success and gain a deeper understanding of foundational nursing concepts needed to provide evidence-based care to diverse patient populations across the lifespan. Students use conceptual thinking and problem solving in developing the ability to make connections to previous learning, apply concepts in multiple contexts, and understand interrelated concepts. Case studies, unfolding cases, and critical thinking activities help students move beyond memorization to application, synthesis, and evaluation of information. These abilities are necessary for students' acquisition of the knowledge, skills, and abilities for safe, competent entry-level practice.

Objectives

1. The student will understand self as learner related to personal learning style, study skills, and test taking strategies.
2. As a provider of care, the student will use theoretical knowledge of fundamental nursing concepts to assess, plan, and implement holistic, patient-centered care representing the patient's preferences, values, and needs across the life span and across clinical settings.
3. As a provider of care, the student will incorporate concepts of health promotion, disease and injury prevention, and health and illness management to assess, plan, and implement safe, high quality nursing care.

4. As a designer, manager, and coordinator of care; the student will use organizational, leadership, and management concepts when directing activities to manage care and establish priorities of care.
5. As a member of a profession, the student will demonstrate an understanding of professionalism and standards of ethical and legal conduct of the professional nurse.

Learning Outcomes

1. The student identifies personal learning style and related study strategies
2. The student reviews testing strategies prior to exams and quizzes
3. The student acquires foundational nursing knowledge of health promotion, disease and injury prevention, and health and illness management.
4. The student assesses the physical and psychosocial status, needs, and preferences of culturally and socially diverse patients.
5. The student synthesizes assessment data to identify problems, formulate goals, and develop plans of care for patients based on fundamental nursing concepts.
6. The student uses nursing knowledge and clinical reasoning as the basis for decision-making and care of patients.
7. The student identifies strategies that promote safety when providing nursing care.
8. The student applies principles of infection control when providing care.
9. The student explores the values of professionalism.
10. The student identifies professional standards of ethical and legal conduct.

Teaching and Learning Materials and Methods

1. Lecture slide presentations
2. Discussion
3. Unfolding cases
4. Course materials:

Berman, A., Snyder, S.J., & Frandsen, G. (2016). Kozier & Erb's fundamentals of nursing (10th ed.). Upper Saddle River, NJ: Prentice Hall.

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Methods of Formative Assessment and Evaluation

1. Elsevier adaptive quizzing for the NCLEX-RN exam (Elsevier, 2017a)
2. HESI RN case studies with practice test (Elsevier, 2017c)
3. Multiple choice question quizzes
4. Muddiest point

5. One minute paper

Methods of Summative Assessment and Evaluation

1. End of course evaluation
2. HESI Fundamentals final exam (Elsevier, 2017d) Pass/Fail 78 is minimum passing grade.

10-Week Curriculum Plan

Week 1 (On campus)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Course content and expectations for the course discussed	25 minutes	Introduction to Taking Steps for Success	Computer, Projection, PowerPoint, Curriculum handout,
Review of learning styles, study skills, and test taking strategies	40 minutes	Success Skills	Flip chart, Nugent, P., & Vitale, B. (2016).
Break	10 minutes		
Overview of concepts: attribute concepts, professional nursing concepts, health and illness concepts	40 minutes	Conceptual foundation for nursing	Computer, Projection, PowerPoint
Adaptive quizzing and case studies with practice test reviewed	20 minutes	Method of formative assessment	Computer, Projection, Internet, Elsevier adaptive quizzing for the NCLEX-RN exam software (Elsevier, 2017a), HESI RN case studies with practice test software (Elsevier,2017c)
Wrap up	15 minutes	Review of content and questions Preview of week 2 assignments	Taking Steps for Success curriculum handout
Course objectives: 1 Learning objectives: 1, 2	Total: 150 minutes		

Week 2 (Online)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Attribute concepts Professional nursing concepts Health and illness concepts	Self-paced	Advocacy Ethics Law Professionalism Immunity Infection Inflammation	Berman, Snyder, & Frandsen (2016) Review chapters 4, 5, 31 NCLEX-RN test plan (NCSBN, 2015b).
Success Skills Test-taking tutorials	Self-paced	Critical Thinking and Testing Test-Taking Skills	HESI RN case studies with practice test software (Elsevier,2017c)
Adaptive quizzing 20 student selected questions for each concept in study mode	Self-paced	Ethics Health care law Professionalism Immunity Infection Inflammation	Elsevier adaptive quizzing for the NCLEX-RN exam software (Elsevier, 2017a)
Adaptive quizzing 20 student selected questions for each concept in exam mode	Self-paced	Ethics Health care law Professionalism Immunity Infection Inflammation	Elsevier adaptive quizzing for the NCLEX-RN exam software (Elsevier, 2017a)
Course objectives: 1, 5 Learning objectives: 1, 2, 3, 9, 10			

Week 3 (On campus)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Agenda review	5 minutes		

20 Multiple choice and alternate format questions selected from course texts	25 minutes	Ethics Law Professionalism Immunity Infection Inflammation	Paper, pencil/pen, Nugent & Vitale (2014), Nugent & Vitale (2016), Silvestri (2017).
Concept development by group discussion Exemplar development by group discussion	35 minutes	Infection Pneumonia	Concept handout Exemplar handout
Break	10 minutes		
Unfolding case study group activity	55 minutes	Infection in the older adult	Computer Projection Internet Case study handout
Formative assessment	5 minutes	Muddiest point	Paper, pencil/pen
Wrap up	15 minutes	Review of content and questions Preview of week 4 assignments	Taking Steps for Success curriculum handout
Course objectives: 2, 3, 4, 5 Learning objectives: 3, 4, 5, 6, 8, 9, 10	Total: 150 minutes		

Week 4 (Online)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Attribute concepts Professional nursing concepts Health and illness concepts	Self-paced	Development Collaboration Communication Safety Cognition Mobility Sensory perception	Berman et al. (2016). Review Chapters 20, 23, 26, 32, 38, 44, NCLEX-RN test plan (NCSBN, 2015b).
Case studies and practice	Self-paced	Mobility	HESI RN case studies with

questions		Sensory function	practice test software (Elsevier,2017c)
Adaptive quizzing 20 student selected questions for each concept in study mode	Self-paced	Development Collaboration Communication Safety Cognition Mobility Sensory perception	Elsevier adaptive quizzing for the NCLEX-RN exam software (Elsevier, 2017a)
Adaptive quizzing 20 student selected questions for each concept in exam mode	Self-paced	Development Collaboration Communication Safety Cognition Mobility Sensory perception	Elsevier adaptive quizzing for the NCLEX-RN exam software (Elsevier, 2017a)
Course objectives: 1, 2, 3, 4, 5 Learning objectives: 1, 2, 3, 4, 5, 6, 7, 9, 10			

Week 5 (On campus)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Agenda review	5 minutes		
20 Multiple choice and alternate format questions selected from course texts	25 minutes	Development Collaboration Communication Safety Cognition Mobility Sensory perception	Paper, pencil/pen, Nugent & Vitale (2014), Nugent & Vitale (2016), Silvestri (2017).
Concept development by group discussion Exemplar development by	35 minutes	Mobility Osteoarthritis	Concept handout Exemplar handout

group discussion			
Break	10 minutes		
Unfolding case study group activity	55 minutes	Safety and the older adult with dementia	Computer Projection Internet Case study handout
Formative assessment	5 minutes	One minute paper	Paper, pencil/pen
Wrap up	15 minutes	Review of content and questions Preview of week 6 assignments	Taking Steps for Success curriculum handout
Course objectives: 2, 3, 4, 5 Learning objectives: 3, 4, 5, 6, 7, 9, 10	Total: 150 minutes		

Week 6 (Online)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Professional nursing concepts Health and illness concepts	Self-paced	Educator Health promotion Elimination Fluid & electrolytes Acid-base balance Pain/comfort	Berman et al. (2016). Review Chapters 16, 27, 46, 48, 49, 52 NCLEX-RN test plan (NCSBN, 2015b).
<u>Case studies and practice questions</u>	Self-paced	Constipation Fluid balance Pain Urinary patterns	HESI RN case studies with practice test software (Elsevier,2017c)
<u>Adaptive quizzing</u> 20 student selected questions for each concept in study mode	Self-paced	Educator Health promotion Elimination Fluid & electrolytes Acid-base balance Pain/comfort	Elsevier adaptive quizzing for the NCLEX-RN exam software (Elsevier, 2017a)
<u>Adaptive quizzing</u> 20 student selected	Self-paced	Educator Health promotion Elimination	Elsevier adaptive quizzing for the NCLEX-RN exam software

questions for each concept in exam mode		Fluid & electrolytes Acid-base balance Pain/comfort	(Elsevier, 2017a)
Course objectives: 1, 2, 3, 4, 5 Learning objectives: 1, 2, 3, 4, 5, 6, 9, 10			

Week 7 (On campus)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Agenda review	5 minutes		
20 Multiple choice and alternate format questions selected from course texts	25 minutes	Educator Health promotion Elimination Fluid & electrolytes Acid-base balance Pain/comfort	Paper, pencil/pen, Nugent & Vitale (2014), Nugent & Vitale (2016), Silvestri (2017).
Concept development by group discussion Exemplar development by group discussion	35 minutes	Elimination Constipation	Concept handout Exemplar handout
Break	10 minutes		
Unfolding case study group activity	55 minutes	Veteran with chronic pain	Computer Projection Internet Case study handout
Formative assessment	5 minutes	Muddiest point	Paper, pencil/pen
Wrap up	15 minutes	Review of content and questions Preview of week 6 assignments	Taking Steps for Success curriculum handout
Course objectives: 2, 3, 4, 5	Total: 150 minutes		

Learning objectives: 3, 4, 5, 6, 9, 10			

Week 8 (Online)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Professional nursing concepts Health and illness concepts Content review	Self-paced	Clinical judgement Evidence Gas exchange Perfusion Tissue integrity Vital signs Medications	Berman, Snyder, & Frandsen (2016). Review Chapters 2, 10, 29, 35, 36, 50, 51, NCLEX-RN test plan (NCSBN, 2015b).
Case studies and practice questions	Self-paced	Breathing patterns Skin integrity	HESI RN case studies with practice test software (Elsevier,2017c)
Adaptive quizzing 20 student selected questions for each concept in study mode	Self-paced	Clinical judgement Evidence Gas exchange Perfusion Tissue integrity	Elsevier adaptive quizzing for the NCLEX-RN exam software (Elsevier, 2017a)
Adaptive quizzing 20 student selected questions for each concept in exam mode	Self-paced	Clinical judgement Evidence Gas exchange Perfusion Tissue integrity	Elsevier adaptive quizzing for the NCLEX-RN exam software (Elsevier, 2017a)
Course objectives: 1, 2, 3, 4, 5 Learning objectives: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10			

Week 9 (On campus)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Agenda review	5 minutes		

20 Multiple choice and alternate format questions selected from course texts	25 minutes	Clinical judgement Evidence Gas exchange Perfusion Tissue integrity Vital signs Medications	Paper, pencil/pen, Nugent & Vitale (2014), Nugent & Vitale (2016), Silvestri (2017).
Concept development by group discussion Exemplar development by group discussion	35 minutes	Gas exchange Atelectasis	Concept handout Exemplar handout
Break	10 minutes		
Unfolding case study group activity	55 minutes	Older adult with foot ulcer	Computer Projection Internet Case study handout
Formative assessment	5 minutes	One minute paper	Paper, pencil/pen
Wrap up	15 minutes	Review of content and questions Preview of week 10	Taking Steps for Success curriculum handout
Course objectives: 2, 3, 4, 5 Learning objectives: 3, 4, 5, 6, 7, 8, 9, 10	Total: 150 minutes		

Week 10 (On campus)			
Topic/Activity	**Hours**	**Description of Segments**	**Materials**
Summative assessment: Final Exam	120 minutes	HESI Fundamentals Exam: Standardized final exam includes 50 scored test items and 5 non-scored test items.	Computer Internet HESI specialty exam software (Elsevier,2017d).

Summative assessment: End of course evaluation	20 minutes		Paper, pencil/pen
Course wrap up	10 minutes	Questions	
	Total: 150 minutes		

The Concept of *insert concept* **(**Outline for concept development to be completed by students as a group in Weeks 3, 5, 7, and 9).

1. Definition:
2. Scope or categories:
3. Risk factors

Physiologic processes and consequences

1. Effects of impaired *insert concept*
2. Assessment

Nursing management

How are these interrelated concepts linked to the concept of mobility?

What are the nursing considerations associated with these interrelated concepts?

Exemplars

Insert concept **Exemplar:** *insert exemplar* (Outline for a concept exemplar to be completed by students as a group in Weeks 3, 5, 7, and 9).

Description

Risk Factors

Diagnostics

Assessment

Nursing Interventions

Other Treatment

Taking Steps for Success Quizzes

In Weeks 3, 5, 7, 9 students will complete 20 multiple choice and alternate format questions selected from Nugent and Vitale (2014, 2016) and Silvestri (2017) course texts. Questions chosen by faculty will serve as a review of the previous week's content. Each quiz will include multiple choice items, multiple response items, fill-in-the-blank calculation items, ordered response items, and graphic and illustration items similar to the types of questions found on NCLEX-RN.

Taking Steps for Success

The Muddiest Point Formative Evaluation

Date: _____

What topic is the least clear to you?

_____

_____

_____

_____

Taking Steps for Success
One Minute Paper Formative Evaluation

Date: _____

In one minute, tell me what you learned today.

_____

_____

_____

_____

Taking Steps for Success
Summative Evaluation

Date_____

Your evaluation of Taking Steps for Success is important. This feedback is valuable for program evaluation and future improvement. Thank you for completing this survey.

		Strongly Disagree			**Strongly Agree**	
	Question	**1**	**2**	**3**	**4**	**5**
1	Faculty established clear expectations for student participation.					
2	Faculty illustrated the relevancy of nursing concepts to professional practice.					
3	Faculty presented content in an organized manner.					
4	The course has improved my critical thinking and problem solving skills related to comprehensive care and management of patients.					
5	The course has improved my competence in health promotion and disease prevention activities.					
6	The course has improved my competence in assessing, evaluating and applying current evidence to practice.					
7	Technology integrated throughout the course enhanced my learning.					
8	Overall, I was satisfied with course faculty.					
9	Overall, I was satisfied with the Taking Steps for Success course.					
10	I would recommend Taking Steps for Success to others.					