QUALITY REMEDIATION PROGRAMS LEAD TO SUCCESSFUL LEARNING

A Doctoral Thesis Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Education

by

Katherine T. Ralph

December 2018

Acknowledgments

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Abstract

Background: The mission of nursing programs is to prepare as many students as possible to pass the first-time attempt on the National Council Licensure Examination-RN (NCLEX-RN®). If a school's first-time pass rate drops below 80%, the school is at risk of being closed by the State Board of Nursing. Furthermore, a student's ability to work as a registered nurse (RN) depends on passing the NCLEX-RN®, and the overall impact on our nation's health due to the current nursing shortage. **Purpose:** The purpose of this study was to examine the policies and strategies used in nursing programs to increase NCLEX-RN® first-time attempt pass rates and student retention rates. This study focused on Associate Degree in Nursing (ADN) programs due to their less rigorous admission criteria, larger enrollment numbers, and higher percentage of students enrolled who are considered more "at-risk" of not being successful in graduating and passing the first-time attempt of the NCLEX-RN®, in comparison to four-year nursing programs. The research questions were: 1) What remediation policies and strategies were implemented in nursing programs to increase student retention rates? 2) What remediation policies and strategies were implemented in nursing programs to increase NCLEX-RN® exam first-time pass rates? **Methods:** The research study was a qualitative descriptive study using semi-structured interviews. Participants were designees of ADN programs in Texas with an 80% passing rate for the 2017 NCLEX-RN® and a retention rate of 50% or higher. Five nursing directors and one Success Coordinator, representing six programs, were interviewed. The research questions were asked in an open-ended manner to provide insight on the strategies implemented for student success. Probing questions were asked based on the participants' responses. The data collected in these

interviews were analyzed to identify the common tendencies, frequencies, and variations of the policies and strategies implemented by the different nursing programs. A seven-step coding protocol was used and included: 1) defining the themes as independent constructs, 2) transcribing the interviews, 3) identifying relevant parts for analysis, 4) producing an initial template, 5) developing the template, 6) using the final template to interpret the findings, and 7) performing a "quality and reflexivity" check to prevent bias and preconceived assumptions. **Findings:** The findings of this study were consistent with previous studies that examined variables and remediation strategies that had an impact on student success. For Research Question 1, participants felt that a combination of academic and non-academic remedial strategies contributed greatly towards student success. Additionally, programs that used a block-based curriculum had higher student retention rates. For Research Question 2, a standardized "NCLEX-RN" predictability exam was administered to all students and a remediation plan was developed based off those results. Additionally, programs that used integrated curriculum had higher NCLEX-RN® pass rates. **Conclusion:** Admirable was the participants' holistic approach toward educating students. Noteworthy, it appeared even though the block-based programs had a higher percentage of at-risk students, they produced the same percentage of RNs as the integrated curriculum programs. Participants acknowledged the importance of administration's support and partnership in promoting students' success.

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Chapter 1

Introduction

Nursing students and nursing programs share a common goal of increasing the first-time pass rate of the National Council Licensure Examination-RN (NCLEX-RN®). This standardized exam is reflective of the necessary critical thinking skills and knowledge determined by the National Council of State Boards of Nursing (NCSBN®) that a novice nurse entering the workforce should possess, based on current practice standards, to deliver safe patient care. Today's healthcare system has become increasingly convoluted by the growing complexities of the patients entering the healthcare system and the different networks and venues affecting the delivery of healthcare to the public. The need to increase the numbers of registered nurses (RNs) to meet the growing demands of our country's aging population and to reduce the nursing shortage has gained the attention of various entities in the health field and the governing bodies of numerous nations (Buerhaus, 2008; Elgie, 2007; Kuehn, 2007; Rosseter, 2017; Yeom, 2013).

A 2004 report by the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA) sounded the alarm, issuing a warning about a nursing shortage projected for 2020. This warning triggered the need to increase the numbers of graduating nursing students to counteract this predicted nursing shortage (HRSA, 2004). According to the latest HRSA report released in July 2017, there will be a projected surplus of RNs by 2030. Unfortunately, the projected surplus of nurses is not evenly distributed throughout the nation; there are still projected shortages of RNs in several states (HRSA, 2017). Several studies have also established that it is important to

focus not only on the number of nurses registered by the state boards of nursing as being licensed to practice nursing, but also on the number of nurses present at a patient's bedside to provide nursing care, as this significantly affects the overall quality of care, increasing the likelihood of positive health outcomes during patients' hospitalization and reducing negative outcomes like infection rates, hospital readmissions, and patient mortality rates (Needleman, Pankratz, Leibson, Stevens, & Harris, 2011; Tubbs-Cooley, Cimiotti, Silber, Sloane, & Aiken, 2012). Thus, the urgency to increase the number of graduating nurses who pass the NCLEX-RN® to enter the workforce remains crucial for the overall quality of our nation's health.

Due to the impact that a nurse's presence at the bedside has on patients' outcomes and the increased demand for more working nurses, nursing programs are looking for remediation strategies and solutions to lessen the attrition rates of nursing students while increasing the first-time attempt passing scores of the NCLEX-RN® exam so graduating nurses can join the workforce. A strategy that has shown to prepare and improve a nursing student's odds to successfully pass the NCLEX-RN® exam on the first attempt is a quality remediation program (Sifford & McDaniel, 2007). However, there is a lack of studies that focus on which strategies and interventions nursing school programs have utilized and implemented in their remediation programs (Pennington & Spurlock, 2010). The researcher defines a quality remediation program as one that has policies and established strategies in place for early identification of students who are at-risk of failing and has shown to increase the retention rate of the nursing students and better prepare them to be successful in earning a passing score on the first-time attempt taking the NCLEX-RN® exam.

Statement of the Problem

It is mandatory for students to pass the NCLEX-RN® exam in order to join the healthcare workforce as RNs in the United States and Canada and increasing the first-time pass rate is beneficial for students and nursing programs alike. First-time pass scores on the NCLEX-RN® exam not only impact the students but also determine the accreditation status of the nursing programs, as nursing programs are evaluated and accredited based on their students' first-time pass rates. If a nursing program's average first-time pass rate falls below 80%, then the nursing program is in jeopardy of losing its accreditation status and could be closed by its state board of nursing.

To add to this predicament, nursing programs have been challenged by the national nursing organizations, leaders in the nursing field, the Health Resources and Services Administration's (HRSA's) Division of Nursing, and other stakeholders to increase the number of enrolled students, as well as to increase the enrollment of students who reflect the growing diversity of our population. White, Zangaro, Kepley and Camacho (2014) emphasized that HRSA's national survey of RNs in March 2008 did not reflect the current percentages of minorities in the United States. The HRSA survey stated that only 16.8% of the RNs were minorities and did not represent the 27.6% of the minorities in the United States, as demonstrated in Table 1, which depicts the racial demographics of registered nurses (RNs) in the USA.

Table 1

Racial Demographics of Registered Nurses in Comparison to the U.S. Census Population

Registered Nurses (2008)			U.S. Census Bureau (2010)	
Racial/ethnic background	**Total estimated number**	**Total estimated percentage**	**Total estimated percentage**	**Note**
U.S Total	3,063,162	100.0	100.0	
White (non-Hispanic)	2,549,302	83.2	72.4 (White*)	
Black/African American (non-Hispanic)	165,352	5.4	12.6 (Black*)	
Asian (non-Hispanic)	169,454	5.5	5.0	U.S. Census Bureau combined
Native Hawaiian/ Pacific Islander	9,528	0.3		
American Indian/Alaskan Native	8,571	0.3	0.9	
Hispanic/Latino (any race)	109,387	3.6	16.3*	U.S. Census Bureau: this encompasses those who identify as Hispanic but of one of the races above
Two or more races (non-Hispanic)	51,568	1.7	2.9	

Note. Adapted from HRSA, 2008 & U.S. Census Bureau, 2010.

Horton (2015) asserted that increasing the number of enrolled nursing students and expanding the diversity of nursing student populations, as well as enrolling a higher number of "non-traditional" students, could lead nursing programs experiencing a higher number of students who are considered to be more "at-risk" for failure. These

circumstances, along with the increasing level of difficulty of the NCLEX-RN® exam itself, has been very taxing and challenging to nursing programs. Nursing programs are looking for strategies and solutions to decrease attrition rates and to improve the first-time pass rate on the NCLEX-RN® exam. The quandary is determining which of the numerous remediation educational strategies available have a proven record of accomplishment for facilitating successful learning and what protocols have been shown to be successful in achieving these goals. At the same time, it is important that "the key objective in remediation of students must be grounded with an intentional use of learning theory and frameworks to determine if the students are provided quality educational interventions" (Evans & Harder, 2013, p. 150).

Purpose of the Study

The purpose of this study was to examine the policies and strategies used in nursing programs to increase NCLEX-RN® first-time attempt pass rates and student retention rates. The study was conducted using semi-structured interviews to determine which policies and strategies nursing programs have chosen for their remediation efforts. The acquisition and analysis of the information from the nursing programs based on the Intervention Mapping Framework developed by Bartholomew, Parcel, and Kok (1998). The creators of the Intervention Mapping Framework stated that

> the purpose of Intervention Mapping is to provide health education program planners with a framework for effective decision making at each step in the intervention development process. … The steps and procedures included in Intervention Mapping provide a system for the integration of theory, empirical findings from the literature, and information collected from the target population.

(Bartholomew, Parcel, & Kok, 1998, p. 545-546)

This framework is similar to the organized approach of assessing a patient's health status developed by Dr. Lawrence Weed in the 1950s, termed the Problem-Oriented Medical Record (POMR), which later evolved into the Subjective-Objective-Assessment-Plan (SOAP) and further progressed into the Subjective-Objective-Assessment-Plan-Intervention-Evaluation (SOAPIE) format (Grimes, 2017). The SOAPIE documentation of a patient's health assessment is used to identify a "Nursing Diagnosis" to plan nursing interventions to help resolve the identified "Nursing Diagnosis." This is followed by which of the nursing interventions (I) were implemented and evaluation (E) of the patient's response to the interventions and the current state of health in relation to the identified "Nursing Diagnosis." Legally, this format objectively documents nursing care services provided for an identified actual or potential alteration in physical and/or psychological body function.

The similarity of the SOAPIE documentation in comparison to Bartholomew's Intervention Mapping Framework is befitting, considering this research centers upon nursing students. The identification and evaluation of remediation policies and strategies (interventions) that demonstrate a significant impact on NCLEX-RN® exam first-time pass rates and student retention rates is similar to a patient's SOAPIE documentation. The interventions (*strategies*), which the researcher has termed "pillars," give support to a structure's roof (*the nursing remediation program*), which provides inhabitants the means to be sheltered in an environment (*student retention in nursing program* [short-term goal]) to thrive and flourish (*passing NCLEX-RN® exam score* [long-term goal]) and ultimately work as an RN. Simply written: the policies of the "pillars" implemented

in supporting the “nursing remediation program” provide the means for nursing students’ retention in school and earning a passing score on the first-time attempt on the NCLEX-RN® exam, allowing them to work as a RN. Figure 1 depicts the “SOAPIE” format of documentation as it aligns with the “Intervention Mapping Framework” in identifying and assessing what the problem(s) may be, strategizing and planning interventions to remediate the identified problem(s), implementing the interventions, and finally evaluating the impact the strategies and interventions had on the identified problem(s).

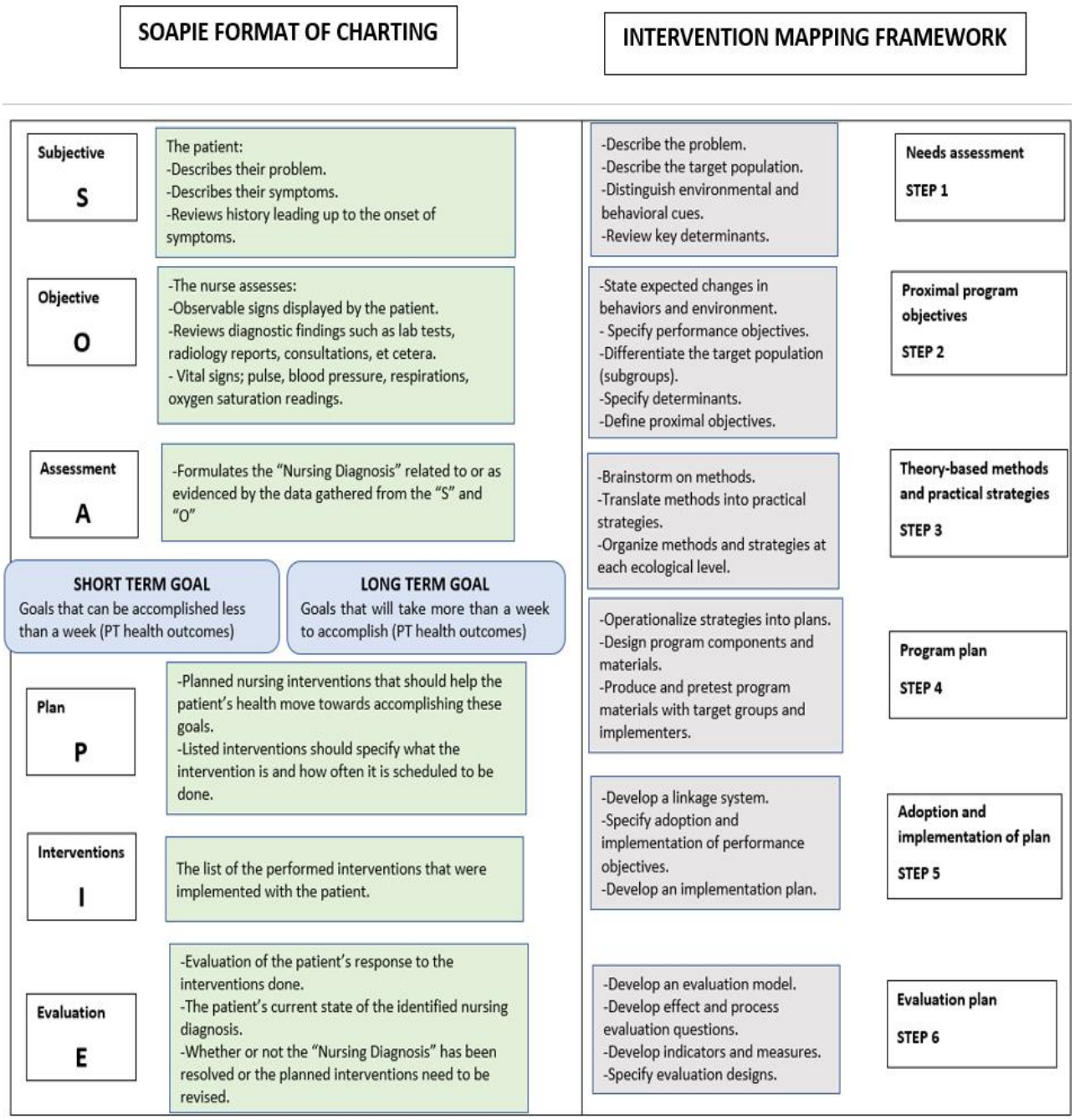


Figure 1. SOAPIE Format and Intervention Mapping Framework. (Adapted from Grimes, 2017; Bartholomew, Parcel, & Kok, 1998)

Pillars of Remediation Programs

The decision-making process involved in selecting strategies for a remediation program can cause uncertainty and become stressful to nursing school faculty. Nursing programs are always "striving to identify ways to work smarter, rather than harder"

(Brown & Marshall, 2008, p. 205). The researcher has selected four different remediation strategies and termed them "pillars." The term "pillar" was chosen because the definition of "pillar" is "a firm upright support for a superstructure" or "a supporting, integral, or upstanding member or part < a pillar of society>" (Pillar, n.d.). The researcher believes that the identified pillars for a successful remediation program are: Early Identification of the At-Risk, Teaching, Mentoring, and Reinforcement, accompanied by the Administrative Support pillar, which is institution-dependent and varies from college to college. Each of the identified pillars have been implemented successfully on their own as remediation tools, with the exception of the "administrative support" pillar, which operates under the confines of each college institution. Ideally, it is the researcher's belief that all of the identified pillars working together creates synergy, thus creating a utopian environment for a successful remediation program that generates successful learning. The conceptualization and creation of the remediation model, Figure 2, reflects this belief. Implementing strategies that work together to enhance students' acquisition of new knowledge through established strategies creates quality remediation programs, which lead to successful learning.

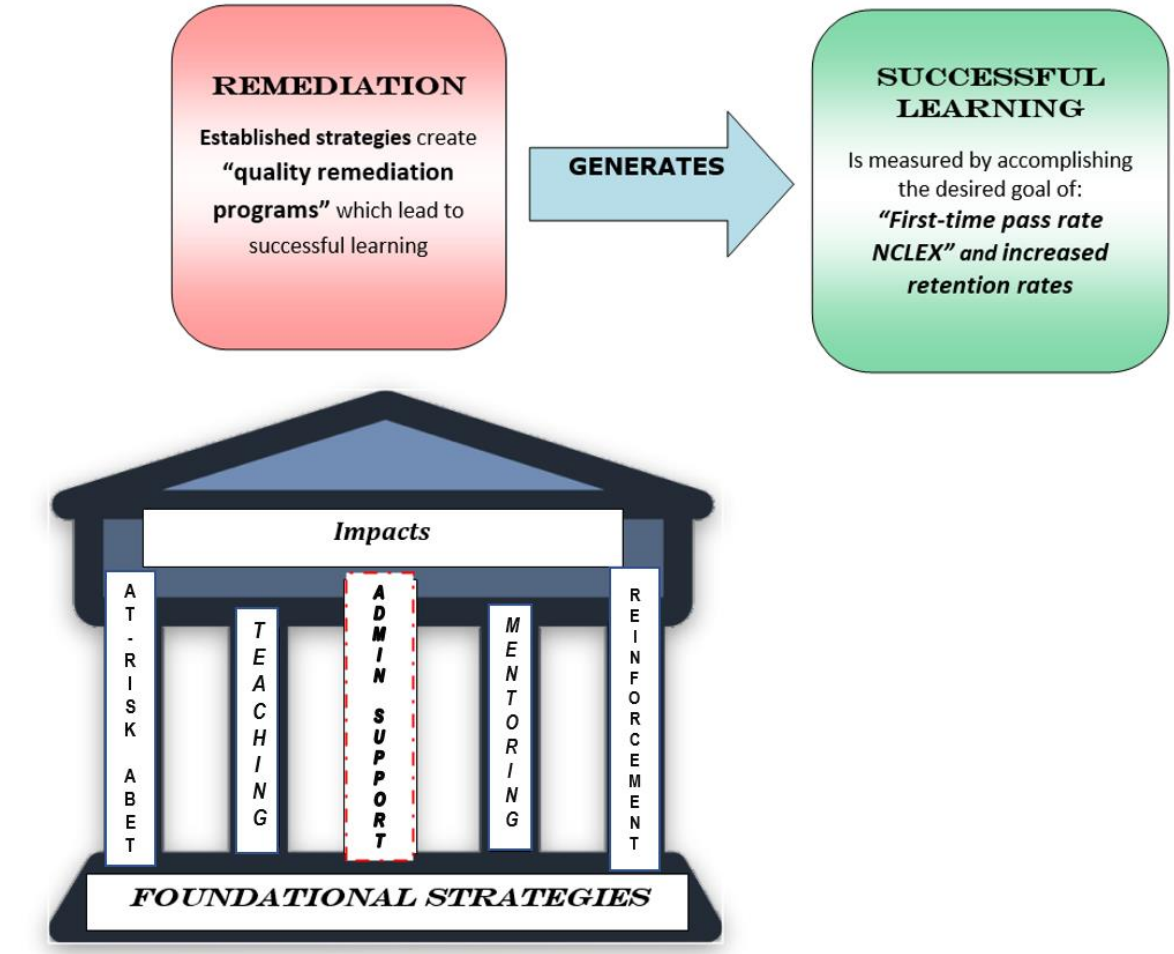


Figure 2. Conceptual model: Remediation model.

Early identification. The first pillar represents the "at-risk" student. A non-traditional student has been identified as a student who is at increased risk for attrition (Rudel, 2006). These students tend to be older, ethnically diverse, and possess multiple stressors such as finances, employment, and family responsibilities (Bednarz, Schim, & Doorenbos, 2010; Choy, 2002; Harris, Rosenberg, & O'Rourke, 2014). These stressors can be either internal and/or external attributes and circumstances that impact the student's performance in the academic setting (Horton, 2015). These non-traditional students often feel alone, overwhelmed, and frustrated due to the perceived lack of empathy and consideration for their family and life circumstances from the nursing faculty (Harris, Rosenberg, & O'Rourke, 2014).

Another factor that has been identified to increase a student's risk for failing is the lack of college preparation and/or the lack of recall of previously taught information from anatomy and physiology, biology, chemistry, pharmacology, and medical-surgical courses (Lockie, VanLanen, & McGannon, 2013; Trofino, 2013). Retention of information, as well as understanding the content of these hard science courses, is necessary to facilitate the acquisition and application of nursing knowledge. One research study indicated early identification of a student's learning style is important and noted that if a nursing student favors Kolb's "accommodator" learning style, they could be more at risk of failing the NCLEX-RN® exam (Lockie, VanLanen, & McGannon, 2013).

Nursing students' scores on the standardized national exams required for admission can also be used as tools to identify which students are at risk for not being successful in the nursing program and/or in the first-time attempt on the NCLEX-RN®

exam. Most nursing programs look at students' performance on nationally administered exams such as the Scholastic Assessment Test (SAT) and American College Testing (ACT), along with the Health Education Systems Incorporated Admission Assessment (HESI-A2) and Assessment Technologies Institute's Test of Essential Academic Skills (ATI-TEAS) to determine their admission eligibility. Even though a student is admitted into a nursing program by meeting the admission criteria, the nursing faculty should still look at the student's scores on these exams to determine if the student should be identified as an "at-risk" student. The SAT is used by most four-year colleges as part of the admission process, and a student's performance on the verbal section of the SAT has shown to correlate with the student's first-time attempt score on the NCLEX-RN® exam (Grossbach & Kuncel, 2011). The higher a student's verbal score is on the SAT, the greater likelihood the student will earn a passing score on the first-time attempt on the NCLEX-RN® exam.

The HESI-A2 (Figure 3) and ATI-TEAS (Figure 4) exams measure a student's level of mastery of the English language, reading, math, and science. The HESI-A2 also includes sections on "Personality Profile" and "Learning Styles." The "composite score," an average of the scores earned on the English language, reading, math, and science sections, on the HESI-A2 and ATI-TEAS have shown to correlate with a student's success in nursing school (Cunningham, Manier, Anderson, & Sarnosky, 2014; Hinderer, Dibartolo, & Walsh, 2014; Knauss & Willson, 2013; Wolkowitz, 2011). Additionally, admission committees need to keep in mind that students seeking admission into a nursing program have been known to retake the HESI-A2 and ATI-TEAS several times to earn the score required to meet the nursing school admission criteria and/or to increase

their overall score to be more competitive in the admission selection process (Wolkowitz, 2011).

Admission committees should be mindful when screening nursing program applicants that the HESI-A2 and the ATI-TEAS have different standards established for repetitive taking of their exams, and the score documented and seen by the admission committee on an application is the highest recorded score earned by the student. The subsequent testing criteria for the HESI-A2 exam requires a minimum of 60 days between exam attempts, and only three exam attempts are allowed in a 12-month period. The criteria on how many subsequent tests a student may take for the ATI-TEAS exam varies and is determined by the institution to which the student is applying. However, a student must wait a minimum of 31 days before being allowed to retake the ATI-TEAS exam, so theoretically, a student could take an ATI-TEAS admission exam as many as 10 times in one calendar year. The purpose and intent of the HESI-A2 and ATI-TEAS exams is to provide the admission committees a score that should reflect a student's predicted performance and success in a nursing program. When students take these exams several times to earn a higher score in order to make an application more competitive or to earn acceptance into a nursing program, the predictability value of the score documented on the admission application becomes skewed (Wolkowitz, 2011).

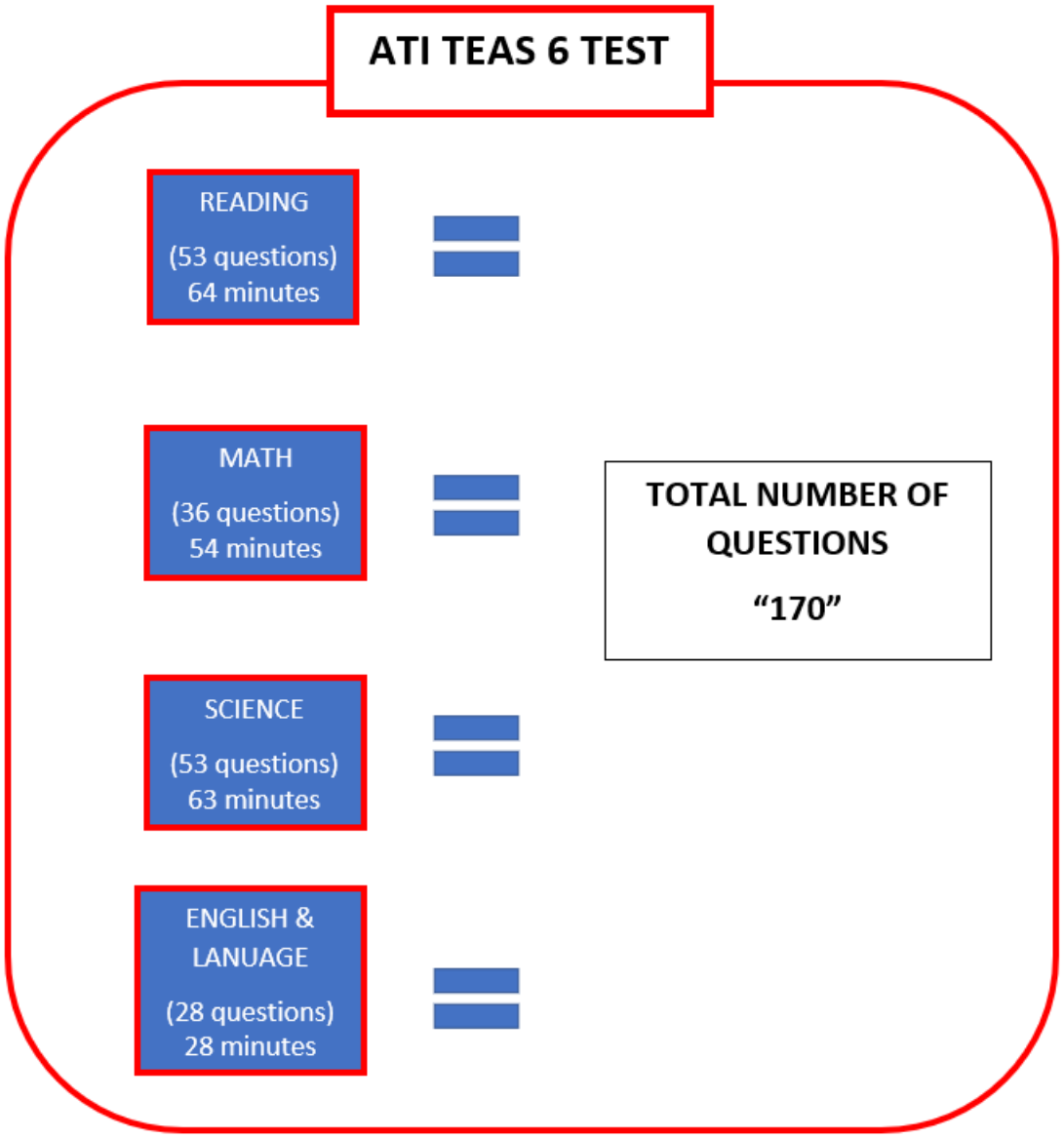


Figure 3. ATI-TEAS test.
(Adapted from ATI TEAS Test, n.d.)

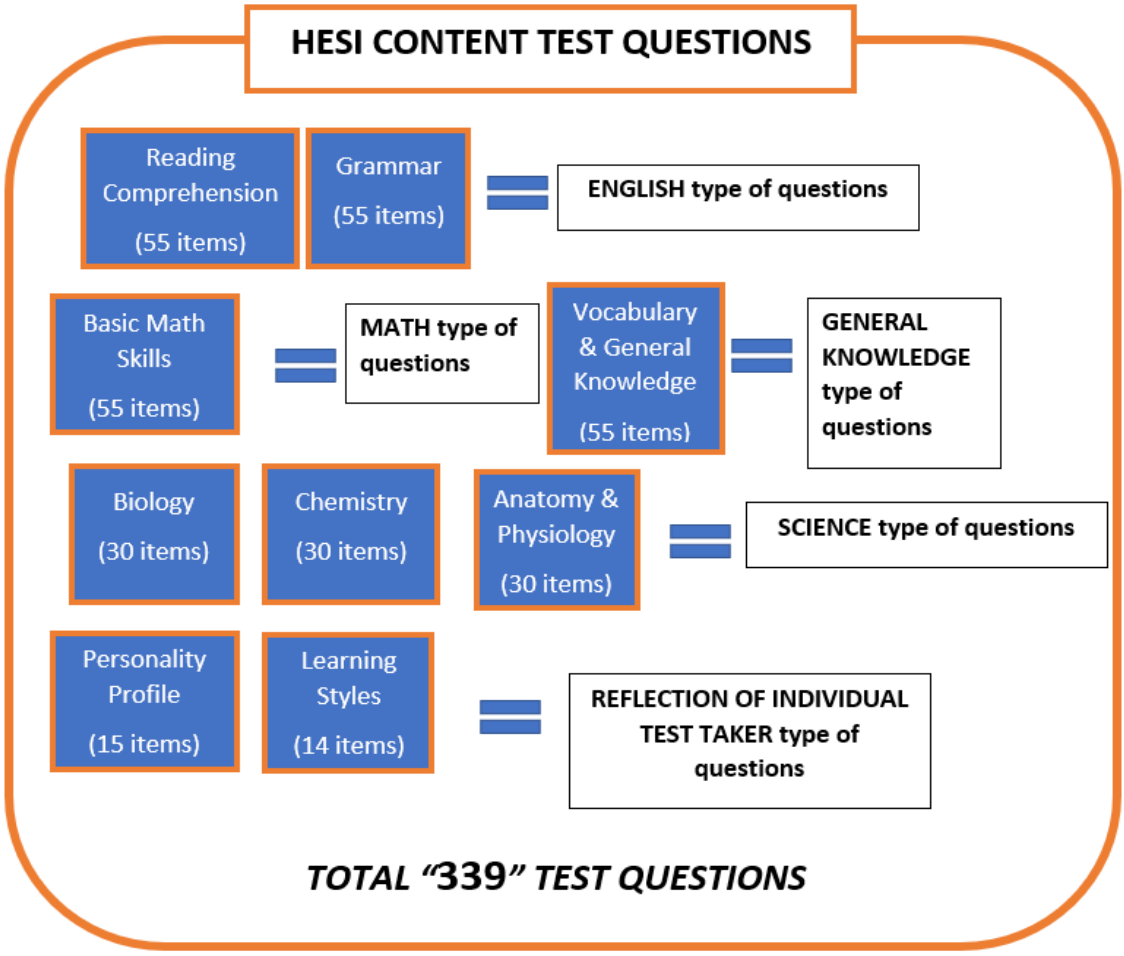


Figure 4. HESI-A2 exam.
(Adapted from HESI A2 Test, n.d.)

Overall, there are numerous factors and indicators that place a nursing student at increased risk for failing or dropping out of a nursing program and/or not successfully passing the first-time attempt on the NCLEX-RN® exam. Regardless of the circumstances for being an "at-risk" student, research has shown that the earlier an at-risk

student is identified, and remediation begins, a successful outcome is more likely (Abele, Penprase, & Ternes, 2013; Custer, 2016; Yeom, 2013). Nursing faculty need to be attentive to students' potential risk factors for not being successful in nursing school during the planning and development of curriculum and the delivery of instruction to the students.

Teaching. The second identified pillar is Teaching: the methods and learning theories that have been utilized in the nursing programs to enhance and facilitate the knowledge necessary for a student to graduate and successfully pass the NCLEX-RN® on the first attempt. "There are a variety of teaching strategies that instructors can use to improve student learning. It is of great importance to select appropriate teaching strategies in nursing education to make training more appealing and more effective" (Xu, 2016, p 54). It is imperative for the teacher and the student to explore and determine which teaching strategies are best suited for the student. The strategies can be a broad application to the design of the nursing curriculum, as in block delivery of topics versus integrated delivery of nursing topics, or as specific as lesson plan development. Regardless of the selection and implementation, teaching strategies should be based on learning theories and designed to support the student's learning style and needs (Evans & Harder, 2013). Two learning theories that Chan (2013) noted to be helpful in designing and selecting strategies to enhance students' learning were Kolb's Experiential Learning Cycle (ELC) and Mezirow's Transformative Learning Theory (TLT).

It is important that nurse educators provide a learning environment that utilizes teaching strategies that actively engage students and help them develop the art of critical thinking. It is essential for nursing students to develop critical thinking in order to be

successful. Critical thinking is demonstrated when one is able to seek out information, examine its context, understand and discriminate data, identify the relationships between the information, and make appropriate decisions based on the data (Chan, 2013). Developing critical thinking skills is imperative for nursing students because of the increasing, demanding complexities of our healthcare system and patients. To be successful on the NCLEX-RN® exam, the students need to be able to think critically, as the items on the exam are multi-logical and require critical thinking to be answered correctly.

Mentoring. The third pillar is Mentoring, often referred to as Coaching, students. The overall effects of coaching students, interwoven with teaching and delivering the curriculum, has made a more powerful impact on raising understanding, skills, and attainment of knowledge for students, than other approaches (Joyce & Showers, 1995). It has been shown that students who are coached are less likely to fail and demonstrate a 9-12% increase in retention than those who had not been coached (Bettinger & Baker, 2013). In addition to lowering the attrition rate, mentoring has increased student satisfaction, decreased student confusion and frustration, and increased student interaction (Giordana & Wedin, 2010). Coaching has been shown to have a better return on investment than programs that provide only financial aid (Gardner, 2005b). Overall, coaching is less costly to implement and has produced residual effects on students, even after the coaching has stopped, demonstrated by an increase in college retention and higher graduation rates (Bettinger & Baker, 2013).

Implementation of mentoring programs appears to have the greatest positive impact on non-traditional and minority students. Data suggest that minority students face

a higher attrition rate than their non-minority peers in nursing programs (Bednarz et al., 2010; Gardner, 2005a). The need to implement mentoring programs is more imperative today due to the increasing enrollment of minority nursing students to meet the need of being more reflective of the nation's diverse population. In order for a nurse educator to be effective as a mentor, they need to be more culturally competent and adaptive to meet a diverse student body's learning need (Gibbs & Culleiton, 2016). One study implied that mentoring programs would be more successful with the recruitment of more diverse faculty members to serve as mentors. Students were more likely to look upon faculty members who were more ethnically similar to themselves as role models (Gilchrist & Rector, 2007).

Successful mentoring programs that look at students holistically are more informed on how to provide the students the necessary support and strategies for personal and social issues. The more nursing mentoring programs utilize strategies based on theories such as Tinto's Theory of Student Retention, the more successful students should be. Gardner (2005b) believed that the more students felt committed and had an allegiance to an institution, the more likely they were to succeed and graduate.

Reinforcement.

The final pillar in this study is Reinforcement. This pillar represents different strategies that nursing programs have implemented to evaluate and guide students' progression throughout the nursing curriculum and remediation programs. Studies have shown that nursing students experience many academic and personal stressors as they navigate through the rigors of a nursing program, and this stress causes them to prioritize their time and commitments. More importantly, studies have shown that students are

likely to devalue remediation protocols and strategies if there are no consequences or requirements for completion of remedial assignments (Lauer & Yoho, 2013).

To help counterbalance the increasing challenge of identifying at-risk students and predicting student success, nursing programs often turn to using standardized tests to help reinforce and evaluate a student's nursing knowledge and predict the performance on the NCLEX-RN® exam. Standardized testing has become an accepted practice of many nursing schools across the nation. Standardized exams noted in the literature review to be the most commonly used to predict NCLEX-RN exam results were the Health Education Systems Incorporated (HESI) exams and the Assessment Technologies Institute (ATI) exams.

The HESI Exit Exam (HESI-E2) is an exam used by nursing schools to predict a student's success on the first-time attempt on the NCLEX-RN® exam. It is designed to simulate the NCLEX-RN® test-taking experience by using the same blueprint of the NCLEX-RN® exam and the same format of questions. The exam consists of 160 questions – 10 of which are pilot items that do not reflect upon the student's score. The maximum score for the exam is 1800, with a national mean of 823 in 2010 (Barton, Langford, Willson, & Schreiner, 2014). Most schools set the passing benchmark above 850. One study noted the level of difficulty for each item was no less than 40%, with an average discrimination index of at least 0.15 (Langford & Young, 2013) and a KR20 ranging from 0.84 to 0.92 (Barton et al., 2014). Another study noted the exam had a predictability of 90% to accurately report NCLEX-RN® scores (Nibert & Morrison, 2013). The ninth validity study on the HESI-E2 reflected a 96.61% accurate predictability of students' success on the NCLEX-RN® exam (Zweighaft, 2013). One

author remarked that nursing programs used standardized tests such as the HESI Specialty Exams throughout their nursing curriculum because they helped "familiarize students with the type of test items and the test administration process used by the NCSBN, thereby helping to prepare them for the licensing exam" (Schroeder, 2013, p. 545).

The Assessment Technologies Institute (ATI) exams, comprised of the ATI RN Comprehensive Predictor and Remediation Package (CARP). This product included a review course named content mastery series (CMS) which provided content-based tests that reported the scores earned by the students to forecast a student's readiness for the NCLEX-RN® exam. The CMS provides eight content-specific assessments. Each ATI Content-Mastery exam is designed to be taken shortly after students are presented with the associated content in their theory course. The ATI standardized tests are used to reinforce the curriculum by requiring the student to complete two non-proctored exams on the same content with a score of 90% or better. The non-proctored exams are designed to help identify a student's areas of weakness requiring review and remediation prior to taking the proctored exam of the content presented in the theory course. It is estimated that, "by completing the ATI non-proctored and proctored Content-Mastery examinations for each content area, students complete over 1,200 NCLEX-style questions. This helps students develop their test-taking skills and builds endurance for the NCLEX-RN exam" (Heroff, 2009, p. 80). No official validity studies are published regarding the ATI standardized exams, but one study concluded that the only content mastery series that appears to correlate with predicting students' outcome on the NCLEX-RN® exam was pharmacology, with 73.7% accuracy (Emory, 2013).

Notably, there has been much discussion about the fairness and legality of the use of standardized exams and the implications for students based on their performance on these exams. Standardized tests are meant to be used as predictors of a student's success on the first-time attempt on the NCLEX-RN® exam. Due to the overall average of graduated students' first-time attempt scores on the NCLEX-RN® exams impacting nursing programs' accreditation status, many schools have used the standardized tests as high-stakes exams. In these cases, the results of these exams can affect whether a student graduates and/or is endorsed to take the NCLEX-RN® exam. In February 2012, the National League for Nursing (NLN) Board of Governors issued a statement titled "The Fair Testing Imperative in Nursing," which discussed the Board's concerns about standardized testing being used as a high-stakes exam.

The NLN Governors Board acknowledged that standardized testing has benefits in identifying students' areas of weaknesses and strengths and in comparing students' scores to other nursing students in the nation. However, the Board declared the use of standardized tests to prevent a student from graduating and/or taking the NCLEX-RN® exam, even though they had passed the entire nursing program's curriculum requirements, was not just, and this practice subsequently has become a subject of lawsuits and litigation. The NLN Board recommended that nursing programs ensure that they use fair-testing policies, and it developed a set of guidelines for nursing schools to use as they develop and implement testing policies (2012).

One of the standardized test companies, Elsevier, which develops the HESI exams, concurs with the NLN board and has stated that the company's tests should not be administered as high-stakes exams, but instead as tools to help validate students' areas of

strengths and readiness to take the NCLEX-RN®, identify students' areas of weaknesses, and guide remediation plans. An article by one of the Nursing Education Consultants for Elsevier, "Help! Standardized Tests Increase My Students' Stress," listed six recommendations to help students manage stress associated with standardized tests. The recommendations are the following:

1. Standardized tests should not be used as the single evaluation method to determine students' ability to sit for the NCLEX exams.
2. Ongoing preparation for the NCLEX examination throughout the course of study is essential. Such as having discussions with students, on an ongoing basis, the reasons for requiring standardized tests and give them specific instructions about its use.
3. Offer content-specific standardized tests across the curriculum.
4. Provide students with stress reduction strategies.
5. Develop and implement a robust remediation program that requires students to be accountable for the remediation.
6. Refer students who seem to have test-anxiety that cannot be addressed with these tips to institutional resources. (Sportsman, 2017).

The use of standardized testing as a reinforcement tool for students has been shown to be more effective when policies are established to prepare students to be successful on the first attempt taking the NCLEX-RN® exam. It has been noted that standardized exams can be detrimental and an unfair means of hindering a student's progress in a nursing program. It was the researcher's intent to identify which strategies have been implemented by nursing programs to reinforce and support remediation efforts

to produce successful outcomes for nursing students.

Administration Support.

The central pillar is Administration Support that emerged as a forefront theme through this study's findings. "Administration" is defined by Merriam-Webster as "the activities that relate to running a company, school, or other organizational functions" (Administration, n.d.). In 2008, the Texas Higher Education Coordinating Board (THECB) met and created the "Strategic Plan for Texas Public Community Colleges 2009-2013," which included a mission to establish goals and strategies to meet the educational needs of the growing and diverse population of Texas. The strategic plan was titled "Closing the Gaps by 2015" and emphasized the need for administrative services to encourage and aid in educational fields of study, which would greatly impact the citizens of Texas and its changing economy (THECB, 2006). Employment in Texas has changed and moved away from labor-based systems toward knowledge-based systems. The fields identified as having a great impact on the economy, health, and general well-being of Texan citizens were healthcare, education, computer science, physical science, and service-producing jobs such as transportation, trade, finance, and real estate. Support by the administration of colleges was and is still essential for the associate degree in nursing (ADN) programs to maintain acceptable student retention rates and graduation rates in order to be able to receive the new incentives adopted by the Texas legislature in 2008.

Currently, the THECB continues in its mission and focus to support the state's local community colleges in preparing the next generation of Texans to meet the challenges associated with the state's changing, diverse population and economics. The

new strategic plan for Texas is called *60x30TX*, which stands for "60 percent of the 25-to- 34-year old Texas population to hold a certificate or degree by 2030". In order for this goal to be achieved, as with the "Closing the Gaps by 2015" goal initiated in the THECB 2003-2015 strategic plan, administrative support is more important and necessary than ever for these nursing programs to be successful (THECB, 2015).

Research Questions

Q1: What remediation policies and strategies were implemented in nursing programs to increase student retention rates?

Q2: What remediation policies and strategies were implemented in nursing programs to increase NCLEX-RN® exam first-time pass rates?

Context for the Study

The context of this study was to investigate and identify the policies and strategies of nursing remediation programs that have been implemented among nursing education programs to increase student retention rates and NCLEX-RN® first-time pass rates. Through using semi-structured interviews, the study investigated which policies and strategies nursing programs have chosen to put in place within their remediation programs. The target population was narrowed to the ADN programs in the state of Texas. Data from publicized reports of the State Board of Nursing regarding NCLEX-RN® scores from 2017 (Texas Board of Nursing, 2018a), along with self-reported remediation strategies from the schools of nursing, were reviewed and analyzed.

ADN programs were the prime focus for this research because these programs produce the most RNs each year. As of 2014, in the state of Texas, there were more ADN nursing programs than Bachelor of Science in Nursing (BSN) programs (TX.

DSHS, 2015). Another important reason the research focuses on Texan nursing programs is because Texas has been identified by the latest HRSA report to have a projected short-fall of RNs by the year 2030 (HRSA, 2017). Studies available have alluded that community college ADN nursing programs statistically attract and recruit more non-traditional students (NCES, 2015). These students are considered to be more "at-risk" students: those who are more likely to fail the first-time attempt on the NCLEX-RN® exam or drop out of the nursing program.

According to the 2014 National League for Nursing (NLN) Biennial Survey of Schools of Nursing, 12.1% of students enrolled in ADN programs were African-American and 10.1% were of Hispanic heritage (Figure 5). This study demonstrated that the overall increased enrollment of minorities from 1995 to 2014 has become more reflective of the U.S. population diversity (Figure 6). Unfortunately, studies have revealed that ethnic minority students experience higher nursing school attrition rates. Janelle Gardner (2005a) attributed these higher attrition rates to a lack of ethnic understanding and cultural sensitivity toward minority students. As a result, minority students experience loneliness, isolation, and lack of understanding and support from their peers and teachers. Another study concluded that African-American nursing students demonstrated higher attrition rates than Caucasian or Hispanic students (Aurelien, 2011).

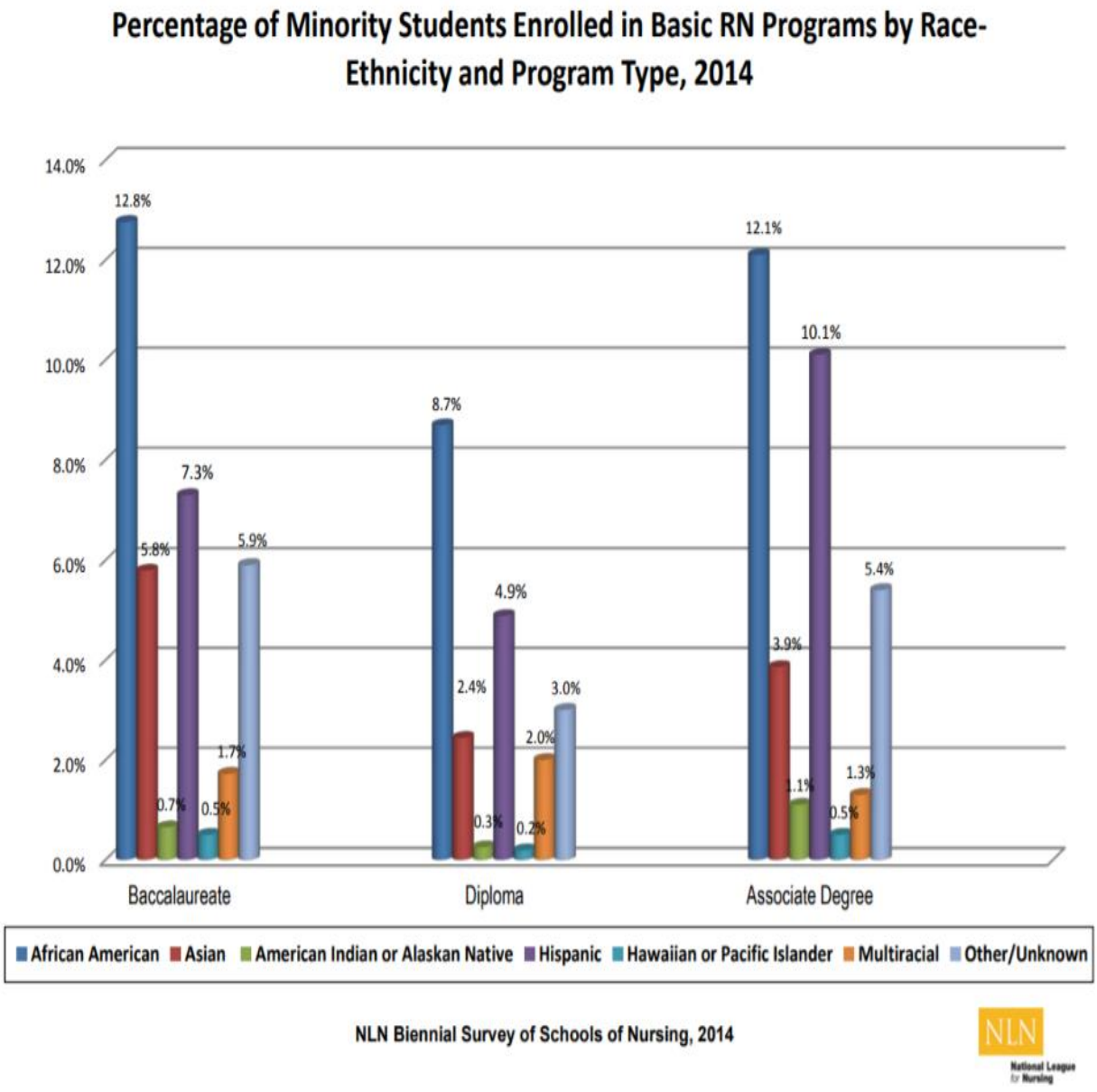


Figure 5. Percentages of minority students in RN program type. (Source: NLN Biennial Survey of Schools of Nursing, 2014.)

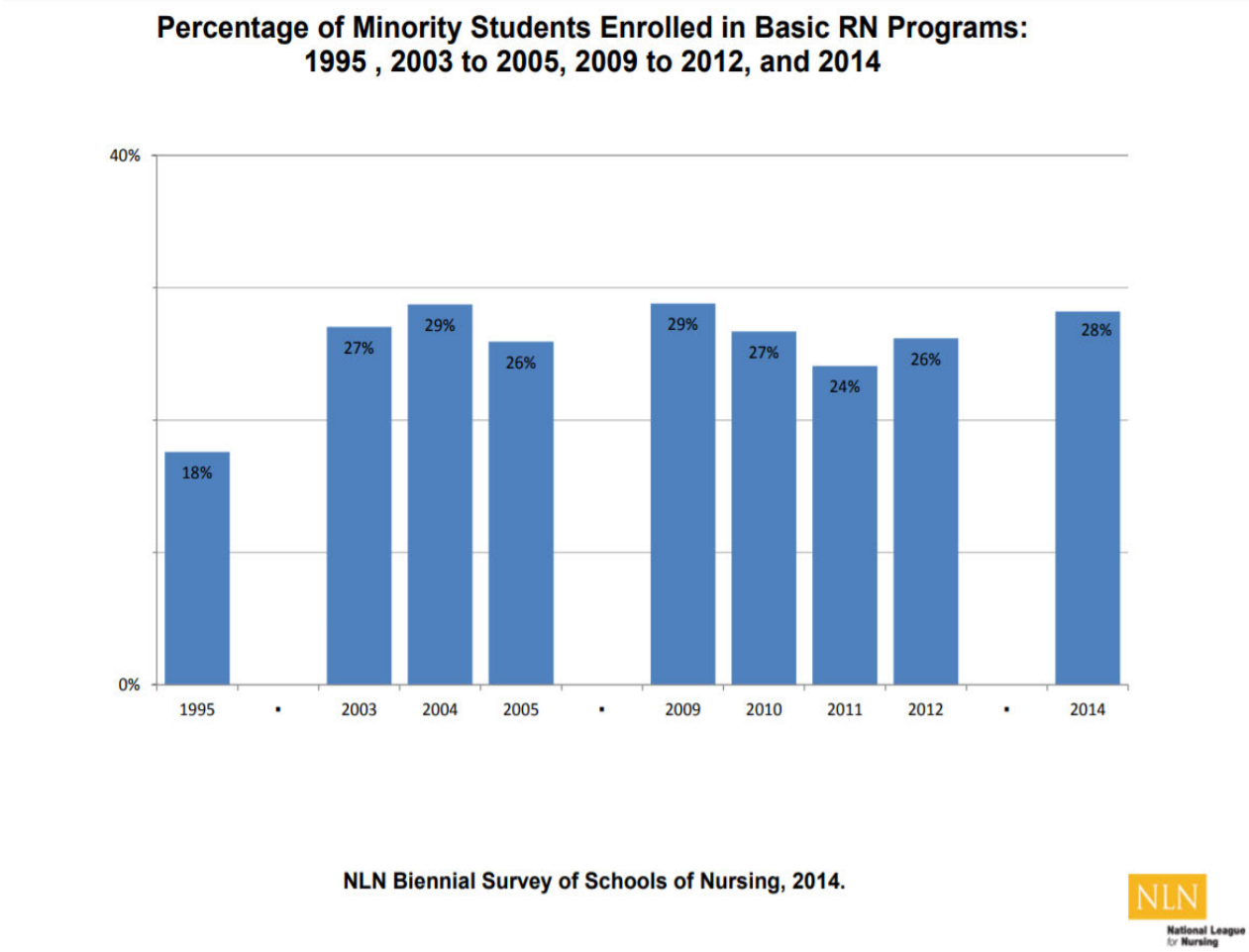


Figure 6. Percentages of minority students in RN programs. (Source: NLN Biennial Survey of Schools of Nursing, 2014.)

The population of the state of Texas is even more diverse than the nation's population. In Texas, nursing programs have more of a challenge to increase the enrollment of diverse nursing students to reflect its population. As shown in Table 2, minority RNs are even less represented in Texas. The Hispanic population experiences the biggest deficit in minority representation, making up 39.1% of the Texan population, but only 13.9% of RNs working in Texas are of Hispanic ancestry.

Table 2

The State of Texas Racial Demographics in Comparison to Texan Registered Nurses

Texas Demographics July 1, 2016	Race and Hispanic Origin	Percentage		Race and Hispanic Origin	Texas Registered Nurses
	Black or African American alone	**12.6%**	**11.8%**	Black/ African American	
	American Indian and Alaskan Native alone	**1%**	**12.8%**	OTHER	
	Asian alone	**4.8%**			
	Native Hawaiian and Other Pacific Islander alone	**0.1%**			
	Hispanic or Latino	**39.1%**	**13.9%**	Hispanic/ Latino	
	White alone	**42.6%**	**61.8%**	White/Caucasian	

Note. Adapted from U.S. Census Bureau, 2017 and Texas Health Professions Resource Center, 2015.

Significance of the Problem

The first-time pass score on the NCLEX-RN® exam is significant because a nursing school's graduating class's NCLEX-RN® first-time pass rate affects the school's accreditation standing. Nursing programs with failing pass rates below 80% are put on "probationary" status and are at risk of being closed by the Texas State Board of Nursing. A nursing program can be closed if subsequent graduating classes of nursing students' first-time pass rate for the NCLEX-RN® exam does not improve to an 80% or better.

Adding to the significance of nursing schools' need to keep their accreditation status and retain nursing students who pass the NCLEX-RN® exam is the aging United States' Baby Boomers population, defined as those born between 1946 and 1964. As these Baby Boomers age, the need for more qualified registered nurses increases. According to the U.S. Census Bureau (Colby & Ortman, 2014), more than 20% of U.S. residents will be over the age of 65 years old by 2030, and the number of individuals 65

years old and older is predicted to double from 46 million in 2014 to 98 million in 2060 (Figure 7). Some areas of the country are now experiencing the impact of the nursing shortage. According to the Bureau of Labor and Statistics, 1.2 million vacancies for registered nurses will occur between 2014 and 2020 (Grant, 2016), and this finding is supported by a HRSA report concluding that more than half a million nurses are expected to retire or leave the workforce by 2022 (Jimenez, 2016).

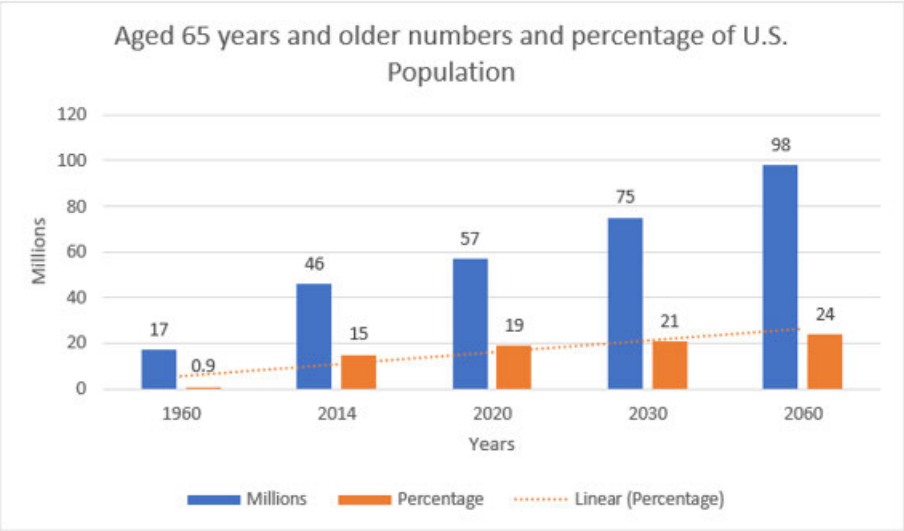


Figure 7. Predicted aging population growth from the U.S. Census Bureau. (Adapted from Colby & Ortman, 2014.)

The projected nursing shortage indicates that the public's health needs will not be met, negatively affecting the future health of the American population. Several articles published by the medical community cite that a nurse's presence has a direct link to patients' overall health and well-being. One article published in the *New England Journal of Medicine* stated, "the risk of death increased with increasing exposure to shifts in which RN hours were 8 hours or more below target staffing levels or there was high turn-over of patients. It was estimated that the risk of death increased by 2% for each

below-target shift and 4% for each high-turnover shift to which the patient was exposed" (Needleman et al., 2011, p. 1043). Other studies suggest that nurses directly impact the overall quality and delivery of healthcare to patients and that higher nurse staffing levels have been associated with fewer deaths, lower failure-to-rescue incidents, lower rates of infections, shorter hospital stays, and less hospital readmissions (Blegen et al., 2011; Cimiotti et al., 2012; Tubbs et al., 2013).

One may propose that the easy solution to fix the nursing shortage is to have nursing schools produce more nurses to meet the growing demand for nurses and make the NCLEX-RN® exam easier for nursing students to pass. The problem is that qualified nursing students are turned away from nursing programs each year because there are not enough openings (Rosseter, 2017). This problem is accompanied by the increasing complexity and testing standards of the NCLEX-RN® exam, which cannot be lowered because the intent of the exam is to reflect knowledge and critical thinking skills that are necessary for entry-level RNs to possess to deliver safe and competent care to patients.

The lack of nursing school openings can be attributed to numerous factors. One of the key factors is the lack of qualified faculty in nursing programs. The major contributing component to this factor is the difficulty in recruiting doctorate-prepared and master-prepared registered nurses to teach, due to the nominal financial compensation of nursing faculty, as compared to their counterparts who choose to work in the healthcare field or industry (Rosseter, 2017). Another key factor is the lack of clinical sites available for teaching and the mandated restricted student-to-faculty (10:1) ratio in patient-care settings to ensure patient safety (Rosseter, 2017). Additionally, nursing programs in higher education settings are considered one of the more expensive programs

to manage, and the lack of funding in higher education, following state and federal budget cuts, substantially contributes to the low admission rates into nursing programs (Quinton, 2017).

Furthermore, the NCLEX-RN® exam is a standardized exam designed to measure the competency and readiness of a graduate nurse to work in the field of nursing, as demonstrated in Figure 8. The exam consists of 75-265 items (test questions) that are delivered in a computerized, adaptive manner in various formats, including multiple choice single answer, multiple choice multiple answers, fill-in-the-blank calculations, drag and drop, graphs and charts, hot spot items, and exhibit items (National Council of State Boards of Nursing, 2017). Some of these test items are presented in audio and video format. The exam is designed and updated every three years to reflect the current patient population and their healthcare complexities and needs, along with ever-changing medical technology and policies. The National Council of State Boards of Nursing (NCSBN) issued a position statement in 2009 asserting that the standards of the exam should not be lowered due to the national nursing shortage.

> The NCSBN posits that standards should be based on the highest degree of available evidence for nursing practice, education, and regulation, and that these standards should be upheld in order to secure, safe care and quality education for students… Lowering standards and regulations may lead to an increase in errors … and a workforce that is inadequately prepared to meet the challenges of providing health care safely in the 21st century. (Roa et al., 2011, p. 373-374)

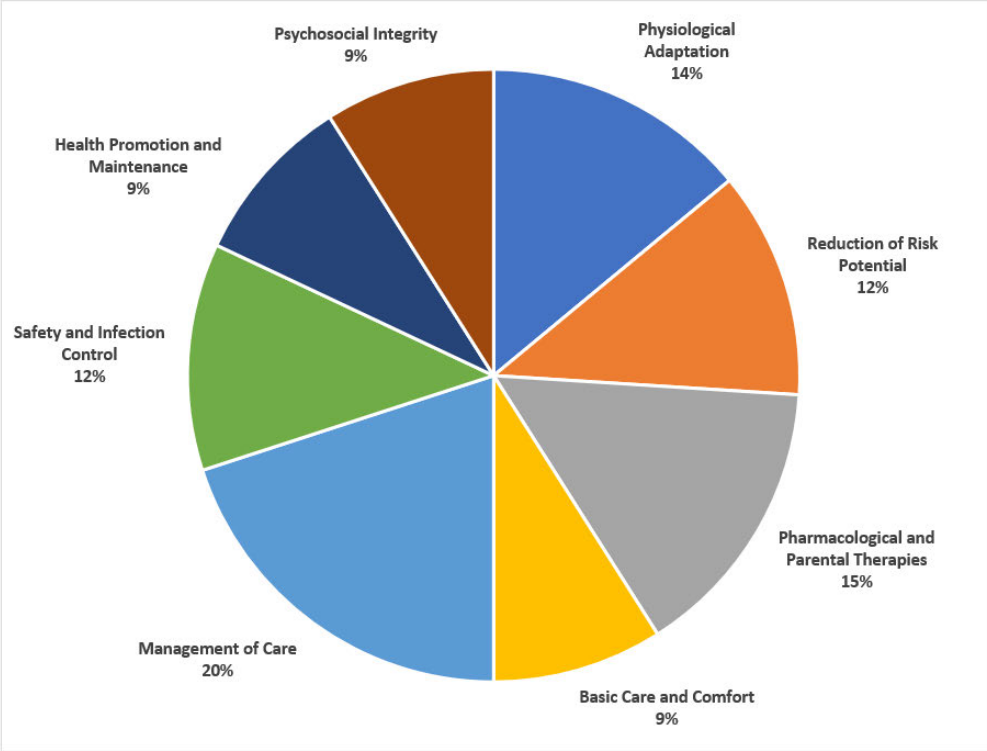


Figure 8. 2016 NCLEX-RN® test plan.
(Adapted from NCSBN, 2015.)

Educational Value of the Study

The pillars of the identified strategies appear to affect the development of a quality remediation program, thus increasing successful learning. The purpose of this study was to identify which policies and strategies established for nursing remediation programs have been put in place to increase the first-time attempt pass rate on the NCLEX-RN® exam and increase the student retention rate. The researcher intended to provide recommendations and used testimonials from nursing programs as a guide as to which policies and strategies selected and implemented increase the first-time attempt

NCLEX-RN® pass rates and retention of nursing students. The findings of this research should provide nurse educators with knowledge about remediation strategies that appear to be fruitful while, at the same time, helping nursing students achieve their aspiration of becoming a registered nurse.

Definitions

Associate Degree in Nursing (ADN) program – An ADN program is a two-year nursing program that is often taught in a community college setting, in which nursing graduates earn an associate degree in nursing upon completion of the program and are eligible to take the NCLEX-RN® exam.

At-risk student – An at-risk student is identified as a student who is more at-risk of not being successful in either graduating and/or successfully passing the NCLEX-RN ® on the first attempt. These students will require additional remediation strategies to help overcome identified issues hindering their odds of being successful in the nursing program.

Coaching – Coaching, interchangeable with the term "mentoring," is the act of providing guidance, fostering the nursing identity, encouraging, and introducing academic tools and strategies as well as life strategies like time management and study tips.

Early identification – Early identification is the process of the procedures, policies, and timing a program utilizes to identify a student as an at-risk student.

Teaching – Teaching is the strategies, theories, models, and curriculum that are employed by nursing programs to deliver the necessary nursing knowledge to their students in preparation to be endorsed to take the NCLEX-RN ® exam.

National Council Licensure Examination-RN (NCLEX-RN®) – The NCLEX-RN® exam has been administered since 1994 in the United States and since 2015 in Canada. Nursing students, upon completion of a nursing program, are required to pass this exam to work as a registered nurse. The exams are developed by the National Council of State Boards of Nursing, Inc. (NCSBN®) and are psychometrically and legally sound, consistent with current practice to reflect the knowledge that an entry-level nurse must possess to provide safe nursing care to the public.

Non-traditional student – A non-traditional student is identified as a student who did not go directly into postsecondary education upon completion of high school, does not attend college full-time, is responsible financially for other dependents, is a single parent, and/or does not have a high school diploma.

Reinforcement – Reinforcement is the process and application of strategies implemented to encourage remediation of students, along with the results of the different tools and testing applications used to help identify students' areas of weaknesses and strengths, to analyze the student's performance on nursing knowledge exams, and to predict the NCLEX-RN® first-time attempt score.

Remediation – Remediation consists of different educational strategies, policies, and procedures designed to help students who are having difficulty meeting the established academic benchmarks for successful completion of the nursing program and are identified as being at-risk for not earning a passing score on the NCLEX-RN® exam on the first attempt.

Retention rate of nursing school's cohort – The retention rate of a nursing school's cohort is the final number of the nursing student cohort completing all the

curriculum requirements successfully and graduating from the nursing program, divided by the original number of nursing students in the cohort who had begun the program.

Texas Higher Education Coordinating Board (THECB) – The THECB was established in1998 and oversees the public higher education institutions in the state of Texas. The Board's mission is to promote access, affordability, quality, success, and cost efficiency in publicly funded higher education institutions in Texas. The Board's vision and philosophy is to develop and establish public policies for publicly funded higher education institutions while promoting quality higher education in Texas.

Texas State Board of Nursing – The Texas State Board of Nursing was established in 1909. It is responsible for regulating safe nursing practice in the state of Texas. The board grants approval for nursing education programs, issues licenses to more than 27,000 new nursing graduates who have successfully passed the NCLEX-RN® exam each year and endorses licenses for nurses from other states seeking to obtain a Texas license.

Limitations of the Study

One limitation of the study was that the data from the interviews were self-reported from the nursing program directors and/or designees, and therefore, the respondents' answers may be biased. Another limitation was that some of the respondents participating in the study may have been new to their institution and/or may not have been familiar with the different aspects of the nursing program, remediation policies, and/or strategies. Additionally, the number of respondents participating and returning the surveys and the possibility that the participants could misunderstand questions during the interview(s) were also limitations of the study.

Summary

There are many reasons why it is important to investigate the policies and strategies that institutions have in place for their remediation programs toward the goal of improving NCLEX-RN® first-time pass rates and student retention rates. The foremost societal reason is to increase the number of RNs in the healthcare workforce. Researching the policies nursing programs use to select and implement strategies for their remediation programs, and how these strategies correlate to student retention rates and the NCLEX-RN® first-time pass rates, is crucial and essential to research due to the limited number of studies focusing on this aspect of student success. Having more students successfully learning and becoming registered nurses will have a positive impact on the health and welfare of our country, and this study's identification of which policies and strategies appeared to have a positive influence on successful learning should provide guidance and recommendations to nursing educators to better prepare their curricula and remediation programs. This study should help shed light on which strategies and implemented remediation policies have shown to improve the retention rates of nursing students and increase NCLEX-RN® first-time pass rates, thus enabling more nursing students to join the nursing workforce and theoretically improving the outcome and delivery of healthcare to our nation.

Chapter 2

Literature Review

As the predicted nursing shortage crisis affects our society's delivery of healthcare, nursing schools have been charged to increase their admission rates and successful pass rates on the NCLEX-RN® to keep up with the predicted demand for nurses. The schools are challenged to admit enough students to offset the predicted nursing shortage, coupled with admitting a more diverse group of students. The targeted schools surveyed in this study were the Texan Associate Degree in Nursing (ADN) institutions, which traditionally admit a larger percentage of "at-risk" students and produce the most nursing school graduates in the state. It was the researcher's summation the higher number of enrolled nursing students in ADN programs is due to the less stringent admission criteria and more economically feasible cost to students, in comparison with Bachelor of Science in Nursing (BSN) programs. Further, the state of Texas has been identified by the most recent Health Resources and Services Administration (HRSA) report as one of the states that do not have enough RNs to meet the demands of its growing population's healthcare needs (HRSA, 2017).

Assessing the Literature

The quest for research is focused on what enables a student to be successful in passing the NCLEX-RN® exam on the first-time attempt. This is not a new concept; it has been researched and studied for many years, and there are numerous articles and strategies and products concerning this topic. However, there are so many articles and products that it is a daunting task for nurse educators to determine the best strategy and direction to go in their pursuit of remediating nursing students. The purpose of this

research was to explore the policies and strategies the participating nursing programs employ and their overall result on the programs' first-time pass rate on the NCLEX-RN® exam and student retention rates. The researcher intended to find commonalities among the nursing programs surveyed that would help shed light on which policies and strategies appear to be successful and which ones were not fruitful in their attempt to increase first-time pass rates on the NCLEX-RN® exam and increase student retention rates.

The literature review explored the issue of the nursing shortage and identified "pillars" that appear to significantly impact the success of a remediation program toward preparing students to pass the NCLEX-RN® exam on the first attempt and retaining students. The researcher aimed to explore the participating institutions' results, policies, and strategies of deploying the identified pillars of Early Identification of "At-risk" Students, Teaching Strategies, Coaching, and Reinforcement. Subsequently, the researcher aimed to compare the published results of the nursing programs' students' first attempt taking the NCLEX-RN® exam, along with reported student retention rates. Furthermore, through analysis of the data from the study, another strategy, "Administrative Support," which was not identified in the literature review prior to the beginning of the study, emerged as an additional "pillar" shown to have an impact in the remediation of nursing students.

The literature review was performed in a systematic review and consisted of the following inclusion criteria:

- published between 2007 and 2017
- significant articles, reports and reviews published before 2007, if noted in the

aforementioned

- published in English

- addressed the identified pillars, NCLEX-RN® exam, and the nursing shortage

- included books, peer-reviewed articles, government, national health organization and accreditation websites, and published thesis and dissertations.

Nursing Shortage

Nursing shortages are not a new concern for the United States; they were an issue following World War II, when it was noted that many nurses were not staying in the workforce after the end of the war. The nursing shortage and its impact on public health also grabbed the attention of the federal government, leading it to enact the Bolton Act of 1943. The Bolton Act of 1943 was a grant developed to cover a student's cost of nursing education and living expenses. This act appeared to help increase the enrollment and graduation rates of nursing students nationally, but unfortunately, when the funding for the act ended in 1948, the number of graduating nursing students subsequently declined (Mahaffey, 2002).

More recently, the discussion about the nursing shortage again came to the forefront in the late 1990s and early 2000s. Due to the encroaching aging of the Baby Boomers, increasing the number of RNs is more important than ever. According to the U.S. Census Bureau, by 2030, more than 20% of U. S. residents will be over 65 years old (Colby & Ortman, 2014). By and large, as individuals age, in particular as they approach the sixth decade of life, more health ailments occur, therefore increasing the need for RNs' services. The federal government became involved again when the Bureau of Labor and Statistics sounded the alarm about another nursing shortage, predicting that

there would be 1.2 million vacancies for RNs between the years 2014 and 2020 (Grant, 2016). The nursing shortage alarm this time is two-fold: the aging "Baby Boomer" population has numerous anticipated health needs, and many RNs in the current nursing workforce are approaching retirement. Fifty-five percent of working nurses are 50 years old or older, according to a survey conducted by the National Council of State Boards of Nursing® (NCSBN®, 2013). The U.S. Department of Health and Human Services, Health Resources and Services Administration, predicted in September 2004 that there would be a national nursing shortage by the year 2020 if the nursing student enrollment and graduation rates did not improve (Figure 9).

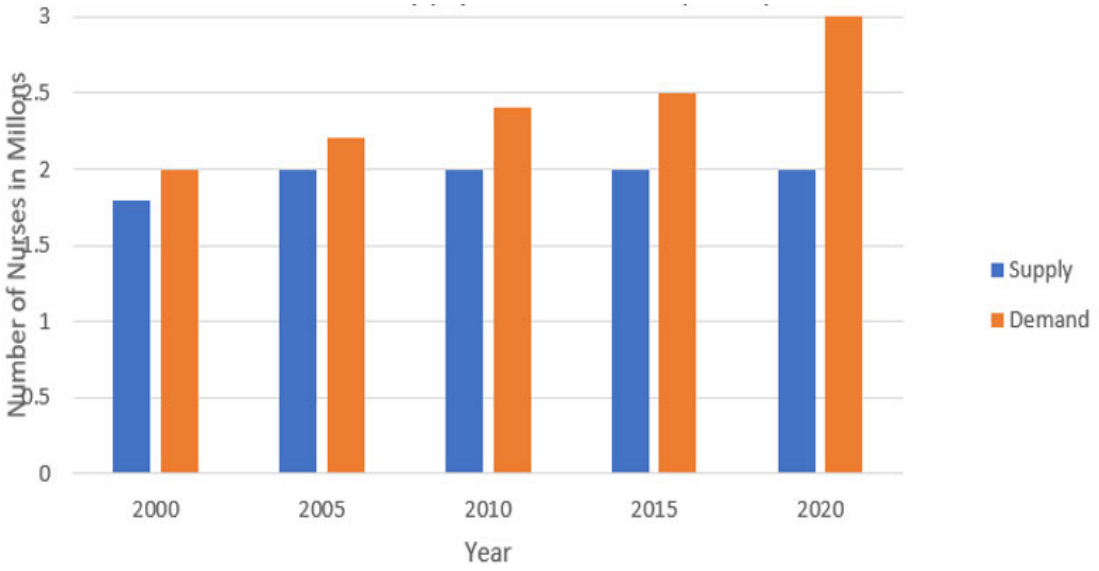


Figure 9. Estimated predicted nursing shortage for 2020.
(Adapted from HRSA, 2004.)

The public, governing bodies, hospital administrations, and nursing schools took notice of this warning, and national campaigns to increase the number of graduating nursing students began again to try to offset the predicted nursing shortage. Leaders of healthcare organizations and administrations also heeded the pessimistic forecasted

nursing shortage and started to implement strategies to prevent the projected crisis. It became evident that, in order to offset the predicted nursing shortage, nurses' employment conditions needed to be improved. Healthcare administrators and nursing leadership began to emphasize improving working conditions, acknowledging the nurses' family and personal needs, increasing wages and salaries, and giving the nurses opportunities to make their voices heard when it came to improve the quality of their healthcare organization and patient care. All of these changes were made to help retain nurses in the nursing field and recruit others to become nurses (Buerhaus, 2008). The private sector also became involved in helping improve the public image and promoting the importance of increasing the number of RNs in the health field. Enterprises like the Robert Wood Johnson Foundation's "Transforming Care at the Bedside" and its "Interdisciplinary Nursing Quality Research Initiative," Gordon and Betty Moore Foundation's $100 million commitment to establish the "Betty Irene Moore School of Nursing," and the 50-million-dollar "Campaign for Nursing's Future" funded by Johnson & Johnson's cooperation all helped make the public more aware of the current and projected nursing shortage (Buerhaus, 2008).

The nursing shortage and its implications for the quality of care at the bedside became paramount in many of the discussions of the impending shortage. Physicians joined the discussion and voiced how the nursing shortage would impact patient safety and delivery of health care. An article in the *New England Journal of Medicine* noted that the number of nurses present on a unit and the rate of patient turnover impacted the patients' outcomes. It concluded that there was an association between increased patient mortality rates on units where the RN staffing levels were below what was needed

(Needleman et al., 2011). The relationship between patient outcomes and the number of nurses at the bedside was not only an issue in the United States; it appeared to be a global issue. A cross-sectional study published in the *British Medical Journal* concluded that pediatric patients fared better with better nursing staffing ratios. "Lower patient-to-nurse ratios hold promise for preventing unnecessary hospital readmissions for children through more effective pre-discharge monitoring of patient's conditions, improved discharge preparation and enhance quality improvement success" (Tubbs et al., 2013, p. 736).

Many discussions of the predicted nursing shortage have been driven by the effects of nursing staffing and nurse-to-patient ratios and how nurses' staffing on hospital units impacts the patients' overall health outcomes. The book "Patient Safety and Quality- A Human Factors Engineering Perspective" discussed at length how nurse staffing issues impact the delivery of care to patients at the bedside and how staffing below recommended levels led to poor outcomes for patients, as demonstrated in Table 3 (Clarke & Donaldson, 2008).

Table 3

Issues in the Hospital Directly Impacted by Nurse Staffing Levels at the Bedside

Nursing Care Affected by Nursing Staffing Levels	**Failure to rescue -** not being able to identify medical signs and symptoms that the patient's health status is declining in a timely manner
	Pressure ulcer prevalence
	Falls
	Falls with injury
	Restraint (vest and limb) prevalence
	Urinary catheter-associated urinary tract infections (intensive care units, ICU)
	Central line catheter-associated bloodstream infections (ICU)
	Ventilator-associated pneumonia (ICU)
	Smoking cessation counseling for acute myocardial infarction, pneumonia, heart failure
	Skill mix - skilled nursing skills such as IVs, NGs, etc.

Note. Adapted from Clarke & Donaldson, 2008.

Pillar 1: Early Identification of "At-Risk" Students

The first pillar to be discussed is early identification of the "at-risk" student. An at-risk student is a student recognized to be at risk of not earning a passing score on the first attempt at the NCLEX-RN® exam and/or not being successful in a nursing program either due to failing academically or withdrawing from the program. Some of the students considered at risk are classified as "non-traditional students". A non-traditional student is often described as being older, ethnically diverse, ill-prepared for college, and often has various stressors such as family commitments, employment issues, and

financial strain. These students often feel isolated and experience a lack of support and understanding from nursing program faculty members (Harris, Rosenberg, & O'Rourke, 2014). The National Center for Education Statistics denoted seven criteria that help identify a non-traditional student (Choy, 2002). Students are considered to be "non-traditional" if they possess at least one of these seven circumstances:

1. Delayed enrollment into postsecondary education.
2. Attends college part-time.
3. Works full time.
4. Financially independent for financial aid purposes.
5. Has dependents other than a spouse.
6. Is a single parent.
7. Does not have a high school diploma.

An article by Joann Horton discussed twenty key factors that educators need to be aware of and take into consideration when working with students. These factors influence and impact college students' ability to learn and be successful in the academic setting (Horton, 2015). She broke these key factors into three main characteristics: Background Characteristics, Individual Characteristics, and Environmental Characteristics. These are adapted and listed in Table 4.

Table 4

Influential Elements Often Seen in "At-Risk" Students

Background Attributes	**Individual Traits**	**Environmental Circumstances**
Older than 24 years old Prior academic failures Lacking academic skills Lower socio-economic status Physical limitations Emotionally challenged Exposure to domestic violence Cultural barriers Language barriers Lack of technology skills Poor study habits First generation college student Minority Issues with family and parenting High school drop-out in family Financial limitations for school Non-supportive family Homelessness Incarceration Lacking understanding of admission process	Lack of how to prioritize Unrealistic of goals and abilities Lack of independence or autonomy Insecure Afraid of failure Low self-esteem/self-respect Socially awkward/inappropriate No strong support groups Learning disabilities Physical handicaps Lack of knowledge transference Chronic health illness Substance abuse issues Lack of communication skills Behavioral problems Emotional or psychologically unstable Passive aggressive behavior Lack of good role models/mentors Poor social group of friends and network Financial naïve and savvy Procrastinator	Childcare issues Lack of transportation Lack of places to study Lack of student support services Inadequate advisory and student counseling Remedial courses Inadequate accommodations Internships placement Presence of prejudice and bias Misalignment of student and institution Prior college interruption Employment issues

Note. Adapted from Horton, 2015, p. 83.

Other criteria that have been used to identify an at-risk nursing student are the student's academic performance and national standardized exam results. Most nursing programs look at a students' performance on nationally administered exams to determine their admission eligibility and selection criteria into nursing programs. These exams include the Scholastic Assessment Test (SAT) and American College Testing (ACT), along with the Health Education Systems Incorporated Admission Assessment (HESI A2) and Assessment Technologies Institute's Test of Essential Academic Skills (ATI-TEAS). A meta-analysis concluded that there appeared to be a correlation between a student's preadmission SAT verbal score and the performance on the NCLEX-RN® exam (Grossbach & Kuncel, 2011).

Many schools have turned to the use of admission exams, such as the HESI Admission Assessment Exam (HESI A2) by Elsevier or the ATI-TEAS, as part of their early identification of at-risk students, as predictors of future success, and as part of the admission selection criteria (Evans, 2013). HESI A2 composite scores were shown to be fairly good predictors of the nursing students' success in an ADN nursing program's first semester courses (Hinderer, Dibartolo, & Walsh, 2014; Knauss & Willson, 2013). This is significant because the highest attrition rate in nursing programs is generally in the first semester, followed by the second semester (Knauss & Willson, 2013). Equally noted, the ATI-TEAS composite score appears to have the same correlation, in that the higher the student's ATI-TEAS composite score, the better the student's performance will be in the nursing program (Cunningham, Manier, Anderson, & Sarnosky, 2014).

Other studies have identified that, in addition to the standardized admission assessments, a student's performance in pharmacology courses and medical-surgical courses are a good way to identify at-risk students and serve as predictors of a student's performance in the nursing program and on the NCLEX-RN® exam first-time attempt (Trofino, 2013). An additional study concluded that a student's pass-fail grade in chemistry classes and Kolb's learning style (Figure 10) were both predictors of the student's likelihood to successfully pass the NCLEX-RN® exam on the first attempt (Lockie, VanLanen, & McGannon, 2013). The study stated that the learner's chemistry grade was reflective of the student's NCLEX-RN® score conceivably due to the fact that chemistry requires the student to use abstract thinking, critical analysis, problem-solving, and reading comprehension. The study also indicated it was important for nursing educators to be aware of which of Kolb's learning styles a nursing student preferred and

predominantly functioned under. It noted that, if a student functioned under Kolb's learning styles of "assimilator," "converger," and/or "diverger," they were more likely to successfully pass the first-time attempt on the NCLEX-RN® exam than the students who function exclusively under Kolb's "accommodator" learning style (Lockie et al., 2013).

Figure 10. Kolb's four dominant learning styles.
(Adapted from McLeod, 2017.)

Overall, the factors identified throughout the literature review appear to consistently identify which risk factors affected nursing students and were predictive of their success in nursing school and ability to pass the NCLEX-RN® first-time attempt.

All the studies appear to identify a plethora of factors that can lead to a student being placed in the "at-risk" category. It is the researcher's belief that the key to successfully intervening with students who are "at-risk" of not being successful is the early identification of these students. As stated previously, the sooner remediation begins, the greater the chance of a successful outcome (Abele, Penprase, & Ternes, 2013; Custer, 2016; Yeom, 2013).

Pillar 2: Teaching Strategies

Collectively, the articles exploring teaching strategies for nursing education noted there are several different approaches to deliver curriculum to nursing students. Most educators will advocate that learning theories are the foundation that teaching strategies should be built upon, and that educators labor with selecting and adapting the best teaching strategies to meet nursing students' needs (Evans & Harder, 2013). The authors stressed that it is important for nursing educators to affix their teaching strategies based on theories about how students learn. They emphasized that the main premise of teaching and remediation is to help students who are at risk of failing to be successful, and the interventions deployed must utilize learning theories and frameworks that support students' learning (Evans & Harder, 2013).

Based on this premise that teaching strategies should be based on learning theories, one of the most widely used, most researched models to assess student's preferred learning styles is Kolb's Learning Style Inventory (LSI) and Experiential Learning Cycle (ELC) (D'Amore, James, & Mitchell, 2012). Kolb's theories, based on the contributions of Dewey, Lewin, and Piaget, were developed and published in 1984 and have since been explored and applied in many educational settings, including nursing

curricula. This inventory of learning styles is helpful for educators to use when deciding which teaching strategies would be best be applied to meet their students' needs. As mentioned previously, Kolb's LSI posits four learning styles (Figure 10), and Kolb remarked that an individual may initially have one prominent learning style, but as they grow, mature, and are exposed to different life experiences, they move from being dependent upon using one learning style and develop the ability to extract meaning and make sense using all of the learning styles (D'Amore, James, & Mitchell, 2012).

In the field of healthcare, and particularly in nursing, Kolb's ELC is applicable and reflective of what should occur during the process of instructing nursing students within the nursing curriculum and preparing them to successfully pass their first-time attempt of the NCLEX-RN® licensure exam. The ELC theory is broken down into four stages: Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation. These stages are reflective of what nursing students should be doing as they apply their newfound knowledge to the development of their nursing skills, critical thinking, and practice (D'Amore et al., 2012; Lisko & O'Dell, 2010). Ideally, these phases of knowledge acquisition and application should be seen throughout the components of nursing school, from the curriculum being taught in the lecture halls and practicing nursing skills in the nursing labs, to clinical experiences working with patients at the bedside in healthcare settings. The ultimate goal and intent of delivering nursing curriculum is that nursing students will be able to acquire nursing knowledge and apply this knowledge appropriately in their critical thinking (D'Amore et al., 2012), as demonstrated by successfully graduating and passing the first-time attempt of the NCLEX-RN® licensure exam.

Another theory of learning that appears to be instrumental in helping nursing students acquire the ability to critically think is the Transformative Learning Theory (TLT).

> A defining condition of being human is that we have to understand the meaning of our experience. For some, any uncritically assimilated explanation by an authority figure will suffice. However, in contemporary societies, we must learn to make our own interpretations rather than act on the purposes, beliefs, judgments, and feelings of others… Transformative learning develops autonomous thinking. (Mezirow, 1997, p. 5)

It is crucial for nursing students to develop and demonstrate the ability to critically think when providing care to patients.

Communication and self-awareness of one's own beliefs and values is the foundation of the TLT. Mezirow proposed that adult learning has phases in which knowledge is acquired, and the TLT theory is grounded in the belief that problem-solving – whether it is technical, practical, or emancipatory – influences and enhances the learning process, which evolves into knowledge attained as the result of critical reflection and a change of thinking. This theory's application in nursing education is relative, and nurse educators can incorporate remediation strategies based on this theory, along with being attentive to students' preferred learning style and Kolb's ELC.

Kolb's learning theory and ELC and Mezirow's TLT, although separate theories, appear to mirror and complement each other. The significance of this observation is apparent when the visual graphics of each theory are aligned side-by-side (Figure 11). Both theories involve the learner's experiences, self-reflection, and the process of making

sense/meaning of these experiences and formulating concepts and application of experiences. Kolb's learning theory was introduced in 1984, and the development of Mezirow's theory appears to be complementary and a continuum of Kolb's theory.

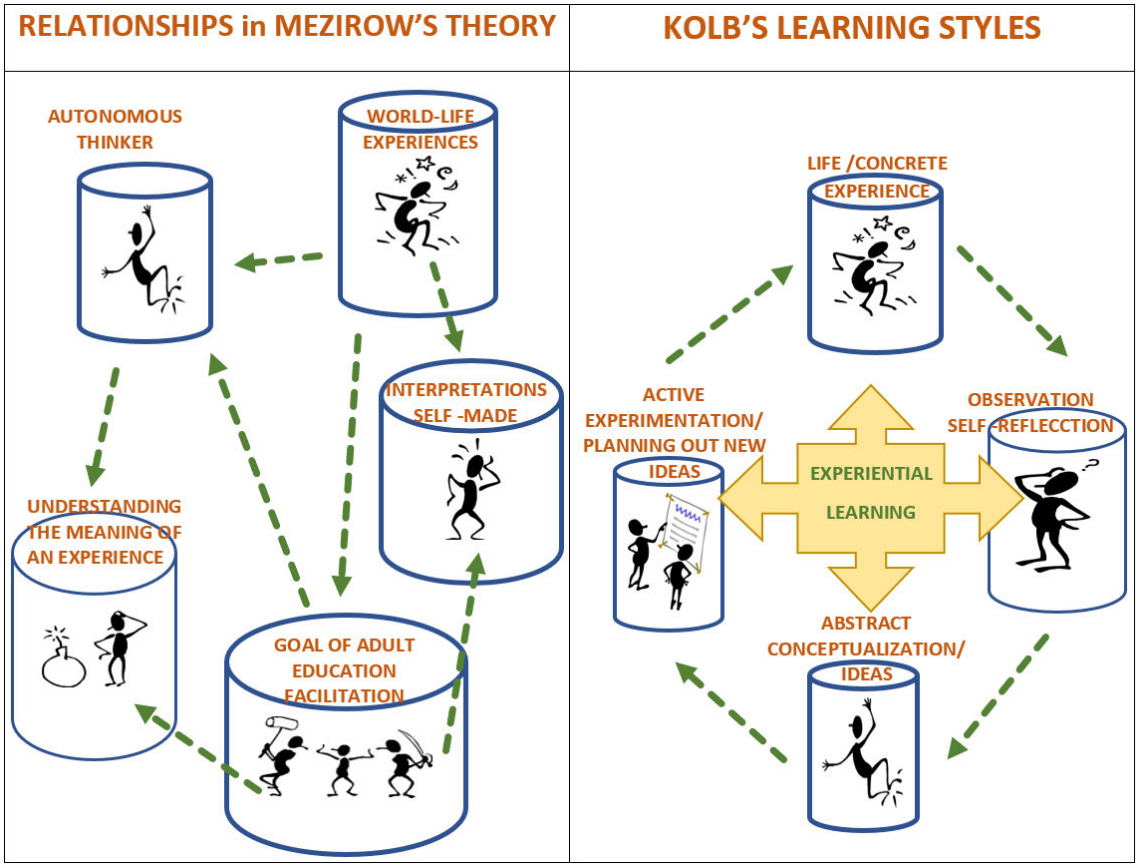


Figure 11. Mezirow's Transformative Learning Theory & Kolb's Experiential Learning Cycle.
(Adapted from Mezirow, 1997 and McLeod, 2017.)

Kolb and Mezirow's learning theories are instrumental in the teaching strategies that are designed to help facilitate the development of nursing students' critical thinking skills. Critical thinking is an instrumental aspect of nursing programs' curricula. Teaching strategies should be selected and implemented to aid in nursing students' process of learning how to think critically. "The components of critical thinking are gathering and seeking information, questioning and investigating, analyzing, evaluating,

making inferences, problem-solving, and the application of theory" (Chan, 2013, p. 238). The different strategies a nurse educator could employ to promote and facilitate critical thinking include: Socratic questioning, reflective and student journaling, simulation fidelities, case studies, and preceptorships (Chan, 2013). Furthermore, the use of high-fidelity simulation is instrumental in the transference of knowledge in the classroom to application in practice (Bradley, 2011; Lioce et al., 2015).

Additionally, for teaching strategies to successfully enhance students' critical thinking skills, nurse "educators should be open-minded, flexible, supportive and approachable" (Chan, 2013, p. 238). It is imperative that a nurse possesses strong critical thinking skills to be able to navigate the ever-changing demands of the healthcare system, as well as, most importantly, the ever-changing health status and conditions of the patients in their care. Likewise, nursing students need to develop critical thinking skills to deliver safe and competent nursing care to patients and to be able to successfully pass the NCLEX-RN® exam, which is designed to measure the student's nursing critical thinking skills by delivery of multi-logical items that require critical thinking to answer correctly.

There is an excess of strategies available for nurse educators to design and deliver the nursing curriculum. An article published in the *Shanxi Medical Periodical Press* titled "Chinese Nursing Research," provided a summarization and recommendation of different teaching strategies to be used in nursing education (Xu, 2016). The article stated that "selection of teaching strategies appropriately is of great importance for nurse educators to deliver high-quality education" (Xu, 2016, p. 54). This statement is so true and obvious it is the goal and intent of every nurse educator to bestow upon their students

the knowledge and wisdom they need to pass the NCLEX-RN® on the first attempt, but most of all, educators aim to bestow upon the student the knowledge to be safe, caring, and compassionate nurses. The article's ten identified teaching strategies were designed to promote active engagement of nursing students as they acquire the knowledge necessary to be competent and successful in passing the NCLEX-RN® to become RNs.

The first strategy discussed in the "toolbox of teaching strategies in nurse education" was the lecture. The authors pointed out that even though lecture may be viewed as a passive and boring teaching strategy, it is the most cost-effective method of delivering and imparting knowledge to students (Xu, 2016). The key to a successful lecture is to take advantage of the technology tools available and incorporate programs such as "Prezi" presentation software, polling clicker programs, and videos to capture students' attention and promote acquisition of new knowledge.

The second identified strategy is the use of high-fidelity simulation within the nursing curriculum. The article stated that "simulation provides innovative educational experiences that help nurses assess and develop clinical competency, promote teamwork, and improve care processes in a realistic and relatively safe environment without the potential of harm to patients" (Xu, 2016, p 55). The article reported that in 2009, Smith & Roehrs demonstrated that the application and integration of knowledge, skills, and critical thinking necessary for nursing students to develop can be achieved and demonstrated safely through the use of high-fidelity simulation. The use of simulation also aided in improving student satisfaction and self-confidence (Xu, 2016).

Two more recommended teaching methods were concept mapping and online teaching. The teaching strategy of concept mapping was endorsed to help develop

students' understanding of how different concepts are connected and influence each other. It was noted that this teaching approach gave the students a tool to visualize acquired knowledge and provided a logical and flowing manner to demonstrate the relationships between different concepts while allowing for the integration of new knowledge. The use of online courses was recommended as being cost effective and accommodating to the students' schedule, allowing access to teaching at any place, at any time. They did caution that instructors of online courses need to ensure they incorporate a detailed course plan that includes a good selection of course materials, online discussions, and active participant assignments (Xu, 2016).

Several other strategies were recommended by the *Chinese Nursing Research* article to enhance the learning environment and the delivery of nursing curriculum to students: games to fashion the act of learning as fun and engaging, role-playing to give students experience empathizing from a patient's point of view, and the jigsaw classroom strategy, in which students are assigned to research and present different topics to other students. The article concluded by stating that the use of case studies, debating, and problem-based learning were also effective venues to deliver curriculum to students.

Pillar 3: Mentoring

Students who have been successful in non-nursing courses may find themselves academically challenged and frustrated when they experience the nursing curriculum. The study techniques and skills used in previous coursework may be ineffective when applied to the nursing courses placing stress on the students because they require a higher level of knowledge. Students are confronted with a new way of learning, which requires them to be able to demonstrate the ability to apply, synthesize, and evaluate information.

For this reason, implementation of coaching/mentoring is essential to help the students as they begin their journey into the nursing program.

The role of a mentor to a nursing student is important and can greatly influence a student's attrition rate. Mentoring students is one way to serve as a role model to students while helping them develop self-confidence, competencies, and socialization as they transition into the role of a nurse. Collectively, studies have noted that early mentoring of nursing students has been shown to improve retention rates and satisfaction, subsequently lessening confusion and increasing student interaction (Giordana & Wedin, 2010).

A study by Greta Marek demonstrated that students were more successful in nursing programs when they were exposed to which learning styles worked best for them through using the Visual, Auditory, Reading, and Kinesthesis (VARK) tool, accompanied by a faculty member mentoring them through the process. Eighty-five percent of the students, when polled, agreed that the faculty mentoring was beneficial to them. A study had previously noted that "changing study techniques may be potentially challenging to some students. Having faculty guidance, encouragement, and support to assist with the change process may ease potential frustrations" (Marek, 2013, p. 48).

A common theme that emerged throughout the literature review for mentoring nursing students was providing support and meeting the needs of the increasingly diverse nursing student population. It has been noted that racial/ethnic minority students have higher attrition rates in nursing programs in comparison to non-minority students (Bednarz et al., 2010; Gardner, 2005a). It has also been noted that, for a nursing faculty member to be more effective as a mentor, they need to be more culturally competent. A

nurse educator who is culturally competent is better equipped to adapt the learning environment and teaching strategies to meet the needs of culturally diverse students, thus facilitating and augmenting student success (Gibbs & Culleiton, 2016).

The impact and influence faculty have on nursing students' success was studied in one cross-sectional study designed to examine how an autonomous supportive environment impacts a student's level of engagement and overall academic performance (Bronson, 2016). It suggested that a supportive learning environment led by the faculty helps meet the students' needs as they transition into a vigorous and demanding nursing curriculum. This is especially important in today's nursing programs' student population, which is reflective of our culturally diverse students. The author noted that "it is pertinent for nurse educators and administrators to be kept up-to-date on content concerning cultural competence issues surrounding student matriculation" (Bronson, 2016, p. 107).

Another facet of mentorship is understanding and addressing nursing students' physiological and psychosocial needs. There are more non-traditional students and minority students enrolled in nursing programs today, reflecting the diversity of our nation's population, therefore creating more of an urgency to offer guidance and resources to help these students. By meeting these students' needs, educators make student success more achievable. Faculty can be more effective as mentors by identifying these needs and "by generating and publicizing resources for student learning, as well as creating policies and learning experiences that assist students in meeting their needs" (Freitas & Leonard, 2011, p. 12).

Another mentoring strategy to decrease the attrition rates of minority nursing students is to recruit more diverse faculty members. The student mentoring programs that appeared to be more successful had faculty members of similar ethnic backgrounds as the students they were mentoring (Gilchrist & Rector, 2007). These faculty members were able to serve as role models. Gilchrist & Rector (2007) had also noted in order for mentoring to be successful, it is essential to include counseling for personal and social issues, along with academic advising and support.

Janelle Gardner cited Tinto's Theory of Student Retention as noting that student attrition rates are correlated to the student's institutional commitment. This theory (Figure 12) demonstrates the different external and internal components that impact a student's college experience while at the same time demonstrating the relationship between academic integration and social integration and the student and the institution. The more students felt committed and had allegiance to an institution, the more likely they were to succeed and graduate (Gardner, 2005b). Therefore, if nursing educators can make students feel part of the nursing program and facilitate building relationships with other students and staff members, the more likely that students will feel vested and be more motivated to strive to succeed.

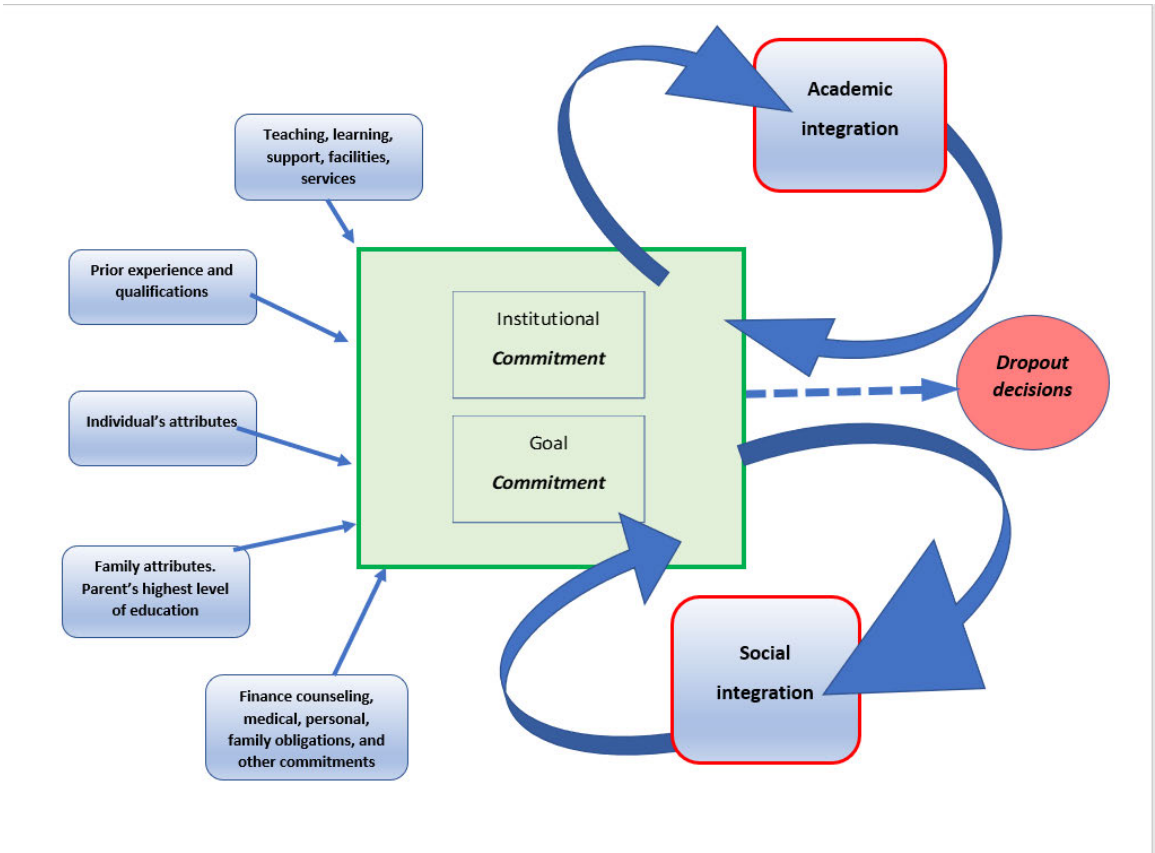


Figure 12. Tinto's Model of Student Retention.
(Adapted from Tinto, 1975)

A continuing challenge is the attrition rate of minority students. At one nursing program, minority students accounted for 80% of student attrition. This nursing program identified a need to address the retention rate of minority students and developed and implemented a retention program with the aid of a $22,304 grant. The developed retention program was successful and retained 100% of its minority students. The strategies implemented through the retention program were to increase the retention coordinator position from one unit to three units, establishing a mentoring network with minority RNs from the community assigned to mentor the minority nursing students, pairing English-as-a Second-Language students with students who were native English speakers to meet for lunch and practice conversational English skills, hosting an

introductory Family Night at the beginning of each semester to discuss with the students and their significant others the demands and commitment of the nursing curriculum, and providing a health care seminar to discuss cultural diversity and health beliefs, minority support groups, faculty updates regarding cultural competence, and a minority pre-nursing student outreach (Gardner, 2005a).

Pillar 4: Reinforcement

Nursing programs are constantly looking for ways to improve student success in passing the NCLEX-RN® exam on the first attempt. Notably, nursing programs are under much pressure to lower their attrition rates while also being challenged to increase the number of enrolled students to offset the predicted nursing shortage and to increase the number of minority nursing students to reflect the nation's growing diverse population. These demands have proven difficult for nursing programs due to shortages of nursing faculty and the challenge of meeting the needs of minority students.

Many nursing programs in the United States and Canada have turned to commercialized standardized predictability exams to help identify which students need remediation before being endorsed to take the NCLEX-RN® exam. Statistically, minority students in nursing programs tend to have higher attrition rates (Bednarz et al., 2010; Gardner, 2005a) and historically have not performed as well on standardized tests in comparison to non-minority students (Alameida et al., 2011). This is a challenge to nursing programs, because a program's attrition rate and its students' first-time success rate on the NCLEX-RN® exam is viewed as a reflection of the quality of the program and can impact a nursing program's accreditation status.

Studies reflect that students will score higher on standardized tests when there are

established benchmarks and consequences attached to their performance on the exams. Some nursing institutions use the exams as tools to measure the students' attainment of knowledge to determine if the students are ready to progress to the next level in the program. Students enrolled in nursing programs that require students who do not earn a passing score to undergo remediation or not progress forward in the program, tend to demonstrate higher scores on the exams (Lauer & Yoho, 2013). It has been seen that implementing standardized testing, along with established testing policies, helps increase NCLEX-RN® first-time pass rates (Schroeder, 2013).

Standardized testing can be used as a way to help faculty and students measure and forecast a student's performance on future tests. The student's performance on the standardized test can be used as a reinforcement tool to help identify which content areas need to be remediated to help prepare a student to be successful. When selecting standardized tests and packages from companies, it is important for nursing programs to evaluate the company's endorsement of the quality and effectiveness of the product being sold. Before deciding to enter into a contract for purchasing standardized products to help predict students' performance on the NCLEX-RN®, nursing educators should ask the following questions:

- Are the exams used to predict student success valid and reliable?
- Are the exams based on the NCLEX-RN® blueprint and updated to reflect the changes that the NCSBN incorporate every three years?
- What is the qualification of the item writers used by the company and does the variety of test items reflect what is used on the NCLEX-RN® exam?
- Are the test items reflective of the NCLEX, AACN, NLN, and QSEN

categories? (Mee & Hallenbeck, 2015)

One concern associated with using standardized exams designed to predict students' success on the NCLEX-RN® exam as reinforcement tools is that there is no universal set of standards established and accepted as a guide for which policies should be implemented based on the student's performance on the exams. Nursing schools set their own criteria on test preparation and policies for how the results of the test will be used in reference to their own respective programmatic policies. The National League for Nursing (NLN) voiced concern when the 2011 NLN Annual Survey revealed the following policies and standards implemented in RN programs:

1. Approximately 30% of nursing schools require students to obtain a minimum score on a standardized test to progress forward in the program.
2. 20% of schools require the student to obtain the exit exam benchmark score or higher to graduate.
3. 12% of schools will not endorse graduated nursing students to the state board of nursing to take the NCLEX-RN® exam until they earn at least the minimum benchmark score on the standardized test that predicts student success.
4. 12% of schools who used standardized exams throughout their curriculum require the students to earn the set benchmark score on more than one point in the program, such as the end-of-semester exams.

In February 2012, the NLN Board of Governors issued a statement titled "The Fair Testing Imperative in Nursing," which discussed the Board's concerns about standardized testing being used as a high-stakes exam. They agreed that standardized

testing has its benefits in identifying students' areas of weaknesses and strengths and showing how students' scores compared to other nursing students across the nation. However, the Board declared the use of preventing a student from graduating and taking the NCLEX-RN® exam, even though they had passed all the nursing program's curriculum requirements, was not just, and this practice has since become a subject of lawsuits and litigation. The Board recommended that nursing programs ensure that they use fair-testing policies and establish a set of guidelines for nursing schools to use as they develop and implement testing policies.

Predictably, two companies' standardized exams were prominent in the literature search on standardized exams and student performance. The standardized exam search that produced the most articles was the HESI Standardized Exams by Elsevier, followed by the Assessment Technologies Institute (ATI) exams. It has been noted that nursing programs use standardized tests such as the HESI Specialty Exam throughout the nursing curriculum because they help "familiarize students with the type of test items and the test administration process used by the NCSBN, thereby helping to prepare them for the licensing exam" (Schroeder, 2013, p. 545). These nursing programs also use the HESI Exit Exam (E2) to predict students' success on the first-time attempt taking the NCLEX-RN® exam. A nursing program outside of Denver used students' scores from the HESI Specialty Exams and E2 as reinforcement to determine which students need to remediate. Scores below the nursing program's benchmark HESI score of 850 were used to predict when a student was at risk of not being successful. The standardized exam results provided the nursing faculty and the student a report of the student's performance and recommended remediation to help reinforce the student's nursing knowledge.

Validity studies have found that the HESI E2 is able to predict a student's success on the NCLEX-RN® exam with anywhere between 96.36% - 99.16% accuracy. An eighth validity study looked at the predictability of the initial testing and two repeat testing of students who scored below the 850 benchmarks and who had to retake the E2 until they scored above the benchmark. It found the E2 to be successful in predicting success on the NCLEX-RN® 94.93% - 98.32% of the time (Langford & Young, 2013). Approximately 65% of the schools in the study stated that they use E2 scores as a reinforcement for students who scored below the benchmark scores to undergo remediation. The study went on to state that students who achieved an E2 score of 900 or better, regardless of whether the student had to take the exam up to three times to achieve the school's benchmark score, the student's predictability of 900 or better was 97.44% in passing the NCLEX-RN® exam on the first attempt. However, the study did caution that students who scored between 850 and 899 should still remediate before taking the NCLEX-RN® exam, especially the students who had to retest due to an initial E2 score below 850 (Langford & Young, 2013).

A study designed to investigate which E2 policies currently in place by nursing schools produced higher E2 scores found that many different policies and consequences associated with test scores were being developed and implemented. "The top three consequences in order of prevalence were course failure (50%), delay in NCLEX candidacy (24%), and graduation delay (17%)" (Barton, Langford, Willson, & Schreiner, 2014, p. 72). The study used a stratified random sample of schools, questioning deans and directors of nursing schools that administered the E2 during the 2010 academic year. A total of 5438 nursing student records were collected regarding their E2 results,

NCLEX-RN® outcomes, and standardized testing policies. The study revealed that four standardized exam policy components were related to higher E2 scores: “the significant policies were(a) a mandatory benchmark score, (b) required participation in a preparation plan, (c) re-testing requirement, and (d) required remediation if the benchmark score was not met” (Barton, Langford, Willson, & Schreiner, 2014, p. 73).

As stated previously, there were not any studies published about testing the ATI standardized exams’ validity. Studies that were published focused on different schools’ experience with the product. One study cited a community college in rural Washington state that used ATI standardized tests, implementing guidelines to reinforce the progression remediation policy, to prepare ADN students for the NCLEX-RN® exam. To help reinforce the use of standardized testing, remediation was made mandatory. Standardized testing and associated test preparation was used throughout the entire curriculum to prepare students to take the NCLEX-RN®. If students were unsuccessful in the standardized testing and had to retake one, they were responsible for any additional fees associated with retaking the test (Heroff, 2009).

Another study looked at how scores earned on the ATI RN Comprehensive Predictor and Remediation Package (CARP), which included the content mastery series (CMS), would reveal students’ readiness for NCLEX-RN® exam. The CMS provided eight content-specific assessments. However, the study only used three of the eight content-specific assessments to look for a correlation between students’ scores on each of these content areas and the first-time-attempt score on the NCLEX-RN® exam. The three content areas were fundamentals, pharmacology, and mental health. The study concluded that the only content-specific assessment that appeared to correlate with

predicting students' outcome on the NCLEX-RN® exam was pharmacology, being accurate 73.7% of the time (Emory, 2013). Another study examining the ATI Comprehensive Exam and its predictability of students' success on the NCLEX-RN® exam stated that there appears to be no significant correlation between a student's ATI score and the NCLEX-RN® exam outcome (Carpenter, 2010).

One thesis looked at the predictability of the ATI Comprehensive Predictor that was implemented in three small rural community colleges in North Carolina. The study noted that the student population contained an increased number of non-traditional students due to the bad economic market, along with the nursing programs dealing with a decline in NCLEX-RN® pass rates. The ATI product was introduced into the programs to help students prepare for the first attempt on the NCLEX-RN® and was selected due to its relatively nominal cost to be passed onto students within their student fees. The study concluded that faculty at these programs had used the 95th percentile score on the ATI exam as a benchmark to predict success on the NCLEX-RN®, 68% of the nursing cohort had reached the benchmark score. The overall pass rate for the cohorts of nursing students in this study was 86%. The researcher concluded that nursing faculty should develop enticements for students to aim for a score of 95% or better on the ATI Comprehensive Exam (Jenkins, 2016).

Pillar 5: Administration Support - Central Pillar

The fifth pillar, Administration Support, is considered the central pillar impacting the other pillars. This pillar is considered the central pillar because, without support from college administration and from the state level of the Texas Higher Education Coordinating Board, colleges' faculty and staff would not have the necessary funding and

resources to deliver educational curriculum in a holistic fashion. The country's and Texas's demographics, population growth, and demands, along with the evolving and rapidly changing landscape of the Texan economy and job market, have created mandates and challenges for local community colleges. The Texas Higher Education Coordinating Board (THECB), which was founded on May 10, 1998, oversees all of the public post-secondary education institutions in the state. The Board met and developed and implemented two different strategic plans, in 2000 and 2013, respectively, to accommodate the tenets of the Texan people, to keep them competitive, and to help them thrive in today's economic landscape.

The strategic plan initiated in 2000, titled "Closing the Gaps," was a 15-year plan aimed to close the co-existing gaps of participation, success, excellence, and research for students residing in Texas (THECB, 2006). In 2006, some of the initial goals were revised to reflect the changing and growing population of Texas. The strategic plan had four main goals for the public-funded higher-education institutions in Texas. The first goal of "Closing the Gaps in Participation" was to be revised, to increase the gap of graduating high school students participating in a form of higher education resulting in a certificate or higher-level degree from the 5% participation rate in 2000 to 5.7% in 2015. The second goal of "Closing the Gaps in Success" was to have 210,000 students awarded with a certificate or higher-education degree by 2015. The third goal, "Closing the Gaps in Excellence," which was to significantly increase the nationally recognized college programs and services in the state of Texas, remained the same. The fourth goal of "Closing the Gaps in Research" was revised to increase federal funding for science, engineering, and health research and development at Texan institutions from 5.6% in

2000, to 6.5% by 2015.

In 2016, the strategic "Closing the Gaps" plan was reviewed, and the review revealed that Texas was able to meet 95% of its targets of having students enrolled in higher education upon completion of high school. The ethnic group to close the gap in enrollment the quickest was the African-American student population, which did so by 2009. The groups designated ethnically as "other" and the Hispanic ethnic group met the goals for their targeted group by 2015, with an 127% increased enrollment for those designated as "other" and 137% for the Hispanic ethnic group. The state was also able to close the gap of increasing bachelor's degrees, associate degrees, and certificates from 2000 to 2015 by 400% for Hispanic students and 300% for African-American students (THECB, 2016).

In 2015, THECB adopted a new strategic plan for its students, titled *60x30TX*. The new strategic plan had three main goals to achieve by 2030. The first goal was to position Texas, through educating their young people, as one of the most accomplished states in the union and most globally competitive. This goal would be accomplished by having 60% of young Texan adults between the age of 25 and 34 being credentialed with a postsecondary degree or certification. The second goal of the THECB *60x30TX* strategic plan was for more than a half a million (550,000) Texan high school graduates to earn a certificate, associate's, bachelor's, or master's degree from a public Texan higher education institution, regardless of major and/or job skill, across the state without an educational debt exceeding 60% of their first-year's wages which was its third goal (THECB, 2015).

In 2017, the THECB convened, reviewed, and created a report on the progress of the *60x30TX* strategic plan. The THECB *60x30TX*, similar to the previous strategic plan of "Closing the Gaps," still upholds the mission of having higher education in Texas accessible, affordable, high-quality, geared for success, and cost-efficient. However, the new strategic plan's mission and vision not only seeks to make Texas successful in the union and globally competitive, but also aims to make Texas recognized as an international leader in preparing and promoting higher education for its young adult population (THECB, 2017).

The THECB is actively expanding its reach and administrative guidance to the publicly funded higher education institutions of Texas by establishing best practices and realigning local and regional goals and targets in an effort to promote and ensure the success of Texan students in their pursuit of higher education. As of 2017, the percentage of Texas residents between the age of 25 and 34 who hold a certificate or higher-level degree has risen from 40.3% in 2015 to 41% in 2017 (THECB, 2017). The report noted that students earning a bachelor's degree made up the majority of higher-level certificates and/or degrees in 2016, but also noted that the number of students earning an associate degree was statistically the fastest and largest increase from the previous year, with 81,000 completions in 2016 and 87,000 completions in 2017. The report also examined student debt ratio, and Texan students, on average, have kept student debt to no higher than 60% of a graduate's first-year earned wage. The THECB report indicated that this was achieved by trimming excess credit hours needed for students to earn a degree. In 2015, the Board mandated that 20 excess school credit hours be trimmed from both associate and bachelor prepared degrees (THECB, 2017). The

Board intended that an associate degree program should be completed within 60 school credit hours, including prerequisite courses for that degree program, and a bachelor's degree program should be accomplished in 120 school credit hours.

Notably, administration support does not only occur at the state level, dictating and guiding the higher education institutions regionally, but it also occurs at the local college level. Administration support at the local level directly impacts the college's programs and student success. As the diversity of America's population landscape grows and changes, so do the needs and challenges of graduating high school students entering higher education institutions. Jim Riggs (2009) wrote in his article, titled "Leadership, Change and the Future of Community Colleges," that community colleges' hierarchy and administration leadership practices would have to change to meet the needs of the students enrolling in their institutions, reflective of the changing demographic landscape of America. He pointed out that the college administration would have to start valuing the contributions and accomplishments that mid-level administrators make towards the everyday operation of their colleges (Riggs, 2009). He stated: "The quality of academic environment, meaningfulness of services for students, and support for the faculty are all driven by dedicated individuals in mid-level leadership positions and not out of the president's office" (Riggs, 2009, p. 2).

Tables 5-10 provide a summary of the different themes and factors discussed in the literature review. The highlights discussed in the different themes and factors are listed under the column heading "Context" and directly aligned across from each highlight are the listed references in which the themes and factors highlights were discussed in relationship to remediation strategies and their impact on student success.

Table 5

Literature Review - Nursing Shortage

Context	**References**
Growing demands of our country's aging population and the anticipated nursing shortage	Buerhaus, 2008; Elgie, 2007; Kuehn, 2007; Rossetter, 2017; Yeom, 2013
Nursing shortage projections	HRSA, 2017
Number of nurses and effect on healthcare/patients	Blegen et al., 2011; Cimiotti et al., 2012; Clarke & Donaldson, 2008; Needleman et al., 2011; Tubbs et al., 2013
Working RNs and percentage of minorities	White, Zangaro, Kepley, & Camacho, 2014
Minority student enrollment into the Associate Degree in Nursing	NLN, 2014
Texas Demographics & RNs Demographics	Texas Health Professions Resource Center, 2015; U.S. Census Bureau, 2017
Baby boomers & need for nurses	Colby & Ortman, 2014
Projected nursing vacancies	Grant, 2016; Jimenez, 2016; NCSBN®, 2013
Nursing school's lack of student openings- factors	Rosseter, 2017; Quinton, 2017
Strategies/Programs to offset the projected nursing shortage	Buerhaus, 2008
NCLEX-RN® exam discussion	NCSBN, 2017; Roa et al. ,2011
"Bolton Act of 1943"	Mahaffey, 2002

Table 6

Literature Review - Early Identification of "At-Risk" Students

Context	**References**
Non-traditional and minority students	Horton, 2015 Rudel, 2006
Non-traditional student's stressors	Bednarz et al., 2010; Choy, 2002; Harris, Rosenberg, & O'Rourke, 2014; NCES, 2015
Characteristics of At-Risk students	Horton, 2015; NCES, 2015
Lack of college prep & recall of previous information & knowledge	Lockie et al., 2013; Trofino, 2013
Kolb's "accommodator" learning style	Lockie et al., 2013
SAT verbal score	Grossbach & Kuncel, 2011
HESI-A2 & ATI-TEAS	Cunningham et al., 2014; Hinderer, Dibartolo, & Walsh, 2014; Knauss & Willson, 2013; Wolkowitz, 2011
A2 & ATI-TEAS composite scores	Evans, 2013; Knauss & Willson, 2013; Hinderer, Dibartolo, & Walsh, 2014; Cunningham et al., 2014
Retake of admission tests	Wolkowitz, 2011
Earlier ID; sooner remediate; more successful	Abele et al., 2013; Custer, 2016; Yeom, 2013
Black, African American & minority students' higher attrition rates in nursing programs	Aurelien, 2011; Bednarz et al., 2010; Gardner, 2005a

Table 7

Literature Review - Remediation and Teaching Strategies

Context	**References**
Policies and procedures	Pennington & Spurlock, 2010; Sifford & McDaniel, 2007
Use of learning theories and frameworks	Evans, 2013
"Intervention Mapping Framework"	Bartholomew, Parcel, & Kok, 1998
Nursing programs work smarter	Brown & Marshall, 2008
Strategies appealing and more effective; 10 recommended strategies	Xu, 2016
Strategies based on learning theories; support student's learning style & needs	Evans & Harder, 2013
Critical thinking; relationships & decisions based on data	Chan, 2013
Kolb's Learning Style Inventory (LSI) and Experiential Learning Cycle (ELC)	D'Amore, James, & Mitchell, 2012; Mezirow, 1997
The use of high-fidelity simulation and the transference of knowledge to application	Bradley, 2011; Lioce et al., 2015

Table 8

Literature Review - Coaching/Mentoring

Context	**References**
Powerful impact; understanding; skill & attainment of knowledge	Joyce & Showers, 1995
9-12% increase in retention	Bettinger & Baker, 2013
Student satisfaction; decrease confusion & frustration; increase student interaction	Giordana & Wedin, 2010
Better ROI than financial aid alone	Gardner, 2005b
15% increase in college retention & higher graduation rates	Bettinger & Baker, 2013
Use of VARK tool with a mentor facilitating	Marek, 2013
Minority & non-traditional students benefit from mentoring	Bednarz et al., 2010; Gardner, 2005a
Nurse educators to be more culturally competent and adaptive to meet the learning needs of the diverse students	Bronson, 2016; Gibbs & Culleiton, 2016
Recruitment and role models of diverse faculty members	Gilchrist & Rector, 2007
“Tinto’s Theory of Student Retention”	Gardner, 2005b
Creation policies and learning experiences that assist minority students to meet their needs	Freitas & Leonard, 2011

Table 9

Literature Review - Reinforcement

Context	**References**
Devalue remediation protocols and strategies if there are no consequences or requirement of completion of remedial assignments	Lauer & Yoho, 2013
HESI-E2 discussion Reliability & validity Predictability	Barton et al., 2014; Langford and Young, 2013; Nibert & Morrison, 2013; Schroeder, 2013; Zweighaft, 2013
ATI-TEAS discussion ATI RN Comprehensive Predictor and Remediation Package (CARP) Content Mastery Exams (CMS)	Heroff, 2009; Emory, 2013; Jenkins, 2016
"The Fair Testing Imperative in Nursing"	NLN, 2012
High stakes exam-repercussions	Barton et al., 2014; Heroff, 2009; Lauer & Yoho, 2013; Schroeder, 2013
Historically minority students do not score perform well on standardized tests	Alameida et al., 2011
Exam policy components r/t higher HESI Exit Exam scores	Barton et al., 2014

Table 10

Literature Review - Administration Support

Context	**References**
Texas Higher Education Coordinating Board (THECB) Strategic Plans for Texan students and accessible and affordable higher education	THECB, 2006 THECB, 2008 THECB, 2015 THECB, 2016
Support and valuing of mid-administration level and impact on operation of colleges and student success	Riggs, 2009

Summary

The quest and research for what students need to be successful in passing the NCLEX-RN® exam on the first attempt is not a new topic; it has been studied for many years. The literature review revealed that there are numerous articles about the identified pillars and the impact they have on students learning and success. All published studies appear to have commonalities amongst each of the identified pillars.

Within the pillar of Early Identification of the At-Risk Student, a common theme was that minority and non-traditional students are at an increased risk for failure and that the earlier they are identified and the earlier remediation begins, the more likely they are to have a successful outcome. The Teaching Strategies pillar's common themes appeared to be that teaching strategies need to be based on learning theories, and the delivery of curriculum needs to incorporate active learning that engages students and fosters development of critical thinking. The Mentoring pillar's common themes identified that minority and non-traditional students need and benefit the most from mentoring programs and that nursing faculty must be culturally competent to be effective as mentors. The literature review identified tools, such as Tinto's Model of Student Retention (1975), that could be beneficial to guide interventions for mentoring programs. The pillar of Reinforcement revealed that many nursing programs use standardized tests to identify student weaknesses for identification of remediation and predictability of success on the NCLEX-RN® exam. The literature review cautioned about the importance of having established policies and procedures in place for implementation and use of the standardized tests and that programs should ensure fair testing practices are followed to avoid litigation proceedings. Lastly, the Administrative Support pillar was relevant for

developing policies and best practice guidelines to guide the allocation of resources and funds to give faculty the necessary tools to facilitate meeting students' needs to be successful in higher education.

The commonalities of the pillars identified from the literature review were instrumental in developing this qualitative study and its quest to investigate and identify nursing programs' selection and implementation of remediation strategies toward increasing student retention rates and successful NCLEX-RN® first-time pass scores. The information shared by the participants about their nursing program's remediation policies and strategies implemented and the discussion of the findings is intended to be forthcoming and enlightening, increasing understanding of which strategies appear to be significant in contributing to student success. It is the researcher's hope that this study's findings will be shared throughout the education community to aid in student success, produce more registered nurses to alleviate the predicted nursing shortage, and promote better health outcomes for our nation's people.

Chapter 3

Methodology

The Health Resources and Services Administration (HRSA) issued a report in 2004 sounding an alarm about the national projected nursing shortage (HRSA, 2012). Subsequently, in July 2017, HRSA's most recent report projected a nation-wide surplus of registered nurses by 2030. Regrettably, this surplus is not evenly distributed throughout our nation, as several states are predicted to be impacted by a nursing shortage crisis (HRSA, 2017). Studies have shown that patients' overall health outcomes are closely related to the nurse-to-patient ratio (Needleman et al., 2011; Tubbs et al., 2012), causing the nursing shortage to potentially be detrimental to patients.

States projected to experience a nursing shortage are still being challenged to increase their number of enrolled students. Intensifying this problem, nursing programs have been challenged by national nursing organizations, leaders in the nursing field, and other stakeholders to increase the number of students reflective of the country's diverse population (White et al., 2014). Several of these student populations have been identified statistically to be more at-risk of not being successful in the nursing school curriculum and passing the first-time attempt of the NCLEX-RN® licensure exam (Bednarz et al., 2010; Gardner, 2005a; Harris et al., 2014; Horton, 2015). First-time pass scores on the NCLEX-RN® are significant, as they not only impact a student's ability to work, but they also determine nursing programs' accreditation status and ability to keep their programs operational.

The purpose of this study was to investigate and identify which policies and strategies nursing remediation programs have implemented to increase student retention

rates and first-time attempt NCLEX-RN® pass rates. The study was a descriptive study that collected data, through semi-structured interviews, about remediation policies and strategies implemented by the nursing programs. Due to the limited amount of studies examining how different policies and strategies are simultaneously implemented in nursing remediation programs, the results of this study should help fill this void of knowledge and offer insight and guidance for nurse educators and other educators world-wide to utilize when selecting different policies and strategies to implement in their remediation programs.

Research Questions

Q1: What remediation policies and strategies were implemented in nursing programs to increase student retention rates?

Q2: What remediation policies and strategies were implemented in nursing programs to increase NCLEX-RN® exam first-time pass rates?

Study Design

The study was designed as a descriptive qualitative study to examine which policies and strategies nursing programs had put in place for their remediation programs. Data regarding the nursing programs' student retention rates and first-time attempt NCLRX-RN® pass rates, accompanied by their admission acceptance rates, were reviewed. The reported policies and strategies implemented by nursing programs to increase student rates and first-time attempt NCLEX-RN® pass rates were obtained from research participants using semi-structured interviews. The primary sources of data for nursing programs' student retention rates and first-time attempt NCLEX-RN® pass rates were based on the published Report of 2017 NCLEX-RN ® Examination Pass Rates for

Professional Nursing Education Programs (Texas Board of Nursing, 2018a) and the Texas Board of Nursing's 2016 list of Enrollment, Graduation, and Admissions Professional Nursing Programs (CHS, 2016).

The study intended to explore the identification, implementation, and sequence of events that nursing programs put in place for their programs to increase student success. Findings from the interviews were compared to the schools' rankings for student retention rates and NCLEX-RN® pass rates. The semi-structured interview pre-determined questions were developed based on the identified factors and variables (Tables 11- 16). The researcher intended the study's findings to lead to a vibrant discussion and description of the policies and strategies nursing programs have in place to increase student retention and first-time attempt NCLEX-RN® pass rates. The purpose of this approach was to illuminate knowledge that we might not otherwise notice or encounter (Knupfer & McLellan, 2011) and hopefully serve as a catalyst for conversations amongst nursing educators about best-practice remediation methods to increase student retention rates and first-time attempt NCLEX-RN® pass rates. For this reason, a descriptive research method was the best approach to study the policies and procedures nursing programs had in place to implement their remediation programs.

The semi-structured interview questions were based on the four factors noted from previous studies that influenced student retention rates and first-time NCLEX-RN® pass rates. The factors were Early Identification of the "At-Risk" Student, Teaching Strategies, Mentoring/Coaching, and Reinforcement. A new factor, Administration Support emerged from the findings of the interviews that also influenced student retention rates and first-time attempt NCLEX-RN® rates.

Research Factors and Operational Definitions

Factors/Strategies.

Table 11

Factors/Strategies

Factors	Early identification
	"At-risk" students
	Teaching Strategies
	Mentoring/Coaching
	Reinforcement
	Administration Support
Strategies	The strategies listed under the labeled tables, reflective of literature reviews previous studies findings.

Operational Definitions.

Remediation strategies – Remediation strategies were the educational strategies designed to help students who are having difficulty meeting the established academic benchmarks for successful completion of the nursing program and who are identified as being at risk for not earning a passing score on the NCLEX-RN® exam on the first-time attempt and/or graduating from the nursing program.

Early identification of the "at-risk" student – Early identification (Table 12) refers to the timing at which students who are at an increased risk for attrition are identified (Rudel, 2006). The students possess stressors (Table 13), which can be either internal and external attributes and/or circumstances that impact performance in the academic setting (Horton, 2015). An "at-risk" student is identified as a student who is more at risk of not being successful in either graduating and successfully passing the NCLEX-RN® on the first attempt. These students will require additional remediation strategies to help overcome identified issues hindering their odds of being successful in

the nursing program.

Table 12

Early Identification of the At-Risk Student

During the admission process	Prerequisite courses GPAs
	Low scores on admission entrance exams
	Delayed entry or fragmented college attendance
	Previous attendance in a nursing cohort
1st semester	After the first failed quiz/test/exam
	Mid-term borderline/failing GPA
	End of the 1st semester borderline/failing GPA
2nd semester	After the first failed quiz/test/exam
	Mid-term borderline/failing GPA
	End of the 1st semester borderline/failing GPA
	Mid-curricular exam (end of the first year of the nursing program)

Note. Adapted from Abele et al., 2013; Custer, 2016; and Yeom, 2013.

Table 13

At-Risk Student Population

Criteria	At-Risk Specifics
Student age and/or family	Student's age older than 21 years of age
	Has dependents other than a spouse

situation while attending the nursing program	Single parent
	First generation college student
Student's prior experiences of academia to include nursing and non-nursing courses	Does not have a high school diploma
	Worked more than 20+/week
	Attended college part-time
	History of intervals between college attendance
	History of another nursing cohort program attendance
	Failing/borderline 1st semester Med-Surg course
Financial aid	Financially independent for financial aid purposes
	Financial aid recipient
	Poverty, but does not qualify for financial aid
GPA on pre-requisites Scores below 80%	Chemistry
	Anatomy & Physiology
	Biology
	Pharmacology
	English
	Algebra
Student's present living circumstances while attending the nursing program	Works more than 20 hours/week
	Transportation issues
	Homelessness/Transiency
	Low socio-economic status (as evidenced of recipient of Medicaid, food stamp program, WIC, CHIP, etc.)
Pre-admission exams	HESI Admission Assessment Exam/ ATI Test of Essential Academic Skills
Criteria	At-Risk Specifics

Note. Table continues

Table 13

At-Risk Student Population

Criteria	At-Risk Specifics
Accommodations	Physically impaired/ADA accommodations
	Learning disabilities and accommodations

Serious health issues	Present
	Past medical treatment (example- history of chemotherapy and/or radiation treatment to the head)
	History of traumatic brain injury
International Student	Current student VISA
	Undocumented
Minority	African-American
	Hispanic
	Native American/Alaskan
	Multi-racial
English not native language	Foreign born
	USA born
	Attended and graduated from U.S. territory Puerto Rico
Armed Forces students	Active duty service member
	Reservists/National Guardsman/Sailor
	Family member/dependent of active duty service member
	Service member/ Reservists/National Guardsman/Sailor deployed

Note. Adapted from Bednarz et al., 2010; Choy, 2002; Cunningham et al., 2014; Harris et al., 2014; Hinderer et al., 2014; Horton, 2015; Knauss & Willson, 2013; Lockie et al., 2013; NCES, 2015; Rudel, 2006; Trofino, 2013; and Wolkowitz, 2011.

Teaching strategies – Teaching strategies are the methods and learning theories (Table 14) utilized in nursing programs to enhance and facilitate the knowledge necessary for the student to graduate and successfully pass the NCLEX-RN® on the first attempt. Teaching strategies should be based on learning theories and designed to support the students' learning style and needs (Evans & Harder, 2013). Teaching consists of the strategies, theories, models, and curriculum employed by nursing programs to deliver necessary nursing knowledge to the students and prepare them to be endorsed to take the NCLEX-RN® exam.

Table 14
Teaching Strategies

Strategies	Specifics
Program's curriculum design	Block-based Curriculum
	Integrated-based Curriculum
	Concept-based Curriculum
Curriculum based on learning theories	Nursing Theories
	Educational Theories
Lecture	On-line only
	Lecture/classroom base
	Hybrid courses; 80% on-line; 20% in person
	Flipped classroom
Use of technology tools and learning strategies	Prezi, Panopto™
	PowerPoint presentations
	On-line commercialized developed case studies, patient scenarios
	Videos
	On-line tutoring sites
	High-fidelity simulation
	On-line webinars
	On-line teaching websites
Activities	Concept-mapping
	Role Playing
	Jigsaw classroom
	Group projects
	Student journaling
	Preceptorships
	Service-Learning
	Debating and problem-based

Note. Adapted from Chan, 2013; D'Amore et al., 2012; Evans & Harder, 2013; and Xu, 2016.

Mentoring (Coaching) **-** Mentoring is the process (Table 15) in which an experienced and knowledgeable person offers guidance to a less experienced and knowledgeable person in hopes of making them more successful. Coaching used

interchangeable with the term “mentoring,” is the act of providing guidance, fostering of the nurse identity, encouraging, and introducing of tools and strategies to support academic learning, as well as life strategies like time management and study tips.

Table 15
Mentoring/Coaching

Strategies	Specifics	
Informational sessions	For students only	
	For students and significant others	
Established coaching/mentoring program(s) in place	Faculty and/or Student-led mentoring programs	
	Assigned pairing or self-selected pairing	
“Engagement/Social activities”	Beginning and/or end of the semester	
	Throughout the semester	
Counseling, and advising done by faculty mentors	Academic	
	Personal	
	Financial	
Referral system in place for interdisciplinary resources as needed	Health	Health clinic on campus or near-by that offers discounts for students.
	Housing	On campus or local near-by that offers discounts for students.
		On campus or local near-by that offers discounts for married/dependents students.
	Food	Supplemental Nutrition Assistance Program and/or Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) on campus or local.
Strategies	Specifics	

Note. Tables continues

Table 15
Mentoring/Coaching

Strategies	Specifics

Referral system in place for interdisciplinary resources as needed	Daycare	A daycare on campus or local near-by that offers discounts for students.
	Legal	Legal aid office on campus or local near-by that offers discounts for students.
Culturally diverse training programs (for faculty)	Mandatory or optional training	
Faculty representative of the cultural diversity of the students	Percentages of faculty closely resembled enrolled nursing students	
Local nurses engagement	Local nurses from the community serves as mentors and preceptorships.	

Note. Adapted from Bronson, 2016; Freitas & Leonard, 2011; Gardner, 2005b; Gibbs & Culleiton, 2016; Gilchrist & Rector, 2007; Giordana & Wedin, 2010

Reinforcement **–** Reinforcement consists of the different strategies, policies, and procedures (Table 16) nursing programs have put in place to evaluate and guide students' progression throughout the nursing program and remediation programs. It is the process and application of how results of the different tools and testing application are used to help identify students' areas of weaknesses and strengths, toward analyzing students' performance on nursing knowledge exams and the predictability of the NCLEX-RN® first-time attempt score.

Table 16

Reinforcement

Strategies	Specifics	
Mandatory remediation programs policies and procedures established and implemented.	Reinforcement of the remediation program and progression throughout the nursing program.	
Faculty prepared exams for curriculum assessment throughout the nursing program.	Consequences connected to not earning a passing score on any type of assessment to include lecture, clinical, and/or lab	
Commercialized prepared exams for curriculum assessment throughout the nursing program	Product	ATI
		HESI
		Kaplan
		Mosby
		Pearson
Established passing score of courses throughout the program	65%	
	70%	
	75%	
	80%	
The use of Commercialized Standardized NCLEX-RN ® mid-curricular predictability exams	Students still advance to the next level regardless of score earned, if they have successfully completed all required course requirements of the nursing program.	
	Minimum score or higher to progress forward in the program.	
The use of Commercialized Standardized NCLEX-RN ® predictability Exit exams	Consequence of failing score: Student still graduates and is endorsed to take the NCLEX-RN® even if they do not earn the established passing score. If they have successfully completed all required course requirements of the nursing program.	

Note. Adapted from Emory, 2003; Heroff, 2009; Lauer & Yoho, 2013; RegisteredNurseRN.com, n.d.; Schroeder, 2013; and Spurlock, 2013.

Research Participants

A total of 44 nursing programs out of the 59 Associate Degree in Nursing (ADN) programs listed on the Report of 2017 NCLEX-RN® Examination Pass Rates for Professional Nursing Education Programs in Texas (Texas Board of Nursing, 2018a) met the inclusion criteria of a first-time pass rate of 80% or more and a retention rate of 50% or more. These nursing programs were reflective of 5,156 students admitted and enrolled into the 2015-2016 academic school year nursing cohorts and the remaining 3,870 nursing students of those cohorts who took the 2017 NCLEX-RN® exam. The 44 nursing programs invited to participate in the research study were considered a sufficient number of participants to partake in the research to analyze for commonalities amongst the policies and strategies implemented by nursing schools' remediation programs. The actual research participants being interviewed in the study were either the nursing directors and/or designees of the Associate Degree in Nursing (ADN) programs who were identified as being capable of giving feedback on the remediation policies and strategies implemented within their nursing program.

There were fifteen nursing programs out of the 59 ADN programs excluded from the study. The reasons these programs were not included in the study consisted of various reasons. The reasons consisted of nursing programs no longer operational at the time of the 2017 NCLEX-RN® exam; programs whose numbers of students graduating and taking the NCLEX-RN® exam exceeded the numbers of students initially enrolled in the 2015- 2016 academic school year nursing cohort; programs with retention rates below 50% and/or NCLEX-RN® pass rates below 80%; accompanied by programs not listed on

the Texas Board of Nursing's 2016 Enrollment, Graduation, and Admissions Professional Nursing Programs spreadsheet.

Instrumentation/Measures

Semi-structured individual interviews with the same predetermined prompt three questions, along with probes (follow-up questions) based on respondents' answers, were used to elicit information to facilitate data collection and to gain a better understanding of each respondent's experience and perception of remediation policies and strategies implemented in their nursing program. The format of the interview's script was submitted to the University of Houston's Institution Review Board (IRB) for approval before being used on the participants (see Appendix A). The questions posed to the participants were intended to further explore the relevance of previously identified factors from studies about student success and to develop a deeper, more in-depth understanding of specific strategies used by nursing programs to promote student success. These factors, demonstrated in Tables 11-16, represent the different aspects identified in the literature review as affecting student success.

The respondents' feedback to the interview questions were coded to protect the participants' identities. The semi-structured interview aimed to gain insight into each respondent's nursing school's practice of remediation policies and strategies implemented to increase student retention and first-time attempt NCLEX-RN® pass rates. The benefits of a semi-structured interview using predetermined prompt questions decreased the likelihood of the researcher's subjectivity or bias to confound the results and allowing the researcher to direct the format and flow of the interview (Doody & Noonan, 2013). The semi-structured interview format also made it easier to code the

participants' responses to the questions and analyze the data collected (Doody & Noonan, 2013). The collected data was analyzed to identify the common tendencies, frequencies, variations, and results of the policies and strategies implemented by the different nursing programs. The commonalities were then compared to a school's student retention rates and NCLEX-RN® first-time pass rates.

Validity and Reliability Information

The semi-structured interview was centered around the identified policies and strategies, based upon the literature review, that reflected what constitutes the identified factors shown to have an impact on nursing remediation programs and student success. Prior to interviewing the study participants, the interview questions were distributed to a group of nurse educators to review and provide feedback. Practice interviews were conducted with educators, who were not the targeted participants. These educators provided insight into the questions' relevance to the topic of remediation, the clarity of their content, and the neutrality of the questioning style. A transcript of a summary of the interview was sent to each participant to review and provide feedback to verify the recorded interview's accuracy.

The Procedure of Data Collection

Data was collected in the form of semi-structured interviews regarding the policies and strategies implemented in the nursing programs' remediation programs. The predetermined prompt questions were asked in the same format to each of the participants. The interviewer delivered one question at a time, to avoid influencing the respondents' selection of choices. The interview included additional probe questions

based on the respondent's answers to a predetermined question requiring a follow-up question, as referenced in Tables 11-16. The researcher tried to respond using the participant's words when summarizing or responding with prompts in order to not sway or lead the participant's responses (DiCicco-Bloom & Crabtree, 2006).

Planning the interview.

The contact information for the included schools was available on the Texas Board of Nursing website which provided email addresses and nursing directors for each of the ADN programs. A letter of introduction about the research project was sent to each of the nursing directors inviting them to participate in the research (Appendix B), along with a letter of consent they could return if they chose to participate in the research project, their preferred telephone contact number, and choice of three dates and times they were available for an interview. The time slots were set-up in 60-minute increments with an anticipated interview duration of 30-45 minutes. The interview time slots available were dispersed over two weeks, including weekend and evening times, to provide a flexible range of time slots for the participant to select from. The participants were informed that the identity of their nursing programs and responses would remain anonymous in the research study.

Conducting the interview.

Based on the interview process guidelines provided by Doody and Noonan, at the beginning of the interview, the researcher briefed the participant on the purpose of the interview, the format in which the interview would be conducted, and the fact that that there are no right or wrong answers to the questions (Doody & Noonan, 2013). The researcher instructed the participants to take their time in answering the questions and to

ask for clarification of a question being asked, if needed (Appendix D). To minimize the likelihood of the participants becoming defensive or inhibited in their responses during the interview, the researcher avoided using "why" questions (Doody & Noonan, 2013). At the end of each question discussed, the researcher summarized the participant's responses and asked the participant if there was there anything else, they wished to add. Interviews were conducted via telephone and recorded with an electronic recording device. The interview was recorded to maintain the accuracy of the respondent's answers and to give the researcher the opportunity to listen to the respondent without having to hand-record what the respondent disclosed during the interview. Steps were taken to make participants more comfortable with the use of audio recording and less hesitant to talk openly and candidly about the educational practices employed by their school of nursing (al-Yateem, 2012).

After the interview.

Upon conclusion of the interview, the researcher made additional notes to reflect her first impression on how the interview went (Doody & Noonan, 2013). An example of reflection on the interview process was if the researcher had an impression that the participant was reluctant or hesitant about responding to the questions being asked. Another example was if the participant was interrupted or if there was distracting background noise during the interview.

Data Analysis Procedure

Data analysis occurred in several steps. The first step was to determine and list the schools, reflective of student retention rates and first-time NCLEX-RN® pass rates. The listed groups consisted of the schools, labeled as School 1 to School 6 (Appendix C).

The retention rates were determined based on the data reported on the Texas Board of Nursing's 2016 Enrollment, Graduation, and Admissions Professional Nursing Programs – Pre-RN Licensure Student Admissions for Academic Year 2015-2016, each nursing program's registered and enrolled number of students, and the number of students who attempted the NCLEX-RN® exam for the first time. An example of determining the retention rate was if Nursing Program "A" had 100 students registered and enrolled for the academic year 2015-2016 and had 80 students attempt the NCLEX-RN® exam for the first time in 2017, then Nursing Program A's retention rate would be 80 students divided by 100 students, equaling an 80% student retention rate (Appendix B). The 2017 NCLEX-RN® exam first attempt pass rates were determined by the number of students reported taking the NCLEX-RN® for the first time and the number of students reported on the Texas Board of Nursing's website as passing (Appendix B).

The next step was to analyze the interview data. The "template" approach was used, which involves applying a template (categories). In this case, the identified factors, based on the interview results, were reflective of much of the literature review (DiCicco-Bloom & Crabtree, 2006). The protocol used for the coding and template analysis technique was similar to the protocol published in the United Kingdom's University of Huddersfield's website. Seven steps were used for the coding and template analysis of qualitative data from the interviews.

1. Define the themes, which in this research project are the independent constructs.
2. Transcribe the transcripts from the interviews.
3. Identify the relevant parts of the interview to answer the research questions.

4. Produce an initial template.
5. Develop a template.
6. Use a final template to interpret and transcribe findings.
7. Perform a "quality and reflexivity" check to ensure the researcher's bias and preconceived assumptions have not distorted the interpretation of the findings.

(University of Huddersfield, 2018)

Limitations

Several limitations were anticipated for this descriptive study. The first limitation was the number of respondents who chose to participate in the interviews. A total of 44 nursing programs were identified to be eligible to participate in the study. A total of 4 to 5 participants would be reflective of a 10% response rate which was considered to be acceptable for research reporting results.

Another limitation was that data collected from participants during the interview was self-reported and may have been subject to bias and underreporting or overreporting of the strategies that were implemented by the participant's nursing program. Along with the limitation, the data was restricted to revealing what strategies were in place and limited in its ability to establish why these strategies affected the overall outcome of the nursing programs' NCLEX-RN® first-time attempt pass rates and retention rates.

Summary

The results of this study were intended to help identify commonalities between policies and strategies implemented in the nursing remediation programs to increase student retention rates and first-time NCLEX-RN® pass rates. The value and magnitude of these results should not only impact nursing programs' accreditation status and nursing

students' ability to work as RNs, but also impact the quality of healthcare delivery and patients' overall health outcomes. As stated previously, parts of the United States are experiencing nursing shortages. It is more important today to find ways to augment and facilitate the delivery of nursing curriculum to nursing students. By doing so, more nursing students will be retained and be successful in graduating and passing the NCLEX-RN® exam on the first attempt. This will consequently increase the numbers of RNs available, minimize the negative effects of the nursing shortage, and enhance the quality of nursing care being delivered to patients, therefore resulting in improved patient health outcomes.

Chapter 4

Data Analysis and Results

Introduction

The study was a descriptive qualitative study that utilized semi-structured telephone interviews to investigate the policies and strategies that were used by nursing remediation programs to increase student retention rates and NCLEX-RN® first-time pass rates. The study focused its research on Associated Degree Nursing (ADN) nursing programs in the state of Texas. This study was designed to answer the following research questions:

Q1: What remediation policies and strategies were implemented in nursing programs to increase student retention rates?

Q2: What remediation policies and strategies were implemented in nursing programs to increase NCLEX-RN® exam first-time pass rates?

The altruistic purpose of this study was based on the need to increase the number of registered nurses to meet the growing demands of our country's aging population and the anticipated nursing shortage which has gained the attention of different entities in the health field and governing bodies of nations (Rossetter, 2017; Buerhaus, 2008; Elgie, 2007; Kuehn, 2007; Yeom, 2013). Due to these circumstances, nursing programs are looking for ways to retain as many nursing students as possible and have them pass the required NCLEX-RN® exam on their first attempt, so they can join the nursing workforce. A solution that has shown to improve a student's odds of successfully passing the NCLEX-RN® on their first attempt is a quality remediation program (Sifford & McDaniel, 2007).

Chapter 4 provides a review of the research design and research participants, followed by a detailed description of the participants and their nursing programs, including the programs' student retention rates, first-time NCLEX-RN ® pass rates, and the nursing program acceptance rates. The primary sources of data for the nursing programs' student retention and acceptance rates were based on the Texas Board of Nursing's published report of 2016 Enrollment, Graduation, and Admissions Professional Nursing Programs (CHS, 2016). The first-time attempt NCLEX-RN® pass rates for the participants' schools were based on the Report of 2017 NCLEX-RN® Examination Pass Rates for the Professional Nursing Education Programs (Texas Board of Nursing, 2018a). The primary sources for the demographics of the participating nursing programs were websites' listings of the reported public data regarding the demographic information of the nursing programs within community colleges (U.S. News & World Report's Education Rankings & Advice - Community Colleges (2018); and Community College Review (2018). The remainder of the chapter provides a detailed summary of the findings, including the policies and strategies the participants discussed in response to the research questions.

Review of Research Design and Data Collection

Review of research design.

The research project was a descriptive qualitative study designed to investigate the policies and strategies Texan ADN programs had in place for their remediation programs to increase retention rates and first-time attempt NCLEX-RN® pass rates. One of the reasons the research focused on Texan ADN programs was because Texas had been identified by the latest Health Resources and Services Administration (HRSA,

2017) report to have a projected short-fall of RNs by the year 2030. The reason ADN programs were the subject of the study was because ADN programs are part of community colleges, and studies have alluded community colleges, statistically attract and recruit more non-traditional students (NCES, 2015). These students are more "at-risk" for failing the first-time attempt NCLEX-RN® exam and/or dropping out of a nursing program.

The findings of this research reflect the information provided by five nursing school directors and one Success Coordinator through semi-structured interviews. The findings disclosed by the participants during the interviews were analyzed and then grouped into the themes that emerged. The information elicited from the participants during the interviews consisted of the different strategies and policies implemented in their programs to increase student retention rates and NCLEX-RN® pass rates.

Data collection.

Initially, nine respondents from the invited 44 ADN programs who met the inclusion criteria of a first-time NCLEX-RN® pass rate of 80% or more and a student retention rate of 50% or more via email expressed an interest to participate in the study. In the end, six nursing programs had a designee emailed back their signed informed consent form and provided a telephone number and date to participate in an interview. The six nursing program's designees reflect a 14% participation rate from the invited 44 nursing programs. The total number of students enrolled the participating nursing programs was 707. This number of students also reflected a 14% participation rate out of the 5,156 students admitted and enrolled in the 44 programs in the 2015-2016 academic school year. The sampling flowchart (Figure 13) depicts the selection of candidates for

the study and the number of participating respondents.

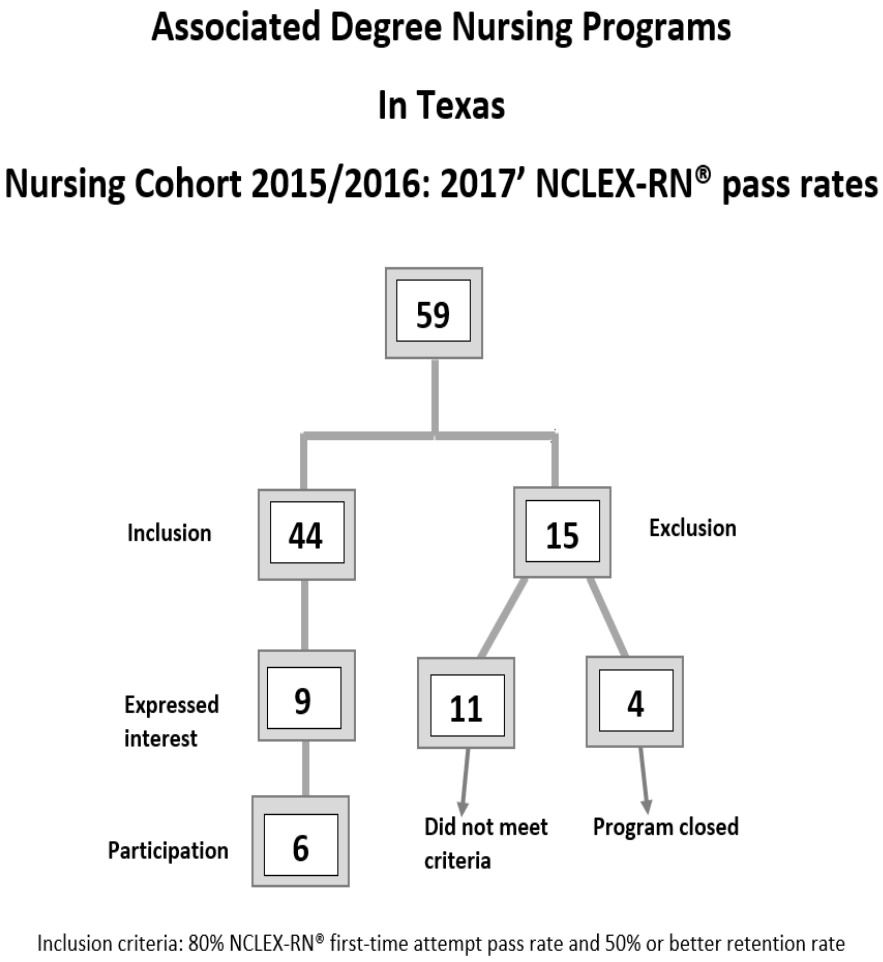


Figure 13. Sampling flowchart of selection of participating respondents (Adapted from CHS, 2016 and Texas Board of Nursing, 2018a.)

The beginning of each interview went as planned in which the participants were read a set of instructions that explained how the interview was to be conducted and encouraged them to ask for clarification at any time during the interview (Appendix D). All the participants sounded relaxed and not intimidated as evidenced by their eagerness to discuss their nursing programs and willingness to share their nursing educator's experience immediately as soon as the introductions and set of instructions were read.

The semi-structured interview with the predetermined prompt questions designed to elicit information was very helpful in facilitating the collection of data to answer the research questions (Appendix A). The additional probe questions asked based on participants' responses to the predetermined questions, elicited most of the data that provided great insightful and enriched information in reference to answering the research questions.

The participant's recorded interviews were transcribed, and a copy of the transcription was emailed to the participant to review for accuracy of the transcription and to be given an opportunity to clarify or add additional information (Appendix E). Three of the participants emailed back with additional information they wanted to add to their transcription of their recorded interview. The other three participants concurred with the transcription of their recorded interviews

Data collected from the interviews were analyzed using the template method to identify the central tendencies, frequencies, and themes used in the nursing programs' remediation policies and strategies, along with unique strategies the programs had developed to aid in student success. The coding template (Appendix F) was used to identified themes that emerged from the interviews, along with additional sub-topics that arose from the probe questions in the interviews was effective. The emerged findings were reflective of the literature review and the factors of Early Identification of the "At-Risk" Student, Teaching Strategies, Coaching/Mentoring, and Reinforcement. The additional emerged theme of Administration Support was initially coded under "additional comments". The sub-topics that emerged through an in-depth analysis of the participants' interviews and commonalities of strategies were consistent with various factors from previous research.

Risks/benefits to participants.

There were no identified risks to the participants. The study involved data collected from five directors of ADN programs and one Success Coordinator reporting on the policies and strategies used by their schools to increase student retention and NCLEX-RN® exam pass rates. Additional data was collected from the published Report of 2017 NCLEX-RN ® Examination Pass Rates for Professional Nursing Education Programs (Texas Board of Nursing, 2018a) and the Texas Board of Nursing's 2016 Enrollment, Graduation, and Admissions Professional Nursing Programs (CHS, 2016). The participating programs and participating respondents' identities were kept confidential through coding their identities, responses to the interview questions, and publicized data.

Description of the Participants

Demographics.

The research participants represented six ADN programs in the state of Texas. The contact information for these schools' directors was obtained from the Texas Approved Professional Nursing Education Programs website (Texas Board of Nursing, 2018b). The demographic information of the student enrollment for the participating colleges was obtained from websites, two of which were the U.S. News & World Report's Education Rankings & Advice - Community Colleges (2018); and Community College Review (2018). Another site utilized for archival demographic data for one of the participants was the program's college system's public report of enrollment data. To maintain the confidentiality of the participating nursing programs, the public record URLs that specified the programs' names were not listed in full but were instead listed

with the main URL domain name. Table 17 provides a summary of the participants and their associated program and local community. The participating nursing programs represented different regions across Texas, including north, central, east, and southeast Texas, and the Panhandle (Figure 14). The following sections provide a more detailed demographic description of each of the participating nursing programs.

Table 17

Summary of Participants, Associated Colleges, and Local Community

PARTICIPANTS								
SCHOOL	**Participant Role**	**Program type**	**School Setting**	**Campus enrolled students**	**RN Program capped enrollment**	**Full time faculty**	**Adjunct Faculty**	**Length of interview**
1	Director of Nursing	Integrated Curriculum	Suburban area of a large metropolitan area with a population over 6 million.	15,000 students	70	7 + 1 Simulation Coordinator	4	40 minutes
2	Director of Nursing	Integrated Curriculum	Suburban area of a large metropolitan area with a population over 6 million.	5,000 students	90	10	10	19 minutes
3	Director of Nursing	Integrated Curriculum	Town setting in a rural area with a total surrounding population area of 63,000.	11,000 students	108	15	1 (lab)	39 minutes
4	Success Coordinator	Block-based Curriculum	City setting of a medium-sized metropolitan area with a population approximately 850,000.	51,000 students	280	Did not have data	--------	42 minutes
5	Director of Nursing	Block-based Curriculum	Town setting in a rural area with a total surrounding population area of 36,000.	4,000 students	20	5	2	33 minutes
6	Director of Nursing	Block-based Curriculum	City setting of a small-sized metropolitan area with a population approximately 300,000.	11,000 students	179	20	5	31 minutes

Note. Adapted from U.S. News & World Report, 2018 and Community College Review, 2018.

Figure 14. Regional Texas map of participating nursing programs
(Adapted from Lists of Interstate Highways in Texas, n.d.)

School 1. School 1 is situated in a suburban area of a large metropolitan area with a population over 6 million. The total enrollment averaged approximately 15,000 students in Spring 2018. The gender female-to-male ratio was reported to be 6:4. The racial/ethnic distribution consisted of approximately 47% Caucasian, 31% Hispanic, 10% African-American, 5% Asian, 3% mixed race, and 4% unknown. The age distribution consisted of 14% under 18 years old, 59% 18-24 years old, and 27% 25-64 years old. The percentage of students receiving financial aid was reported to be 28%. Refer to Figures 15-17 for comparison to other participating nursing programs.

School 2. School 2 is situated in a suburban area of a large metropolitan area with a population over 6 million. The total enrollment averaged approximately 5,000 students in Spring 2017. The gender female-to-male ratio was reported to be 6:4. The racial/ethnic distribution consisted of approximately 52% Caucasian, 30% Hispanic, 10% African-American, 5% Asian, 2% unknown, and less than 1% Native American. The age

distribution consisted of 24% under 18 years old, 47% 18-24 years old, and 29% 25-64 years old. The percentage of students receiving financial aid was reported to be 40%. Refer to Figures 15-17 for comparison to other participating nursing programs.

School 3. School 3 is situated in a town setting in a rural area with a total surrounding population area of 63,000. The total enrollment averaged approximately 11,000 students in Spring 2017. The gender female-to-male ratio was reported to be 6:4. The racial/ethnic distribution consisted of approximately 69% Caucasian, 15% Hispanic, 9% African-American, 3% multi-race, 2% Asian, 1% Native American, and 1% unknown. The age distribution consisted of 14% under 18 years old, 59% 18-24 years old, and 27% 25-64 years old. The percentage of students receiving financial aid was reported to be 61%. Refer to Figures 15-17 for comparison to other participating nursing programs.

School 4. School 4 is situated in a city setting of a medium-sized metropolitan area with a population of approximately 850,000. The total enrollment averaged approximately 51,000 students in Spring 2017. The gender female-to-male ratio was reported to be 6:4. The racial/ethnic distribution consisted of approximately 44% Caucasian, 27% Hispanic, 19% African-American, 6% Asian, 2% multi-race, 1% Native American, and 1% unknown. The age distribution consisted of 10% under 18 years old, 53% 18-24 years old, and 37% 25-64 years old. The percentage of students receiving financial aid was reported to be 77%. Refer to Figures 15-17 for comparison to other participating nursing programs.

School 5. School 5 is situated in a town setting in a rural area with a total surrounding population area of 36,000. The total enrollment averaged approximately

4,000 students in Spring 2017. The gender female-to-male ratio was reported to be 6:4. The racial/ethnic distribution consisted of approximately 68% Caucasian, 18% Hispanic, 7% African-American, 2% Native American, 2% unknown race, 2% multi-race, and 1% Asian. The age distribution consisted of 20% under 18 years old, 51% 18-24 years old, and 29% 25-64 years old. The percentage of students receiving financial aid was reported to be 72%. Refer to Figures 15-17 for comparison to other participating nursing programs.

School 6. School 6 is situated in a city setting of a small metropolitan area with a population of approximately 300,000. The total enrollment averaged approximately 11,000 students in Spring 2017. The gender female-to-male ratio was reported to be 6:4. The racial/ethnic distribution consisted of approximately 60% Caucasian, 30% Hispanic, 5% African-American, 3% Asian, 1% Native American, and 1% multi-race. The age distribution consisted of 16% under 18 years old, 49% 18-24 years old, and 34% 25-64 years old. The percentage of students receiving financial aid was reported to be 77%. Refer to Figures 15-17 for comparison to other participating nursing programs.

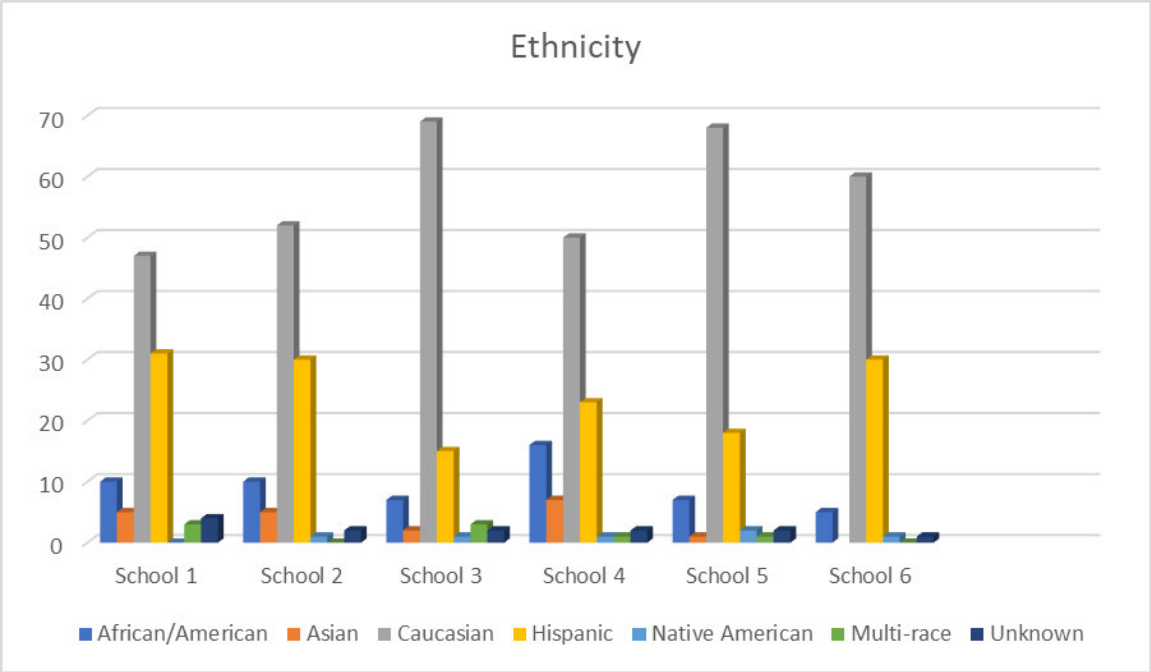


Figure 15. Ethnicity distribution of student population
(Adapted from U.S. News & World Report, 2018 and Community College Review, 2018.)

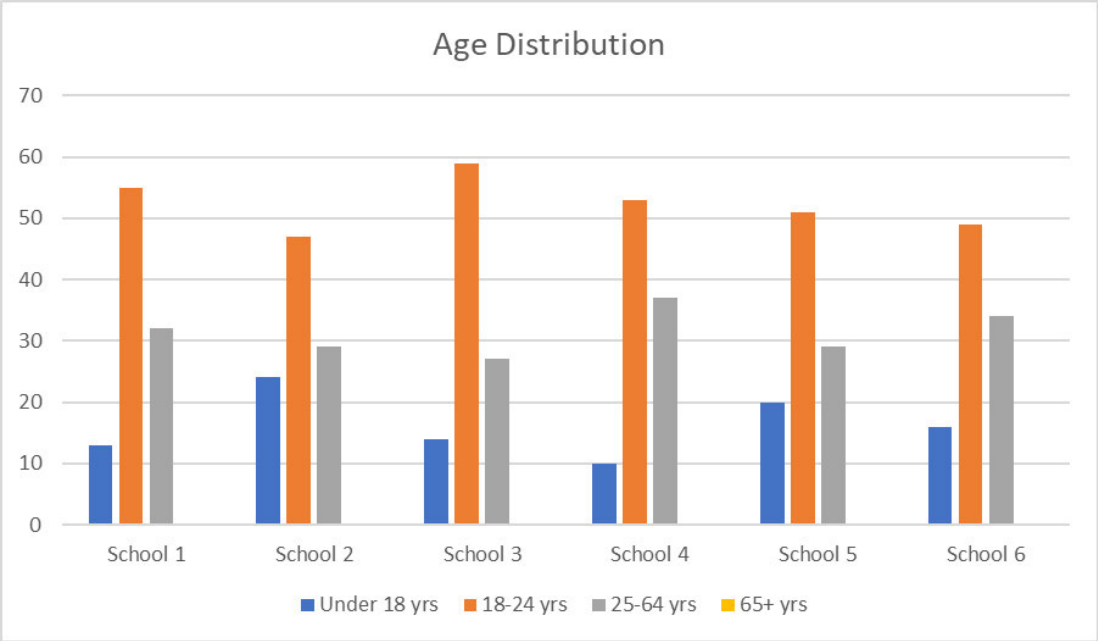


Figure 16. Age distribution of student population
(Adapted from U.S. News & World Report, 2018 and Community College Review, 2018.)

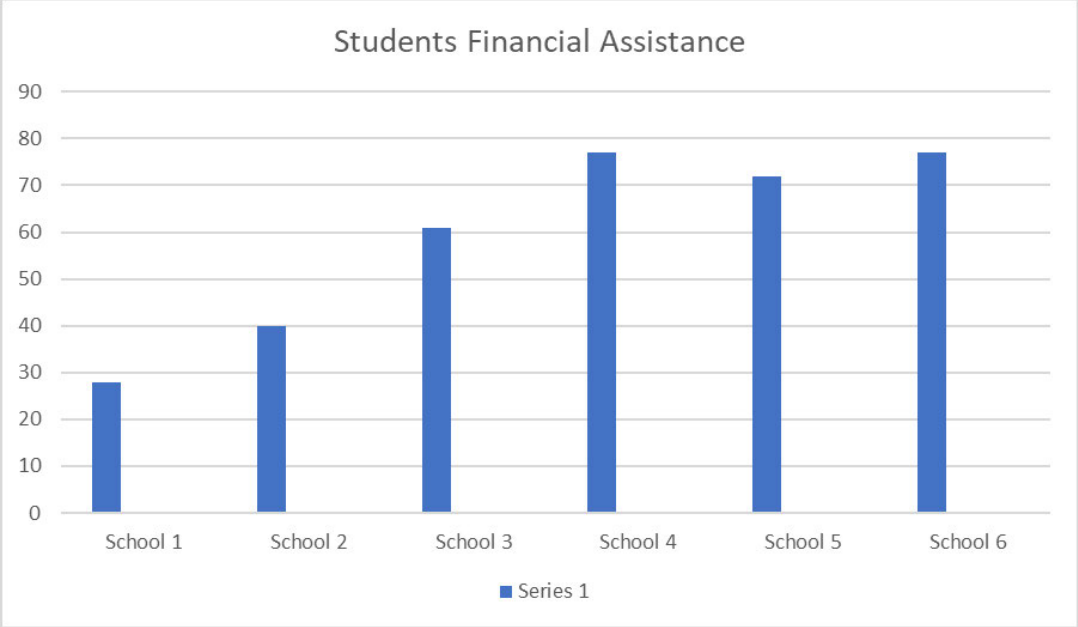


Figure 17. Student population receiving financial aid
(Adapted from U.S. News & World Report, 2018 and Community College Review, 2018.)

Program nursing cohort public record data.

The data about the participating schools is archival data from public records. The acceptance rates and enrollment numbers are based on data recorded on the Texas Board of Nursing's 2016 Enrollment, Graduation, and Admission Professional Nursing Program document (CHS, 2016). The retention rates and NCLEX-RN® pass rates are archival data publicly reported in a publication from the Texas Board of Nursing's January 2018 Board Meeting, titled "Report of 2017 NCLEX-RN® Examination Pass Rates for Professional Nursing Education Programs." Summary comparisons of the participating schools' acceptance rates, retention rates, and NCLEX-RN® pass rates are displayed in Table 18 and Figure 18.

Table 18

School Year Cohort 2015/2016 - 2017 Graduates Data

Participant	2015/2016 school year enrollees	Acceptance Rate	Retention Rate	Pass Rates (rounded to whole number)
	Number of students enrolled into the program	Numbers of qualified applicants/offered enrollment	Number of students who took "2017" NCLEX-RN ® exam/Number of 2015-2016 enrolled	Percentage of students who passed "2017" NCLEX-RN ® exam
School 1	**62**	(365/65)	(52/62)	**100%**
		18%	**84%**	
School 2	**90**	(284/123)	(63/90)	**95%**
		43%	**70%**	
School 3	**102**	(120/107)	(88/103)	**84%**
		89%	**86%**	
School 4	**270**	(663/279)	(270/270)	**88%**
		42%	**100%**	
School 5	**14**	(14/14)	(12/14)	**83%**
		100%	**86%**	
School 6	**169**	(170/169)	(117/169)	**92%**
		99%	**69%**	

Note. Adapted from CHS, 2016 and Texas Board of Nursing, 2018a.

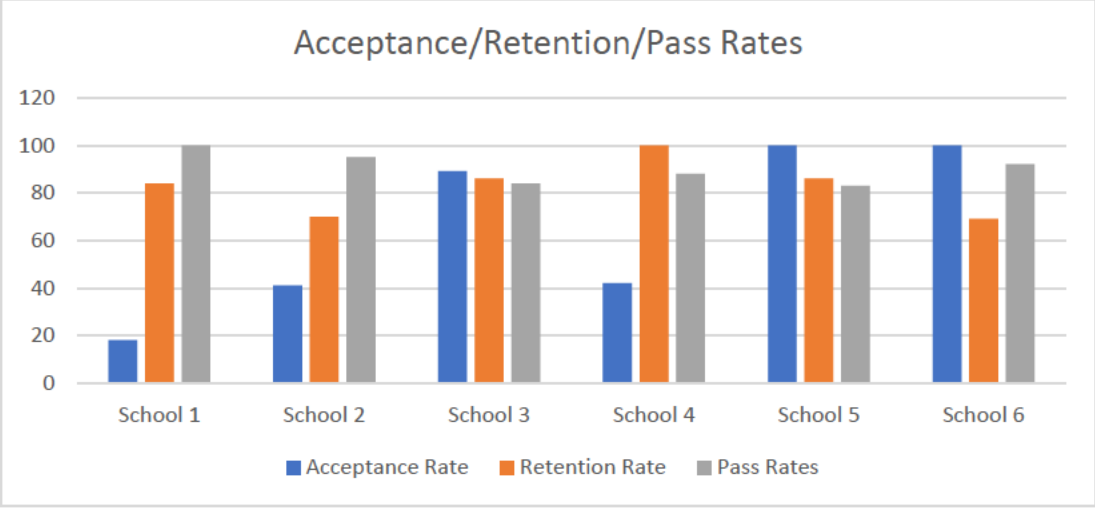


Figure 18. Nursing cohort 2015-2016 enrollment/retention and 2017 NCLEX-RN® exam pass rates
(Adapted from CHS, 2016 and Texas Board of Nursing, 2018a.)

Curriculum design and admission criteria.

***Findings on curriculum design and admission criteria*.** The curriculum designed for the participating nursing programs was evenly split. Schools 1, 2, and 3 used an integrated nursing curriculum, and Schools 4, 5, and 6 used a block-based curriculum. All of the schools used a commercialized standardized admission assessment exam to screen applicants. Schools 3 and 5 used the ATI TEAS assessment exam, and Schools 1, 2, 4, and 6 used the Elsevier-HESI A2 exam. All of the schools had different admission criteria for prerequisite courses, minimum GPAs, and established passing scores for the admission assessment exams, even though they were using the same standardized admission assessment. The following section provides a more detailed description of each of the participating nursing programs' curricula and admission criteria.

***School 1*.** School 1's curriculum design was an "Integrated Nursing Program," in which the material's content becomes more complex as the student progresses through the program. The example given by the participant was the content of Maternal Health Nursing. During the first semester, students were taught normal antepartum care leading up to the birth of the infant. In the second semester, the content progressed to cover the delivery of the infant to the post-partum care of the mother. The third semester content included complications of high-risk pregnancies and delivery of the infant, chromosomal disorders, and complications of premature birth. In the fourth and final semester, the students were taught a combination of male and female topics related to obstetrics.

The nursing program's admission criteria included Anatomy and Physiology 1 and English 1 as prerequisite courses. The other required science courses were scheduled

to be taken during the nursing program, such as Anatomy and Physiology 2 during the second semester of the nursing program, followed by Microbiology during the third nursing semester. The participant stated that they encourage and advise students, during an informational session about the nursing program, to take these courses ahead of time because it is very stressful for the student to manage these courses along with the demands and heavy workload of the nursing courses.

Applicants were scored on a point system. The students were ranked on their English and Anatomy and Physiology 1 course averages (GPA), along with their average score on the HESI Admission Assessment Exam (A2). The minimum acceptable GPA for the two prerequisite courses was a 2.5, and the students must have earned a score of at least 75% on each section of the A2 exam, as well as a minimum score of 750 on the Critical Thinking portion of the A2 exam. The students were ranked "1-8," with "8" being the highest point a student could earn. The higher a student's GPA and scores on the HESI exam, the more points the student applicant received. The nursing director stated that the nursing program is a part of a college system with "sister" campuses with their own nursing programs. Students were eligible to apply to all the nursing programs in the college system and may list their order of preference on their admission application.

Student applications were reviewed by the college system administration, and the student was ranked according to the point system. Students were offered admission to one of the nursing programs based on the ranked score they received, order of preference of nursing program, and student spots available for placement. The higher rank a student earned, the more likely they were to be offered a position in one of the system's nursing

programs and a placement in the student's first- or second-preferred nursing school. The director stated their nursing program gets more first-preference requests to attend their program than they have positions available for enrollment. Table 19 presents a visualization of an example of School 1's academic admission points ranking process.

Table 19

Example of School 1's Admission Ranking Process

<table>
<tr><td colspan="5">All courses to be accepted into the Nursing Program must be a "C" (2.0) or better. Science courses, biology, and pharmacology must be no older than five (5) years to be accepted for transferred credit into the Nursing Program.</td></tr>
<tr><td colspan="2">Content Course</td><td colspan="2">DATA from content</td><td>Total Possible Points</td><td>Points awarded</td></tr>
<tr><td colspan="2">Average of English and Anatomy & Physiology 1 course</td><td>English GPA:

A&P1 GPA:</td><td>Average of two: (Minimum accepted average GPA 2.7)</td><td>4</td><td></td></tr>
<tr><td colspan="2">HESI Admission Assessment Exam (A2) (lowest accepted score for each area 75%)</td><td colspan="2" rowspan="7">Average of the five components of the HESI A2 exam divided by 25 = points earned</td><td rowspan="7">4</td><td rowspan="7"></td></tr>
<tr><td colspan="2">All scores must be from the same dated exam</td></tr>
<tr><td>Reading Comprehension</td><td></td></tr>
<tr><td>Grammar</td><td></td></tr>
<tr><td>Vocabulary/General Knowledge</td><td></td></tr>
<tr><td>Anatomy & Physiology</td><td></td></tr>
<tr><td>Math</td><td></td></tr>
<tr><td>Average of scores</td><td></td></tr>
<tr><td colspan="2">Critical Thinking (lowest accepted score 750)</td><td></td><td colspan="2">Must earn a 750 or higher or not eligible for admission; regardless of above scores</td><td>YES or NO</td><td></td></tr>
<tr><td colspan="6"></td></tr>
<tr><td colspan="4">Total possible points for admission</td><td>8</td><td></td></tr>
</table>

Note. Adapted from School 1's posted website admission criteria

School 2. School 2's curriculum design was also an "Integrated Nursing Program," in which the content of the material becomes more complex as the student progresses through the program. During the first semester, the students were taught introduction to professional nursing, followed by the care of patients with common health care issues in the second semester. In the third semester, students studied patients with complex healthcare issues, and in the fourth semester, the focus was on patient care management issues.

The nursing program's admission criteria included four prerequisite courses: *Anatomy & Physiology 1* and *2; English 1*, and *General Psychology*. The lowest GPA accepted was a "C," and for courses taken at another college, the lowest accepted transferred GPA was a "B." All of the prerequisite courses, regardless of where they were taken, could not have been taken more than 5 years prior to application into the program. If a student's transcript reflected a GPA below a "C" in Anatomy & *Physiology 1, 2,* or *Microbiology*, regardless of whether the course was retaken, and a higher grade was earned in the retaken course, the student would not be considered eligible for admission to the program.

The students were required to take the HESI A2 exam and earn a minimum of 75% cumulative score, including a minimum score of 75% on the Reading section. The A2 exam scores must have been no older than 5 years old at the application deadline. Students could repeat A2 exams, and the nursing program accepted the highest score of different sections of the exam from different exams, as long as the exams were not repeated within 30 days of each other. The nursing program used a point ranking system in which students could earn more points for higher GPAs in prerequisite courses, along

with additional points earned if Microbiology had already been taken, as well as additional points if the student already earned a bachelor's degree or higher from an accredited college or university. Students could also earn a point if they resided within the college's district boundaries. Table 20 presents a visualization of an example of School 2's academic admission points ranking process.

Table 20

Example of School 2's Admission Ranking Process

<table>
<tr><th>Content Course</th><th colspan="2">DATA from content</th><th>Points awarded</th></tr>
<tr><td rowspan="4">Prerequisites:
English
Anatomy & Physiology 1
Anatomy & Physiology 2
Psychology</td><td rowspan="4">English GPA:
A&P1 GPA:
A&P2 GPA:
Psychology GPA:</td><td rowspan="4">The higher the GPA the more points earned
(Minimum accepted GPA 2.5)</td><td></td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td colspan="2">HESI Admission Assessment Exam (A2)
(lowest accepted score for each area 75%)</td><td colspan="2" rowspan="4">Reading score:</td></tr>
<tr><td colspan="2">All scores from the same exam</td></tr>
<tr><td>Reading Comprehension
(minimum score accepted 75%)</td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Grammar</td><td></td><td rowspan="4">Cumulative average score:
(Highest score for each section from A2 from different exams not taken within 30 days of each other are allowed)</td><td rowspan="4"></td></tr>
<tr><td>Vocabulary/General Knowledge</td><td></td></tr>
<tr><td>Anatomy & Physiology</td><td></td></tr>
<tr><td>Math</td><td></td></tr>
<tr><td>Cumulative average</td><td></td><td></td><td></td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Microbiology completed or in progress with GPA above 2.5</td><td colspan="2">GPA:</td></tr>
<tr><td colspan="2">Student earned a bachelor's degree from accredited college/university</td><td colspan="2">Degree:</td></tr>
<tr><td colspan="2">Student resides in the college's district boundaries</td><td colspan="2">Yes</td></tr>
<tr><td colspan="3">Total points</td><td></td></tr>
</table>

Note. Adapted from School 2's posted website admission criteria

School 3. School 3's curriculum design was also an "Integrated Nursing Program," in which the content of the material becomes more complex as the student progresses through the program. During the first semester, students were taught introduction to professional nursing, followed by the care of patients with common health care issues in the second semester. A separate psychiatric nursing course was taught as a summer semester between the second and third semester. In the third semester, students studied patients with complex healthcare issues, and in the fourth semester, they were instructed in patient care management.

The nursing program's admission criteria included three prerequisite courses: Anato*my & Physiology course 1* and *2* and *statistical math*. Students were required to take the ATI Test of Essential Academic Skills (TEAS). The students earned points for GPAs received in the prerequisite courses, where the higher the student's GPA, the more points awarded. Nursing credit courses and/or prerequisites taken elsewhere with a minimum GPA of "C" or better could be considered for transfer credit on a case-by-case basis. However, students may have points deducted from any of the prerequisite courses if their transcripts reflected repeat courses.

The TEAS test consists of Reading, Math, Writing, and Science, and students earned points based on their test scores. Students could take the TEAS test no more than two times in one academic year, and the highest scores for each section from the two tests would be considered, if applicable. The director of the nursing program stated that she was mainly concerned about the TEAS test scores and will look at the Anatomy & Physiology GPAs, if there was a tie between applicants for positions in the nursing program, to determine who will be admitted. Table 21 presents a visualization of an

example of School 3's academic admission points ranking process.

Table 21

Example of School 3's Admission Ranking Process

<table>
<tr><th colspan="2">Content Course</th><th colspan="2">DATA from content</th><th>Points awarded</th></tr>
<tr><td colspan="2">Anatomy & Physiology 1 course
Anatomy & Physiology 2 course
Statistical Math</td><td>A&P 1 GPA:

A&P 2 GPA:</td><td>Repeated courses may result in deduction of points</td><td></td></tr>
<tr><td colspan="2">TEAS Entrance Exam</td><td colspan="2" rowspan="6">Student may not take more than (2) TEAS Exams in the same academic year.</td><td rowspan="6"></td></tr>
<tr><td colspan="2">Highest scores from the different exams</td></tr>
<tr><td>Reading</td><td></td></tr>
<tr><td>Math</td><td></td></tr>
<tr><td>Writing</td><td></td></tr>
<tr><td>Science</td><td></td></tr>
</table>

Note. Adapted from School 3's posted website admission criteria

School 4. School 4's curriculum was block-designed. In the first semester, the students were taught the foundations of nursing practice, followed by the common health issues in the adult patient in the second semester. During the summer semester, the students were taught psychiatric nursing, followed by maternal and newborn nursing, and pediatric nursing in the fourth semester. During the final semester, students were taught more complex adult health issues, such as critical care nursing.

The nursing program's admission criteria included a minimum grade of "C" in the three science prerequisite courses and all general education courses. The school's website states that applicants selected for the nursing program have a GPA average of 3.4 or higher in their science courses. The prerequisite courses consisted of *Anatomy & Physiology 1* and *2* and *Microbiology*. Students could retake the science prerequisite courses up to two times to earn a higher GPA. However, a withdrawal or drop of a

course was considered one of the two attempts. The prerequisite courses would not be accepted if they were taken more than five years prior to application.

The students were required to take the HESI A2 and were required to earn a 75% or better on all of the sections of the test. The students were also required to take the Internet-based Test of English as a Foreign Language (TOEFL) or the International English Language Testing System of English language proficiency (IELTS) if English was not their native language. A student was required to earn a minimum score of 83 or better on the TOEFL or an overall Band Score of 6.5, with a minimum of 6 in all areas, on the IELTS. Applicants earned an overall score based on their science overall GPA being worth 50% and admission test scores making up the other 50%. Table 22 presents a visualization of an example of School 4's admission ranking process.

Table 22

Example of School 4's Admission Ranking Process

<table>
<tr><th colspan="2">Content Course</th><th colspan="2">DATA from content</th></tr>
<tr><td colspan="2">Prerequisites:
Anatomy & Physiology 1
Anatomy & Physiology 2
Microbiology</td><td>A&P1 GPA:
A&P2 GPA:
Microbiology GPA:</td><td>The higher the GPA, the more points earned
(Minimum accepted GPA 2.0)</td></tr>
<tr><td colspan="2">HESI Admission Assessment Exam (A2)
(lowest accepted score for each area 75%)</td><td colspan="2"></td></tr>
<tr><td></td><td></td><td colspan="2"></td></tr>
<tr><td>Grammar</td><td></td><td colspan="2" rowspan="4">Minimum score accepted 75%</td></tr>
<tr><td>Vocabulary/General Knowledge</td><td></td></tr>
<tr><td>Anatomy & Physiology</td><td></td></tr>
<tr><td>Math</td><td></td></tr>
<tr><td>TOEFL</td><td></td><td colspan="2">Minimum score accepted 83</td></tr>
<tr><td>IELTS</td><td></td><td colspan="2">Must earn an overall Band Score 6.5 with minimum 6 in all areas.</td></tr>
</table>

Note. Adapted from School 4's posted website admission criteria

School 5. School 5's curriculum was block-designed. In the first semester, students were taught about the foundations of nursing and common health ailments of adults. Health specialties such as maternal health and childbirth were taught separately, along with advanced concepts of health issues such as critical care, pediatric nursing, mental health nursing, and nurse management courses in subsequent semesters.

The nursing program admission criteria included completion of all the prerequisite courses, which consisted of *Nutrition*, *Anatomy and Physiology 1*, *English*, and *College Algebra*, and recommended courses, with a minimum of a cumulative GPA 3.0 or better. The director of the nursing program stated the average GPA of students admitted into the program was 3.2. The students were required to complete the ATI TEAS entrance test with an overall minimum score of 66%, with a minimum of 73% in reading, 69% in math, 58% in science, and 69% in English.

If English was not a student's native language, the student was required to take the TOEFL test. The student was also required to submit three letters of reference from professional acquaintances, such as employers, supervisors, co-workers and teachers/professors. The student must also have met the requirements of the Texas Success Initiative (TSI) in reading, writing, and mathematics. Table 23 shows the nursing program's admission ranking process.

Table 23

Example of School 5's Admission Ranking Process

Content Course				**DATA from content**	
Anatomy & Physiology 1		***Minimum grade accepted "B"***		**Recommended cumulative**	
Nutrition					
English 1					
College Algebra					
Texas Success Initiative (TSI) completed				***TOEFL*** (if required)	
TEAS Entrance Exam					
		Minimum accepted	***Score Earned***	**Three letters of reference** (Source of reference	
Reading		**73%**			
Math		**69%**			
English/Writing		**69%**			
Science		**58%**		Reviewed/Completed date:	
OVERALL Score		**66%**			

Note. Adapted from School 5's posted website admission criteria

School 6. School 6's curriculum design was block-based. The nursing curriculum was taught over five semesters. In the first semester, nursing students were instructed in a nursing introduction course and pharmacology, followed by a principle of clinical decision-making course (common medical-surgical, or medical-surgical health issues) in the second semester. In the third semester, the students were instructed in a concept of clinical decision-making course 1 (advanced medical-surgical health issues), maternal health care, and pediatric health care. In the fourth semester, students took nursing courses focusing on mental health issues and continuation of the clinical decision-making course 2 (continuation of advanced medical-surgical health issues). In the fifth and final

semester, the students were instructed in another clinical decision-making course (intensive care unit health issues) and a professional leadership and management course. The general education courses, *Anatomy and Physiology 1* and *2*, *General Psychology, Microbiology*, *English,* and *Sociology* were scheduled throughout the five semesters, and students were required to complete them within the designated semester of the curriculum plan.

The nursing director mentioned that, even though these general education courses were not a prerequisite for admission into the nursing program, students were highly encouraged to take these courses prior to admission into the program. During an informational session for students and family members, students were told that completing these general education courses ahead of time will make the nursing course workload more manageable. The students were also informed that they could earn additional ranking points in the admission selection process if these courses had been taken prior to applying to the nursing program.

School 6's admission criteria also required students to earn an 80% in the Vocabulary & General Knowledge, Reading, and Math sections of the HESI A2 admission exam. At the time of data collection, there were no science prerequisites prior to admission into the nursing program. As mentioned previously, students could earn extra points toward their admission application ranking if they completed 4-7 of the general education courses with a "C" or better. Students could also earn additional points toward their admission ranking if they had earned an associate degree or higher, including an additional point if that degree was in a health-related field. Table 24 reflects a visualization of School 6's admission ranking process.

Table 24

Example of School 6's Admission Ranking Process

<table>
<tr><td colspan="4">Content Course</td><td colspan="3">DATA from content</td></tr>
<tr><td colspan="4">No prerequisites but required upon completion at different semesters throughout the program:</td><td colspan="3">Pre-requisite- a student must be eligible to register for Anatomy 1 and College Algebra first semester</td></tr>
<tr><td colspan="4" rowspan="9">The more general education courses completed and the higher the GPA the more points earned (Minimum accepted grade" C" or better)</td><td>General Education</td><td colspan="2">Completed</td></tr>
<tr><td>Anatomy 1</td><td colspan="2"></td></tr>
<tr><td>Anatomy 2</td><td colspan="2"></td></tr>
<tr><td>Pharmacology</td><td colspan="2"></td></tr>
<tr><td>Microbiology</td><td colspan="2"></td></tr>
<tr><td>Psychology</td><td colspan="2"></td></tr>
<tr><td>English 1</td><td colspan="2"></td></tr>
<tr><td>Sociology</td><td colspan="2"></td></tr>
<tr><td>Total Points
With completion of 4-7 of the above courses</td><td colspan="2">5</td></tr>
<tr><td colspan="4">HESI Admission Assessment Exam (A2)
(minimum accepted score for each area 80%)</td><td>Associate Degree and above</td><td colspan="2">5</td></tr>
<tr><td>All scores must be from the same dated exam</td><td>Score</td><td colspan="2">Earned points</td><td>Degree in Health Care related discipline</td><td colspan="2">5</td></tr>
<tr><td></td><td></td><td colspan="2"></td><td colspan="2">Three sections:</td><td>Points earned</td></tr>
<tr><td>Reading</td><td></td><td colspan="2">30</td><td></td><td>General Ed courses</td><td></td></tr>
<tr><td>Vocabulary/General Knowledge</td><td></td><td colspan="2">30</td><td></td><td>Degrees earned</td><td></td></tr>
<tr><td>Math</td><td></td><td colspan="2">25</td><td></td><td>Total points HESI A2</td><td></td></tr>
<tr><td rowspan="2">Total possible points (100)</td><td rowspan="2"></td><td colspan="4"></td><td></td></tr>
<tr><td colspan="4">Total points earned from all sections:</td><td></td></tr>
</table>

Note. Adapted from School 6's posted website admission criteria

Description of the Interview Scenario

The interviews were conducted via telephone after participants provided three dates and times, they were available to participate in an interview. As stated previously, participants were asked the same three pre-determined questions in a broad, open-ended manner to elicit information about the different policies and strategies their nursing

program had in place to increase student retention and first-time NCLEX-RN® pass rates. The participants were also asked if their nursing program used an exit NCLEX-RN® predictability exam. If the participants indicated an exit NCLEX-RN® predictability exam was used, they were asked if consequences were established for students who earned a failing grade on the exam.

All the participants mentioned, at some point during their interview, that they thought the initial questions about the student retention rate and first-time NCLEX RN® pass rate was very broad and open-ended. Upon conclusion of the interview, participants were informed that the questions were intentionally asked in a broad, open-ended manner to elicit information about their program without the interviewer influencing their responses. All participants were asked, prior to ending the interview, if they would like to add anything else that they thought had a great impact on student success. Each of the participants, except one, had additional information they wanted to add to the study.

Strategies and Policies to Increase Student Retention Rates

Findings for at-risk students.

All the participants stated that students met with faculty members on a one-to-one basis if they were identified as being at risk of failing. All of the participants stated that a test or exam grade below 75% was considered failing and used that failing grade to identify and start remediation for a student, with the exception of School 1. School 1 identified a student as an at-risk student and began remediation if the student earned a grade below 80%.

All the participants stated that their college campuses had academic counselors available for their students. Four participants mentioned that their students had access to

either a retention specialist, success coordinator, or success counselor. Unexpectedly, only two of the schools' participants stated that they track their at-risk students' progress throughout the program.

All participants identified a student as being at risk when the student was found to be struggling academically. None of the participants reported non-academic factors as criteria to identify an at-risk student. However, during the interviews, all participants mentioned factors identified by previous studies as signifying a student's at-risk status as challenges their students were faced with every day but could be managed with the right sources and guidance. Specifically, all participants stated their students experienced either one and/or both of the two main risk factors: low socioeconomic status and family commitments.

A remediation strategy all the nursing programs implemented was conducting an informational meeting for students and their family members about the expectations of the nursing program. Furthermore, four additional remedial strategies were implemented by at least half of the participating nursing programs. These strategies included: teaching the students time management skills, providing mental health counseling services for the students if needed, and using federally funded grants based on low socioeconomics and Perkins grants established for nurses. Table 25 presents a visualization of all the academic and non-academic remedial strategies the participants had disclosed in their interviews. Following Table 25, a more detailed description of all the different remedial strategies implemented by the participants provides additional information about identifying academic and non-academic factors for at-risk students and remediation strategies the participants' nursing programs and colleges had in place.

Table 25

At-Risk Students' Academic and Non-Academic Factors/Strategies

At-Risk Factors – Academic	School 1	School 2	School 3	School 4	School 5	School 6
Tests/Quiz/Exam scores below 75%		X	X	X	X	X
Tests/Quiz/Exam scores below 80%	X					
Strategies in Place						
Meeting with faculty 1-on-1	X	X	X	X	X	X
College-based academic counselors	X	X	X	X	X	X
Retention Specialist/Success Coordinator/Success Counselor		X	X	X	X	
Tutors				X	X	X
At-Risk Tracking	X			X		
Use of technology			X			X
At-Risk Factors - Non-Academic	School 1	School 2	School 3	School 4	School 5	School 6
Work issues	X				X	
Low socioeconomics			X		X	X
At-Risk Factors - Non-Academic	School 1	School 2	School 3	School 4	School 5	School 6

Note. Table continues

Table 25

At-Risk Students' Academic and Non-Academic Factors/Strategies

At-Risk Factors - Non-Academic	School 1	School 2	School 3	School 4	School 5	School 6
Family commitments	X		X		X	X
First generation college student			X			X
Strategies in Place						
Time management skills	X			X	X	
Counselors for mental health issues		X		X	X	
Federally grants for 1st time generation college/low socioeconomics			X		X	X
Privately funded grants/charities			X			X
Grants for nurses (Perkins)	X				X	X
Childcare services					X	X
Transportation reimbursement					X	
Emergency funds for as needed						X
At-Risk Factors - Non-Academic	School 1	School 2	School 3	School 4	School 5	School 6

Note. Table continues

At-Risk Factors - Non-Academic	School 1	School 2	School 3	School 4	School 5	School 6
Private study areas equip with computers and group study rooms				X		X
Informational meetings for students and family members	X	X	X	X	X	X

Identification of an academically at-risk student.

As stated previously, all the schools' participants stated that a failing grade for all of the nursing courses was a score below 75%. All of the schools, with the exception of one, identified a student as being at risk of not being successful when they failed a test, quiz, or exam. School 1 identified a student as being at risk of not being successful if they scored below 80% on a test, quiz, or exam. Once a student was identified as being at risk of not being successful due to either scoring 75% or 80% on a test, quiz, or exam, they were required to meet with a faculty member and remediate.

School 1's nursing director stated: "The first test is a good indication of where they are going. With students who score below 80% on the first test, we meet with them right away and try to figure out what and why they didn't do well." School 2's director stated: "If a student scores below 75%, they have to meet with the faculty, and if it happens a second time, they get referred to the 'Retention Specialist' as an "early alert" School 3's director stated that it is mandatory for a student to meet-one-to-one with a faculty member when they fail a test. The Success Coordinator for School 4 stated:

"They (the faculty) do one-on-one with the student, or they refer the student to me." The nursing director of School 5 stated: "If a test score is below a 75, the student is required to come in and do a remediation, regarding that test." Similarly, School 6's nursing director stated: "If a student makes less than 75% in a module exam, they are required to complete an exam review and tutoring time."

Strategies in place for academic factors contributing to students' at-risk status.

Additional strategies put in place for students identified as being at risk of not being successful include providing college-based counselors that can evaluate students for potential learning disabilities. These college-based counselors review and teach test-taking strategies and study habits. The students at Schools 2, 3, 4, and 5 had access to the services of either a Retention Specialist, Success Coordinator, Success Counselor, or a designated nursing advisor to help with academic strategies.

All the nursing directors of the programs acknowledged their faculty members had devised several strategies to aid students who appear to be struggling academically, whether they struggled in the classroom, the clinical setting, or the nursing skills lab. School 5's director stated: "If a student is having difficulty with a skill, we set them up with a scenario to see what they are doing, whether or not if it is lack of critical thinking and/or missing a step." She elaborated: "We set up a scenario for them to work on, so we can identify what is their problem before they can go back to clinical."

The nursing director of School 3 inferred the faculty tries to make it easier for students to make appointments with faculty, stating: "We use platforms such as 'Google Docs' for the faculty to meet one-on-one with students if needed." Further, she stated:

"The faculty discusses with the student strategies for learning and learning styles. The faculty helps identify with the students their different learning styles and strategies that would be appropriate for them to implement, such as flash cards."

The Success Coordinator of School 4 stated: "When a student fails a course, they are approached by faculty and referred to the nursing counselor, she is a licensed trained professional counselor or, they may be referred to me for test taking strategies." The Success Coordinator also said: "We have created a database so that the students sign in when they come, and I document what course they are enrolled in, what session they attend, and who they are. Then I have a high-risk data base." The Success Coordinator expounded: "To my knowledge, we (the college) have a system that identifies students who are at high risk. Once a student is identified as high-risk, they stay high-risk until they graduate." Similarly, School 1 also utilizes a tracking system of students' academic performance. Full-time faculty members are assigned to track and monitor the academic performance of a group of students and to intervene and counsel as necessary, if a student appears to be struggling with being successful or is at risk of failing.

The nursing programs at Schools 4, 5, and 6 additionally use tutors to help increase student retention. The nursing director of School 4 stated that they use peer tutors in the nursing program who had previously taken the course to which they assigned. The Success Coordinator explained that the Success Center utilizes peer tutors and supplemental instruction taught by peer tutors. The difference between a peer tutor and a supplemental peer tutor is that the supplemental student tutor actually sits in the class and listens to the instructor's lecture and then creates a presentation based on what was taught in that class to use for tutoring sessions. The nursing director of School 6

stated that her program used local registered nurses to tutor the students part-time.

Out of all the participants interviewed, the Success Coordinator was the only participant who stated she uses additional data to identify at-risk students. The data she used to identify an at-risk student were failing a nursing course, repeating a nursing course, repeating one of the prerequisite courses – particularly anatomy and physiology, and earning low scores on the HESI entrance test. Unfortunately, these students and their academic history were not available to the Success Coordinator until after the student had been admitted to the program and had either been to the Success Center to visit the Success Coordinator or had been referred by faculty to the Success Coordinator after failing a test or an exam.

Non-academic factors contributing to students' at-risk status.

All of the participants stated and acknowledged that student success is not just academic. They believed issues and factors outside of the classroom have a huge impact on whether a student is going to be successful. School 1 and 5 respondents acknowledged that students who had to work while in school were at increased risk of not being successful. The nursing director of School 1 stated, "One of the students who did not do well was also working throughout the program and had to work to afford to be in the program, and that may have affected her ability to be successful." The director of School 5 stated, "We look at how much time they are working."

The nursing directors of Schools 1, 3, 5, and 6 acknowledged that family situations and commitments were factors that could impact a student's ability to be successful. The nursing director of School 1 stated, "I look at where the student's grades are at and other factors that impede their success, such as family responsibilities, work

issues, etc." School 5's nursing director stated that her school looks at "what kind of family responsibilities [students] have." Schools 3 and 6's nursing directors considered a student to be at increased risk of not being successful if they are first-generation college students. The nursing program directors of Schools 3, 5, and 6 considered students coming from a low socioeconomic situation were at increased risk of not being successful without financial assistance.

Strategies in place for non-academic factors contributing to students' at-risk status.

One of the strategies that all participants identified as one of the biggest hurdles for students was the issue of time management, whether it is was managing school, family, and/or work commitments concurrently. School 1's nursing director stated: "We also go over time management strategies for school and life outside of school. We go over with them, how they can manage the demands of school and life outside of school." She specified: "It helps them to see on a piece of paper where all their time is being spent and where they can best utilize their time." Similar to School 3's use of technology, School 1 tries to make tools easily accessible to students: "We post on the learning platform the time management work sheet for them to download and use." The nursing director of School 5 stated: "Some things you can't change, but you try to help them to identify strategies to be more successful. A lot of times, it's time management. They can't be everything and do everything they were doing before while going to school."

The participants from Schools 3, 5, and 6 cited that low socioeconomic status can be an issue for students to be successful, and all three of their schools use federally funded programs for low socioeconomic students and first-generation college students.

Fortunately, the use of private charities and federal funding, and different strategies have been put in place to aid with these life stressors. Services for childcare; transportation reimbursement; emergency funds for car repairs; household utilities such as gas, electricity, rent, and food; and for tuition, books, and uniforms are available, and these services have been provided to help ease the burden of everyday stressors for students. The nursing director of School 6 stated: "You know once the student eliminates the stress of money worries, meeting their basic needs, roof over their head, food in the cabinet, and clothes on their children, then it is a lot easier for them to be successful."

Some of the nursing programs' colleges offer study areas for students who do not have areas to study at home. These study areas are private, secluded areas equipped with computers. Some of the student support services also offer private group study areas where study groups can gather.

Some of the schools offer counselors for mental health issues, such as stress and anxiety, for the students. One of School 2's college counselors started a support group with closed sessions specifically targeted for nursing students to help deal with the stress of nursing school. The nursing director stated: "I don't know if it necessarily helped with retention, but it gave them ways to cope and deal with stress." She further explained: "I don't know who participated in the counseling sessions to know whether or not it helped, but I would say it didn't hurt." School 5's college also offered professional counseling to students to help manage stress and anxiety.

The Success Coordinator stated that School 4 employed a part-time Ph.D. licensed psychologist whom students were automatically referred to if they failed a course. Most importantly, the psychologist offered to work with students beforehand to

prevent them from failing. Short-term counseling was offered and provided for stress management, anxiety, and other personal problems students may experience.

All the nursing programs held informational meetings for students and family members about the nursing program's admission requirements and the level of commitment needed by the students and their families to facilitate success in the program. They also held informational meetings for students, once they were accepted into the nursing program, that provided in-depth explanations of the requirements, expectations, and helpful tips for being successful in the program. All of the participants interviewed stressed the desire to help students to be successful, but all of the participants alluded that helping can be challenging and complicated. Reflectively, the nursing director of School 5 stated: "I try to stay out of their personal business until they bring it to me. I still don't get in the middle of their personal business, but I do what I can do to help them find resources.

Teaching strategies for retention.

Findings for teaching strategies for retention. When the participants were questioned about which teaching strategies their programs used to increase student retention rates, some of the schools' participants' answers were limited. Various strategies were used exclusively by one school, and a few strategies were used by two or three schools. All of the schools used a commercially prepared exit NCLEX-RN® predictability exam, whether it was the ATI or Elsevier's HESI product. Three of the schools mentioned they use Evolve products briefly throughout their curriculum as a teaching strategy for retention. The prominent strategy mentioned to aid in teaching nursing students was the use of high-fidelity simulation labs to help reinforce the content

being taught in the lecture portion of the curriculum. The nursing directors of Schools 1, 2, and 5 stated that simulation labs helped students learn and apply the concepts from lecture. The nursing director of School 5 stated: "I think it is a combination, we use simulations, but we also feel clinical are very important and one-on-one. We try to make it a combination of clinical and simulations as realistic as possible." The terminology, "clinical," refers to the healthcare setting experience that the student is exposed to while providing nursing care to patients. The participants from Schools 1, 4, and 6 reported using the most strategies to increase student retention rates. Table 26 presents a visualization of all the strategies implemented by the nursing program. Following Table 26, a more thorough, in-depth description of all the teaching strategies the participants implemented in their nursing programs is available.

Table 26

Teaching/Learning Strategies for Student Retention

Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Simulation Labs (High fidelity)	X	X			X	
Worksheets	X				X	
Learning Contract/Prescriptions	X					X
Practice Questions			X			
Weekly content study sessions				X		
Adaptive/student content-specific sessions				X		
Adaptive quizzing	X					
Exams questions higher knowledge-based	X					
(Commercial) Standardized exams		X	X			X
Exams reflective of lecture taught	X					
Review worksheets after each exam	X					
Evolve products	X			X		X
Videos				X		
Assignments for missed content	X					
Commercially-prepared exit exams	X	X	X	X	X	X
Weekly dosage calculations				X		
Low-fidelity lab skills groups						X
Interactive group sessions				X		
Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6

Note. Table continues

Table 26

Teaching/Learning Strategies for Student Retention

Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Individualized tutoring	X			X		X
Study plans in-between semesters				X		
Different technology platforms				X		
Accessibility 24/7						X

"Learning contracts" were used by two of the schools. The participants stated they used either a "learning contract" or a "learning prescription" when a student has difficulty in an area of study, whether it is content, clinical, or lab skills. School 1's nursing director explained: "A learning contract is developed, and it outlines the necessary steps required for the student to be successful." She clarified: "For example, if the students scored less than 80 on an exam, then the faculty will list suggestions to the students on how they can improve their grade." The nursing director of School 6 used a similar approach but referred to their tool as a "learning prescription." The nursing director said: "We made it like a class 3 narcotic prescription pad, on it you could check off what you think the student needs such as study strategies, pair them up strategies, content." She elaborated: "We started with strategies to help them to study, but then we added content review because they also need help with content review."

Three of the nursing programs' participants disclosed using individualized tutoring sessions to help retain students in the nursing program. Schools 1, 4, and 6 offer tutoring in content areas, along with clinical and lab skills. The director of School 1

stated, about aiding in retention of students: “I really think these strategies and doing that remediation, that one-on-one with their advisor helps the students. It gives the advisor to try to figure out why the student chose the answers they are selecting.”

Another strategy used by two of the schools was using worksheets to help students understand and retain content. School 5’s nursing director mentioned that she encouraged her faculty to ensure that they were having students do productive assignments. The director stated: “I hate the word “busy work”, and I don’t think my faculty would do that. There should be a reason behind everything you do.”

School 1 utilized two types of worksheets in different ways. The first type of worksheet was used to help the students organize their way of studying the content. The nursing director stated: “We give them a “Compare and Contrast” study sheet which helps develop their higher-level thinking; the pathology and the management is different, for example, medications and/or treatment methods.” The nursing director elaborated: “This worksheet allows them (the students) to concentrate on what is important, what is the pathology, the signs and symptoms and how are you going to manage them.” The participant expanded: “We tell them they don’t have to use these particular tools but highly encourage them to use some sort of tools to help them to be better organized and learn to focus on what is important to study and know.” The nursing director also said: “You need to have a way to validate to show how do you know what you know.” Then, she affirmed: “I tell the students, when they can fill out this ‘Compare and Contrast’ worksheet without using your book, then you know you know the information.”

School 1 also reported having another worksheet for students to use as a tool when reviewing the questions, they missed on a test or exam. The students are instructed

to review questions they had answered incorrectly on an exam or test. As the student reviews the questions, they got wrong, they analyze the question, mark it down on the worksheet, and note whether they missed the question because they did not know the answer to the content or because they changed their answer, as well as noting whether they did not know or understand the rationale for the correct answer. After the exam review worksheet is completed, the student and the instructor can review the results together to identify the student's areas of weakness. The director of School 1 mentioned that her students are told by the faculty all the time, not to change their answers on exams and tests. School 1 also created post-test assignments for students based on their results on the exam review worksheet.

The remaining learning/teaching strategies used to increase student retention were mentioned during the interviews. The strategy of using practice questions was mentioned by the nursing director of School 3. The participant stated: "We tell the students, if you want to do really well, the more practice questions they do, the more proficient they will be, especially when you stop and look it up to figure out why you missed it." The nursing director further equated doing practice questions to sports, stating: "It is like sports, the more tennis balls you hit across the net, the better tennis player you will be."

Schools 2 and 3's curricula were integrated programs, and they both utilized commercially-prepared standardized exams by ATI. The nursing director of School 2 stated: "From the very first semester students are taking standardized exams, and they have the ability to do a focused review based on their performance." The nursing program at School 6 was a block-based curriculum, and they also used commercially prepared exams throughout her program. School 6's nursing director stated that her

program uses commercially prepared exams by Elsevier for specialty exams, mid-curricular, and exit exams.

The nursing program at School 1 reported using faculty-prepared exams throughout its courses. Faculty-prepared exams are developed to contained higher-level questions to enhance the students' critical thinking skills and better prepare students for the NCLEX-RN®. School 1's nursing program also reported utilizing an adaptive quizzing product by Elsevier as an additional teaching strategy.

Another strategy revealed in the interviews was low-fidelity lab skills being taught by part-time retired nursing faculty. The nursing director of School 6 stated that this strategy, used with introductory nursing students, consists of students being broken into small groups and paired up with a retired faculty member. The nursing director stated that she was very proud of this strategy, declaring: "The students benefit from the years of knowledge and experience these retired faculty have to offer them." School 6's nursing director attested that another reason the student retention rate is successful is the accessibility of the faculty to the students. The participant stated: "The faculty does individual tutoring sessions and we are pretty much available to our students 24/7 by text, at least most of us are."

The Success Coordinator of School 4 listed several learning strategies deployed by her services. One of these strategies was weekly content study sessions, in which she held interactive group sessions. She stated that she is "also adaptive" and described the sessions: "When the students come to my study sessions, I will ask the students what they are working on, what do they need, and I will disregard what I had planned and focus on what they need at the time." She mentioned that she uses Evolve products, with the

caveat that these products are used sparingly because faculty use them throughout the curriculum for their lectures and lab skills courses. Additionally, the Success Coordinator stated she also uses videos and materials from various sources. She stated: "We do not solely use one software; we try to have our students well versed in different techniques and questions that are generated from different places."

The Success Coordinator shared that she provided weekly dosage calculation teaching sessions since students have the most difficulty with those problems, and they never can get enough practice. Lastly, the Success Coordinator discussed her "Study Plans" strategy, which she developed for students to remediate with between semesters. The participant stated: "When they (the students) are done with the first course, during the break I give them a study plan to work on if they have time during their vacation to prepare for the next course." The Success Coordinator elaborated: "I look at their syllabus and the content for their next course and pick out the content that historically students struggle with and I create and use resources to guide them what to read." The participant explained that students were provided a study plan listing which websites and videos are best suited for the upcoming content and said: "I usually put dates on them to hold them accountable, but this plan is completely voluntary."

Mentoring strategies for retention.

Findings for mentoring strategies to increase retention rates.

As noted in the literature review, mentoring plays a major role in student retention rates. All of the schools' representatives in this study stated that faculty mentored the nursing students throughout the program in some format. Along with the faculty serving as mentors to the nursing students, all the participants stated that it is extremely important

to develop and maintain strong faculty/student relationships. Most of the participants mentioned that their nursing programs have strategies in place to help prepare their students for the professional role of becoming a registered nurse. Dishearteningly, only two of the participants talked about student nursing associations or organizations being active in their programs. The nursing directors of School 1 and School 6 stated that the program's Nursing Student Association and Organization was a good strategy to foster mentoring, a sense of belonging, and development of leadership roles and pride in students' role of preparing to become a nurse. Table 27 shows a visualization of the different mentoring strategies the participants had disclosed during their interviews. Following Table 27, a more thorough, in-depth description of all the mentoring strategies the participants implemented in their nursing programs is available.

Table 27

Mentoring Strategies for Student Retention

Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Faculty mentors	X	X	X	X	X	X
Peer tutors		X		X		
Local tutors/retired faculty						X
Faculty/Student relationships	X	X	X	X	X	X
Student Nurse Association/Organization	X					X
Soft skills				X		
Professional preparation for the role of being a nurse	X		X		X	X

The nursing director of School 1 stated that the full-time faculty were divided amongst the first-year nursing students to help guide the students' acclimation to the demands and rigor of the nursing program. School 2's nursing director mentioned that, since her nursing program is considered a small program, it naturally occurred that the faculty became the students' mentors. School 3's nursing director provided an anecdotal story and stated: "It's all about student support and the belief in 'tough love' and how to work with a student". The Success Coordinator from School 4 stated: "I try to be student-friendly where I am a walking advertisement for what I do. So, I talk to students in the library, in the hallways, at the café waiting for my coffee, anywhere." The nursing director of School 5 stated: "I tell them (the faculty), I hire them for their experience, and I want them to use that experience." The nursing director of School 6 stated: "Myself and my faculty are available to our students 24/7 by text."

The Success Coordinator of School 4 mentioned that she also uses "soft skills." When asked what she meant by "soft skills," the participant responded: "Again, this is all from experience, for example the way I dress, I look professional, but not intimidating. I try not to wear jackets." She elaborated: "These are things that I have noticed, this is all anecdotal; there is no literature to support this." The Success Coordinator stated: "I think it is helping, because other students send students to me."

Two of the nursing programs reported using "peer tutors" with their students. The criteria established for students to serve as peer tutors are that they may not tutor their classmates (friends) and must have earned a letter grade of "B" or higher in the course they are assigned to tutor. These peer tutors help nursing students academically, and both participants stated that these peers also serve as mentors and role models for the students

they tutor.

Two of the programs, School 1 and School 6, reported having student nursing associations/ or organizations as part of their programs. School 1's director stated: "In our program, we have both a vocational and registered nurse' program, so we have a Student Nurse Organization (SNO), instead of an association, so both groups of nurses can join." The nursing director expressed that the purpose of the student nursing organization was to promote camaraderie amongst the different levels of the nursing program and foster teamwork by the organization performing volunteer work and service hours.

School 6's nursing director indicated that they had a Student Nurses Association (SNA). The school's SNA prepares social gatherings and dinners at the beginning of each semester for the nursing students. The nursing director also stated that the level 3 nursing students who were members of the SNA helped to plan and worked the "Pinning Ceremony" for the level 4 nursing students.

Four out of the six nursing directors mentioned that they mentored the students by preparing them for the professional role of being a registered nurse. The nursing director of School 1 stated: "It is a process with the students; we try to teach them good habits early on and it doesn't happen overnight, but as they go through the program, it becomes learned behavior and helps them to be successful if they implement good habits." School 3's nursing director stated: "Our job is to prepare the students for practice." The nursing director from School 5 stated: "We tell the students, you can't do this job just for the money, it has to be something in your heart to tell you, that you want to take care of patients, otherwise those patients aren't going to get the care they should be getting."

Additionally, the nursing director of School 6 mentioned that students are exposed to a Professional Nursing and Management course in their last semester.

School 6's nursing program also uses local registered nurses (RNs) to help tutor the nursing students. These RNs help the students academically, and they also help foster and serve as mentoring tools for the profession of nursing. The use of retired faculty to teach nursing skills to introductory nursing students also creates a mentoring opportunity for the students. School 6's nursing director stated: "The students benefit from the years of knowledge and experience these retired faculty have to offer them."

All of the participants discussed the importance of developing a relationship between the faculty and the nursing students. School 1's nursing director stated: "I know the faculty work very closely with all students. You know sometimes the relationship you have with them allows you to say 'look, dude, you got to bring this up.'" The nursing director of School 2 stated: "The faculty have time to spend with the students. We have great faculty, they are very dedicated to student success." The nursing director of School 3 noted previously about mentoring students: "It's all about student support and the belief in 'tough love' and how to work with a student". The Success Coordinator of School 4 mentioned that being student-friendly and approachable is of great importance. The nursing director of School 5 talked about a coordinator and her relationships with students, saying this coordinator would use the phrase, "this is not a stop sign; it is a detour," with students who were not successful on their first attempt at a task. The coordinator elaborated with the students: "You have to sit back to see what you need and what you want, and then fix it, what you can. Just because you weren't successful one time, don't let it define you, if this is what you want." School 6's nursing director stated:

"What we work hard to do is to develop those personal relationships with our students. I think probably that is the biggest contributor to student success."

Reinforcement strategies for retention.

Findings for reinforcement strategies for student retention rates. The reinforcement strategies varied across the different participating schools of nursing. Reinforcement to increase student retention rates, by definition in this study, consists of the processes and strategies implemented for student remediation throughout the nursing program. When the participants were asked about reinforcement strategies put in place to help increase student retention, responses varied. Two of the schools stated that their remediation retention strategies were not mandatory but were highly encouraged. The other four participating schools had mandatory remediation strategies in place for student retention, but, similar to the other findings in this study, their strategies varied. Based on participants' responses during the interviews, Schools 1 and 6 implemented the most mandatory remediation strategies for student retention. Schools 3 and 5's reinforcement strategies included negative consequences if a student fails to complete the remediation assignment following earning a failing grade on a test or exam. Table 28 presents a visualization of the different reinforcement strategies for retention the participants disclosed during their interviews. Following Table 28, a more thorough, in-depth description of all reinforcement retention strategies the participants implemented in their nursing programs is available.

Table 28

Reinforcement Strategies for Student Retention

Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Highly recommended or recommended strategies						
Highly recommended remediation activities		**X**				
Highly recommended focused exam review		**X**				
Study plan in between semesters				**X**		
Recommended meeting with Success Coordinator				**X**		
Supplemental instruction voluntary				**X**		
Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Mandatory remediation strategies						
Mandatory remediation	**X**	**(X)**			**X**	**X**
Score <75% meet with faculty			**X**			
Mandatory exam review						**X**
Mandatory tutoring						**X**
Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6

Note. Table continues

Table 28

Reinforcement Strategies for Student Retention

Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Score < 80% meet with advisor (Learning Contract)	**X**					
Mandatory meeting with the director (Critical Incident)	**X**					
Completion of remediation for a grade	**(X)**					
-10 points from test grade associated with remediation if not completed					**X**	
Mandatory remediation between semesters	**(X)**	**(X)**	**X**			
Student Handbook Resources - online quiz			**X**			

Note. (X) indicates strategies to implement in the future.

School 1. School 1's reinforcement of remediation policies and strategies for students were mandatory. Students who scored below 80% on a test or exam were required to see their assigned faculty member advisor. During the meeting with the advisor, the student and the advisor reviewed and discussed the exam, and the faculty member created a "Learning Contract" for the student based on this encounter. The nursing director explained that the Learning Contract is a prescription that identifies the

student's areas of academic weakness and assigns remedial strategies for the student to complete to be successful.

If the student failed to meet with the advisor in a timely manner, a "Critical Incident" report was created. A Critical Incident is a report describing the incident and circumstances of the student failing to meet with the advisor. The nursing director stated: "We as faculty are not going to seek the student out if they scored below 80%, the student has to come to us." The nursing director added: "With a 'Critical Incident', I hate using that terminology because it has a negative connotation, the intention of it is to bring to the student's attention the seriousness of being accountable and responsibility for their learning." She added: "The student is required to see me if they get a 'Critical Incident;' it is similar to going to see the principal." The nursing director elaborated: "I try to explain to the student that I am here to help you, we are not the enemy here, that your success is our success." The nursing director mentioned that, in upcoming semesters, her school plans to implement a mandatory remediation between semesters and associate completing of remediation with a grade. Currently, completing the prescribed remediation is mandatory for only a completion grade.

School 2. The nursing director for School 2 stated that, at the time of the interview, its remedial strategies were highly recommended. The director said that, starting with the Fall 2018 semester, mandatory remediation, in which the students would have remediation plans (assignments) that they would have to complete as they progress through the nursing program from one semester to the next, would be implemented. The director explained: "We plan to start a mandatory remediation plan for students in between semesters based on their performance on the end-of-semester standardized

exam."

School 3. The students in School 3's nursing program were required to meet with a faculty member one-on-one if they score below 75% on a test, quiz, or exam. The nursing director stated they use the ATI standardized course exams and said: "Currently, our testing policy is the exam is included as 10% of the overall semester grade, as long as they (the student) do the remediation associated with it." If the student does not complete the remediation associated with the semester exam, then they do not receive the grade for that exam, which constitutes a zero (0%) in the gradebook for that exam. School 3 also requires students to take an online quiz about the student support resources and services, as listed in the nursing student handbook, available to them on campus.

School 4. The Success Coordinator of School 4 stated that it was not mandatory for a student to remediate with the Success Coordinator. She explained that the faculty highly recommends students seek out the Success Coordinator if they are struggling, but it is not a requirement. She expounded: "Some faculty will send me a list of students who have failed, and I can reach out to them, but some faculty do not." As stated previously regarding teaching strategies, at the end of each semester, the Success Coordinator develops a study plan for students to use to prepare for the upcoming semester. It is not mandatory for students to complete the study plan. The Success Coordinator stated that she will list "due dates" for assignments in the study plan to help keep student participating in the plan accountable. All supplemental instruction and tutoring offered at the Student Success Center is not mandatory and may be used at the student's discretion.

School 5. The nursing director indicated students who score below 75% on a test or exam have to complete their assigned remediation assignment for that failed scored assessment. If a student fails to complete the remediation associated with the failed test or exam, they have an additional 10 points subtracted from the score earned. The nursing director stated: "So, there is a consequence to it. If they don't decide not to do the remediation for a test or a clinical and they don't make a 75% on their final semester grade, they will fail the course."

The students at School 5 also have mandatory classroom attendance, along with mandatory attendance for lab and clinical days. The nursing director stated: "Oh yes, in the classroom they cannot miss any more than 15% of their class time. Clinical is the same percentage, but we do make allowance for absence for verifiable reasons." When asked what is considered a verifiable reason, the director responded: "Well, we considered an accident, a severe child illness, a death in the family, things like that. But even though they are absent, they know they can't just be out forever." She elaborated: "A regular doctor's appointment or a dentist appointment is not an excused absence. 'I overslept because I was up too late last night,' we do not excuse that." The nursing director indicated that her program stresses the importance of attendance as it relates to working in the health field by telling students to look at absenteeism "as if you (the student) were in a working situation in the hospital and what would happen."

School 6. The nursing director of School 6 reported that, if a student scores less than 75% on an exam, remediation is mandatory. The student is required to do a complete exam review and is required to attend mandatory tutoring.

Strategies and Policies to Increase First-time NCLEX-RN® Pass Rates

Identification of students at risk of first-time NCLEX-RN® exam failure.

All of the participating school representatives answered initially that the purpose of an exit NCLEX-RN® predictability exam was to identify which students are considered at increased risk of not being successful in passing the NCLEX-RN® exam on the first attempt. The schools participating in the study used either the ATI Predictability Exam or HESI Exit Exam to screen students and assess their predicted performance on the first attempt taking the NCLEX-RN® exam. Some of the participating respondents focused exclusively on reinforcement strategies, while other participants focused on both teaching strategies and reinforcement strategies to prepare students to be successful on the first-time attempt on the NCLEX-RN® exam. For simplicity, each of the schools and their strategies implemented will be discussed sequentially.

Teaching strategies to increase first-time NCLEX-RN® pass rates.

Findings for teaching strategies to increase pass rates on NCLEX-RN® exam.

All of the participants were asked which remediation teaching strategies they had in place to increase first-time attempt scores on the NCLEX-RN® exam. Only half of the participating respondents discussed which teaching strategies they used to help students prepare for the NCLEX-RN® exam upon graduating from the nursing program. Each of the responding participants implemented different types of strategies, and the strategies did not mirror each other. School 1 used different NCLEX educational preparation tools and tests and began remedial teaching strategies at the end of the first year of nursing school (second semester), going into the second year of nursing school (third semester).

Of note, School 1's 2017 NCLEX-RN® exam pass rate was 100%. Conversely, School 2's nursing director stated that they had just began using the ATI Prep Package over a year ago and were anticipating an improvement in NCLEX-RN® pass rates. School 6's nursing program had developed a systematic plan. Through implementing this program, she stated: "The average student's score's improvement was usually around 100 points from the HESI exit exam taken at the beginning of the semester in comparison to score earned on the second exit exam taken at the end of the semester." She clarified: "I don't have hard numbers, that is just from my general observation." Both Schools 2 and 6 started their teaching strategies for the NCLEX-RN® at the beginning of the last semester of the nursing program. Table 29 presents a visualization of the different teaching strategies used to increase NCLEX-RN® pass rates that the participants disclosed during their interviews. Following Table 29, a more thorough, in-depth description of all the teaching strategies the participants implemented in their nursing programs is available.

Table 29

Teaching Strategies for NCLEX-RN® Pass Rates

Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Silvestri NCLEX Book	X					
Preparation for NCLEX Study Group - beginning of last semester	X					
Recommend any NCLEX-RN® Review Prep Course	X					
Review HESI Exit Exam	X					
Practice NCLEX exams	X					
ATI NCLEX Prep Package		X				
Practice Questions		X				
Proctored assessments - integrated program		X				
Fundamentals and Pharmacology exam 1st week of last semester						X
HESI EXIT Exam week 2 of last semester						X
Cohort report based on week 2 Exit Exam & remediation Plan						X
Adaptive quizzing weekly						X
Evolve Practice Exams & Case studies						X
HESI EXIT Exam 2 - final week of last semester						X

School 1. The nursing director of School 1 stated that students were required to purchase the Silvestri NCLEX textbook. At the beginning of the last semester of the nursing program, the students are required to attend study groups designed to prepare the students for the NCLEX. During these sessions, which occur every other week for two hours, faculty members review NCLEX test-taking strategies, test questions, and discuss the rationales for questions. These sessions occur every other week for two hours. The nursing program highly recommends the students attend some type of a proprietary NCLEX Review program. The nursing director stated that students have attended programs such as Kaplan, HURST, HESI Live Review, along with participating in the online program presented through the National Council of State Boards of Nursing (NCSBN). The nursing director of School 1 also reported that students participated in another online program, U-World, to prepare for the NCLEX-RN® exam. The nursing director stated: "We use and review the HESI test with them, review each exam with them, and try to give them as much practice questions as possible to prepare them for NCLEX."

School 2. The nursing director stated: "We use the ATI product, they call it the NCLEX prep package. We feel it is very good for remediation." The nursing director elaborated: "There are practice questions, proctored assessments, things like that we have integrated throughout the program." The director shared with the researcher the 2016 ATI RN Adult Med/Surg scores of its nursing students who took the 2017 NCLEX-RN® exam. The scores on this exam ranged from 52% to 82%, with an average score of 71% for this cohort of students who took the NCLEX-RN® exam in 2017. It appears that the two students who scored below 59% on the ATI Adult Med/Surg exam did not pass the

first-time attempt on the NCLEX-RN® exam. Two students scored a 59% on the ATI Adult Med/Surg exam; of those, one passed the first-time attempt of the NCLEX-RN® exam, and the other student did not pass. ATI recommends scores above 60% on this exam to be a good predictor of passing the first-time attempt of the NCLEX-RN® exam.

Schools 3, 4, and 5. When asked which teaching strategies their nursing program had in place to help increase first-time attempt scores on the NCLEX-RN® exam, Schools 3, 4, and 5 did not comment on which teaching strategies they employed. They were asked several times, with probing questions, in reference to teaching strategies used to increase first-time NCLEX-RN® pass rates, but Schools 3 and 5's conversations moved into discussions about reinforcement strategies to increase the first-time attempt score on the NCLEX-RN® exam. School 4's discussion about remediation teaching strategies were more focused on retaining nursing students through the program so the faculty could prepare the students for the NCLEX-RN® exam.

School 6. The nursing director for School 6 stated that, during the last semester of the program, students are asked to sign up for a communication application program. This program does not cost the student, but the director reported that "it is a way to communicate to our potential graduates, to all of our level 4 nursing students." This communication tool is used concurrently with a course the students take in the last semester of the nursing program. The students also have an additional program designed to prepare them for the NCLEX-RN® exam: a teaching plan that the level 4 faculty developed approximately two years ago when the nursing program's pass rates decreased, according to the nursing director. At the time of the interview, the nursing director was the Level 4 Lead Faculty member.

According to the nursing director, this program was designed to be sequential. The nursing program utilizes the HESI Exit exam for the NCLEX-RN® predictability exam. In the first week of the last semester, students are given a review and an exam on Nursing Fundamentals and Pharmacology. During the second week of the last semester, students take the first HESI Exit exam. Based on the cohort's results on these two exams, the nursing program team develops a remediation teaching plan to prepare the students for the second HESI Exit exam, given toward the end of the semester in preparation for the students' first attempt taking the NCLEX-RN® exam.

The nursing director expounded: "We build a cohort remediation plan using adaptive quizzing. For every week, they have three what we call Elsevier Adaptive Quizzing (EAQ) quizzes' due. If they make 75% or greater on the second one, they don't have to take the third one." The nursing director further elaborated that the students also take Evolve practice exams throughout the semester. The nursing director further specified: "It seems like when they get towards the end of the program, the students have a hard time with fundamentals and comprehensive med-surg, so we have scattered EAQs or case studies of those throughout the course."

The nursing director summarized how the strategies in this program for the NCLEX-RN® exam are then finalized: "During finals week, the "X" Course doesn't have a comprehensive final, so that capstone course uses the HESI Exit 2 exam tied into it, where the score earned is 30% of the course's grade." The nursing director indicated that students' scores improved between the first HESI Exit exam taken the second week of the last semester and the second HESI Exit exam taken during the final week of the semester, stating: "The average of score's improvement is usually around 100 points. I

don’t have hard numbers, that is just from my general observation.”

Reinforcement strategies to increase first-time NCLEX-RN® pass rates.

Findings for reinforcement strategies to increase NCLEX-RN® exam pass rates. All the participating schools provided feedback and insight about the reinforcement strategies their nursing programs used to prepare nursing students to be successful on the first-time attempt on the NCLEX-RN® exam. All of the nursing programs used a commercialized standardized exam. The nursing programs were evenly split between using the ATI Comprehensive Predictor Exam and the Elsevier HESI Exit Exam (E2). Schools 2, 3, and 5 used the ATI NCLEX-RN® predictability exam. All of these participants who used the ATI predictor exam also used the ATI review in preparation for the ATI predictor exam. Schools 1, 4, and 6 used the Elsevier HESI E2 to predict students’ performance on the first-time attempt on the NCLEX-RN® exam.

As with all the other categories discussed in this study, each of the participants used different strategies to reinforce students’ performance on these predictor exams, regardless of which commercial exam they used. Some of the participants’ nursing programs did not associate the exams with a course grade or a mandatory remediation, while others did. While some heavily weighted the score, some directly associated the student’s score earned on the predictor exam with a course grade. The nursing director for School 5 further explained that their implemented reinforcement strategy included the requirement that, if students did not earn a passing score, they would have to complete all the assigned remediation, with an “incomplete” placed in the gradebook until the remediation was completed. Table 30 presents a visualization of the different reinforcement strategies used to increase NCLEX-RN® pass rates, the participants

disclosed during their interviews. Following Table 30, a more thorough, in-depth description of all the reinforcement strategies the participants implemented in their nursing programs is available for further reading.

Table 30

Reinforcement Strategies for NCLEX-RN® Pass Rates

Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Mandatory remediation plans starting between semester 1 and 2	**X**					
HESI mid-curricular exam	**X**					
Remediation with Silvestri book	**X**					
Elsevier remediation recommendations	**X**					
250 NCLEX type questions between Nursing 3 and Nursing 4	**X**					
HESI Exit Exams	**X**			**X**		**X**
HESI Exit Exam #1 given at the beginning of the semester, then the HESI Exit Exam #2 at the end of the semester						**X**
Weighted HESI Exam score				**X**		**X**
Last semester (unnamed) course to prepare for NCLEX						**X**
Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6

Note. Table continues

Table 30

Reinforcement Strategies for NCLEX-RN® Pass Rates

Strategies in Place	School 1	School 2	School 3	School 4	School 5	School 6
Last semester (unnamed) course to prepare for NCLEX						**X**
ATI Comprehensive Predictor Exam 1 beginning of last semester		**X**	**X**		**X**	
ATI review course		**X**	**X**		**X**	
2000 questions between the first week to last week of final semester		**X**				
ATI required remediation last semester		**X**	**X**		**X**	
ATI Comprehensive Predictor Exam 2 at end of last semester		**X**	**X**		**X**	
ATI Comprehensive Predictor as a "carrot"		**X**				
Weighted ATI Comprehensive Predictor Exam 2					**X**	
Incomplete semester grade until all remediation is completed					**X**	

School 1. School 1's nursing director indicated that her nursing program utilized several reinforcement strategies to better prepare the nursing student to be successful at the first-time attempt of the NCLEX-RN® exam. The nursing director stated: "Students are required to remediate after each semester, each semester has a different plan. For

example, between Nursing 1 and Nursing 2 per se, they remediate after each exam." She further explained: "Once students take the mid-curricular exam, the remediation plan is based on the Silvestri book and the Elsevier remediation recommendations."

The nursing director explained that the students, as they progressed through the levels of the nursing program, were required to remediate and complete 250 NCLEX style questions prior to beginning level 4, which was their last semester. Just prior to completing the nursing program, students were required to take the HESI Exit exam. The nursing director stressed: "This is not a gatekeeper exam - all students pass and graduate, provided they meet graduation requirements with a GPA of 2.0 and pass all nursing courses with a grade of 75 or higher." The director described that faculty review with the students the results of their scores on the HESI Exit exam and the results of the student's performance predictability on the first-time attempt of the NCLEX-RN® exam. The nursing director stated: "Some students, because they are already passing the course, do not put effort into this test and thus, it is not entirely predictive."

School 2. The nursing director stated that, in 2015, the school had a major curriculum change, and as a result, the ATI Comprehensive Predictor was implemented in the final semester. She stated that the nursing program conducts a focused review in preparation for students' first-time attempt on the ATI Comprehensive Predictor exam in preparation for the NCLEX-RN® exam. Students are required to complete approximately 2,000 NCLEX-style questions between the first week and the last week of their final semester.

The students took the second ATI Comprehensive Predictor exam at the end of the semester. The nursing director stated: "The ATI Comprehensive Predictor results we

use as a carrot, not a stick. The students get extra points from this exam based on their performance." She elaborated: "We use it as an advising tool. They are not withheld from graduation or from getting their authorization to test for the NCLEX exam" as long as they are passing all the other nursing school's requirements.

School 3. When asked about reinforcement strategies in the nursing program, the nursing director stated: "In the last 12 months, we started to use ATI, and we are hoping that ATI will provide the students with enough practice questions, along with using the predictor exam and the exams are low stakes." The nursing director mentioned that she had taken over as the nursing director approximately 18 months prior to the interview, and there had been a lot of changes and turnover.

School 4. The Success Coordinator stated that the nursing program used the Evolve HESI Exit exam. She stated: "They use the Evolve HESI, they have the HESI Exit exam, as far as how it used to predict, I am not involved in that so, I do not know how that is done." She also stated: "For HESI, students who score below 850 are recommended to remediate, and they remediate with me." The Success Coordinator further explained: "In the final course there is a HESI Exit exam, students have two tests of this exam, the score is weighted." She elaborated: "So, we want them to score above 850 and if they score below, they can still pass the course if the score from the HESI exam doesn't lower their overall grade below passing." Further, she stated: "So, it is possible for students not do well on the HESI Exit exam, but still manage to pass the course."

School 5. The nursing director indicated that the nursing program uses the ATI Exit exam. School 5's students take the ATI review course in the last semester of their

program. After the review course, the students have to take the Comprehensive Exit exam and must earn a passing score of 70% or better. If the student does not earn a passing score, they have to remediate one-on-one with an ATI instructor. After they remediate, the student then must take a second exit exam. If the student fails to earn a passing score on the second attempt, the student is then required to take another review course. The nursing director stated: "It doesn't affect the student's grade, other than the exit exam itself is worth 15% of the overall semester grade. We take only the first exam grade as part of the overall semester grade." The nursing director explained: "If the students fail the second exit exam but they complete all the remediation requirements and their overall GPA is passing, then they will still graduate. But they have to complete all the remediation requirements."

School 6. The nursing director stated that the only reinforcement strategy the nursing program used for NCLEX-RN® is tying HESI Exit second exam results with a course in the last semester, accounting for 30% of that course's grade. She stated that her program prefers the students to score above 900 on the second HESI Exit exam. She mentioned that her program has some students who score below 900 and still pass the first-time attempt on the NCLEX-RN® exam. She stated: "Where I generally really worry about students not passing are those students who score in the 600's-700's. That is just me looking at the results and comparing them against the NCLEX results on who passes and who didn't." The nursing director pointed out that, in her experience, "the students who scored low on the Exit exams are usually the students who have been struggling in class all along the program." She elaborated that "Course X" is beneficial in those cases, stating: "In the Course X, that is where we try to help them identify where

to organize and prioritize to help them with studying and preparing for the NCLEX."

Additional Theme Findings

Three additional themes surfaced from the study's interviews. The three emergent themes were administrative support, introduction of new educational products and strategies, and different admission criteria for each of the nursing programs. These themes will be discussed in the order mentioned.

Findings for administration support.

The first most prominent theme was "administrative support." Initially, a majority of the respondents were hesitant to further elaborate about administrative support, and two of the respondents, prior to expounding about their point of view of administrative support, asked for reassurance about their identity remaining confidential. Once the respondents were reassured their identity would not be disclosed, they freely spoke about support from their college administration. Due to the increased sensitivity of discussing how the respondents felt about their college's administrative support or lack of support, the respondents' cited quotes will not be identified by which school participant provided each response.

The major findings emerging from the interviews in reference to administrative support were staffing, allocation of funds and resources, engagement with the nursing program, faculty salaries, and influence on decision-making process, in particular when involving students and the threat of litigations. Table 31 presents a visualization of the comments and issues that emerged during the interviews with the participants. Following Table 31, a more thorough, in-depth description of the expressed comments by the participants is available.

Table 31

Administrative Support

Administrative Support	Administrative Support Issues
• Interactive - attends nursing meetings. • Listens to the needs of the nursing program. • Good at giving resources and funding needed. • Good at providing student services. • Good about allowing overload work for faculty who want to.	• Lack of staffing. • Usually no response or additional support given until NCLEX-RN® pass rates drop. • Nursing program compelled to pass or admit students who mention "lawyer". • Faculty pay is low, so faculty resort to work overload.

Participants' initial responses and concern. When participants were asked to elaborate about the support their program received from their college administration, responses varied. Two of the participants adamantly stated "yes," indicating their administration gave them the support they needed. Two other participants simply stated "yes," indicating they got the support they needed from administration. The two participants who were concerned about their identities being disclosed stated either "yes/no" or "yes, for the most part."

Staffing. Two of the participants indicated they faced an issue with lack of staffing. One of the respondents stated: "Mmm, I mean everybody would like to have more staffing, but we all say we could use a little more help. But I think my faculty are doing a little too much overload, but they want the overload because the pay is so bad." Another participant discussed the same concern with staffing: "I am putting a proposal forward, working on it to get for the next budget year. To get a budget to fund more staff … this staff would be able to track the high-risk students for me." This participant elaborated: "Administration support for additional staffing is hard to get more funds because our NCLEX pass rate is above state average." The respondent passionately

added: “With the nursing shortage, you can’t just look at acceptable pass rates, you want to have excellent pass rates, you have to shoot for to have as many students as possible to pass while maintaining rigor.” She clarified: “To help offset the pending nursing shortage, with maintaining retention.” After declaring how important retention was to her, this respondent concluded by praising her college administration. She stated: “I do have to say this school has been the most malleable school I have worked at. Where they are willing to listen to me and give me the opportunity to try to achieve it.”

Engagement. Another participant indicated her college administration was very supportive and interactive with the nursing program and would attend nursing meetings and listen to the program’s needs. The participant attributed the school’s NCLEX-RN® pass rates to the administration’s support, stating: “We did have an issue with our pass rates several years back, and part of that I believe is that administration did not support like they should have.” She elaborated: “Once it did happen and it went around, they actually support me and gave me a consultant to come in and help fix the problem. Since then we have been doing good.”

Another participant said her administration was supportive, stating: “Overall the administration is very supportive, giving us the resources and funding, we need to provide our students the services they need to be successful.” The nursing director had one issue with administration support: “The only issue I have is if we have student not happy with the grade earned resulting in not advancing in the program, and the student mentions the word ‘lawyer,’ the administration will pressure us to pass the student.” She further described: “Or if a student complains about not being admitted into the program and mentions ‘lawyer,’ we are highly encouraged to admit that student.”

Introduction of new educational products and strategies.

The second theme that came to light was the NCLEX-RN® pass rates and the changing and phasing in of new educational products and strategies to help prepare students to be successful on their first-time attempt of the NCLEX-RN® exam. The study was designed to research the 2015/2016 school year nursing student cohorts and these cohorts' students' pass rates for the 2017 NCLEX-RN® exam. Two of the nursing cohorts had changed their proprietary NCLEX preparation product for the proceeding nursing cohorts of 2015/2016. One of the participants, School 3, discussed how they started to phase in a new product in Fall 2017 and indicated anticipating an increase in pass rates for the 2018 NCLEX-RN® exam. Dissimilarly, the nursing director of School 1 stated she was a little hesitant and concerned about introducing a new educational product because she and the faculty were not familiar with the product and were in the process of learning about it as they implemented it this fall with the nursing student cohort of 2018/2019. School 4's participant, the Success Coordinator, previously worked as a faculty member until the position of Success Coordinator began in Fall 2017. The participant stated: "The students who graduated in May 2018 had more exposure to my strategies and would be reflective of the NCLEX 2018, 3rd and 4th quarter pass rates." She expounded: "The students who started Fall 2017, will graduate in May 2019 and would have been exposed to all of the strategies I had put in place, and their NCLEX pass rates should be reflective of all those strategies in place."

Different admission criteria.

The third theme emerging from the interviews was the different admission criteria established among the nursing programs. It appeared that some schools required more

science prerequisite courses, while other schools did not. Two of the participants voiced concern about the Texas Higher Education Coordinating Board's mandate for the ADN nursing program to be completed in 60 semester credit hours. School 1's nursing director stated: "Another problem is, we use to have a program that was 72 hours, well the Texas Higher Education Coordinating Board made us change our program from 72 hours to 60 hours." She stated that she believes this change was mandated for monetary reasons saying: "Since our program is an Associate Degree in Nursing based on the financial aid reimbursement of 60 credits." School 6 was the only nursing program that required no science courses as prerequisites for students' admission into her nursing program. The nursing director stated: "No, they all are built into the curriculum." School 3's nursing director also voiced a concern regarding the mandated requirement change to a 60-semester-credit-hour nursing program and stated that her program had to change its curriculum from block-based to integrated in Fall 2015 due to the credit-hour mandate.

Summary

Chapter 4 began with a review of the purpose and need for this study to explore the strategies and policies implemented by ADN programs in Texas to increase nursing students' retention rates and first-time pass rates on the NCLEX-RN® exam. Increasing these rates and producing more RNs should help meet our state's healthcare needs and help alleviate the anticipated state-wide nursing shortage. A review of the research design and data collection process was discussed, followed by a description of the participants in the study, including the nursing programs' demographics, retention rates, NCLEX-RN® pass rates, admission rates, and admission criteria. A detailed summary of the findings of the policies and strategies implemented within the four major themes of

At-Risk Students, Teaching, Mentoring, and Reinforcement were identified. Additionally, another major theme emerged from the participants' interviews, emphasizing the importance of Administrative Support and the impact that community support had on meeting the needs of students' everyday life stressors. Chapter 5 will discuss the significance of these findings, implications, and conclusions.

Chapter 5

Conclusions and Discussion

The purpose of this study was to investigate and identify the remedial policies and strategies that successful Associate Degree in Nursing (ADN) programs in the state of Texas implemented to increase student retention rates and successful first-time NCLEX-RN® pass rates. The researcher identified a successful nursing program as a program that demonstrated a student retention rate of 50% or more and a first-time NCLEX-RN® pass rate of 80% or more. Five nursing directors and one Success Coordinator participated in the study, reflecting a 14% respondent rate. The data was collected from individual, semi-structured telephone interviews with each of the participants.

Five themes showing to influence students' success emerged from the participants' interviews: (i) At-Risk Students, (ii) Teaching, (iii) Mentoring, (iv) Reinforcement, and (v) Administration Support. The first four themes confirmed the findings from the previous studies discussed in the literature review. The fifth, Administration Support, was a new theme that emerged from the participants' interviews as showing to impact student success. Figure 19 provides a visualization of the big picture of stakeholders and themes impacting nursing students' success.

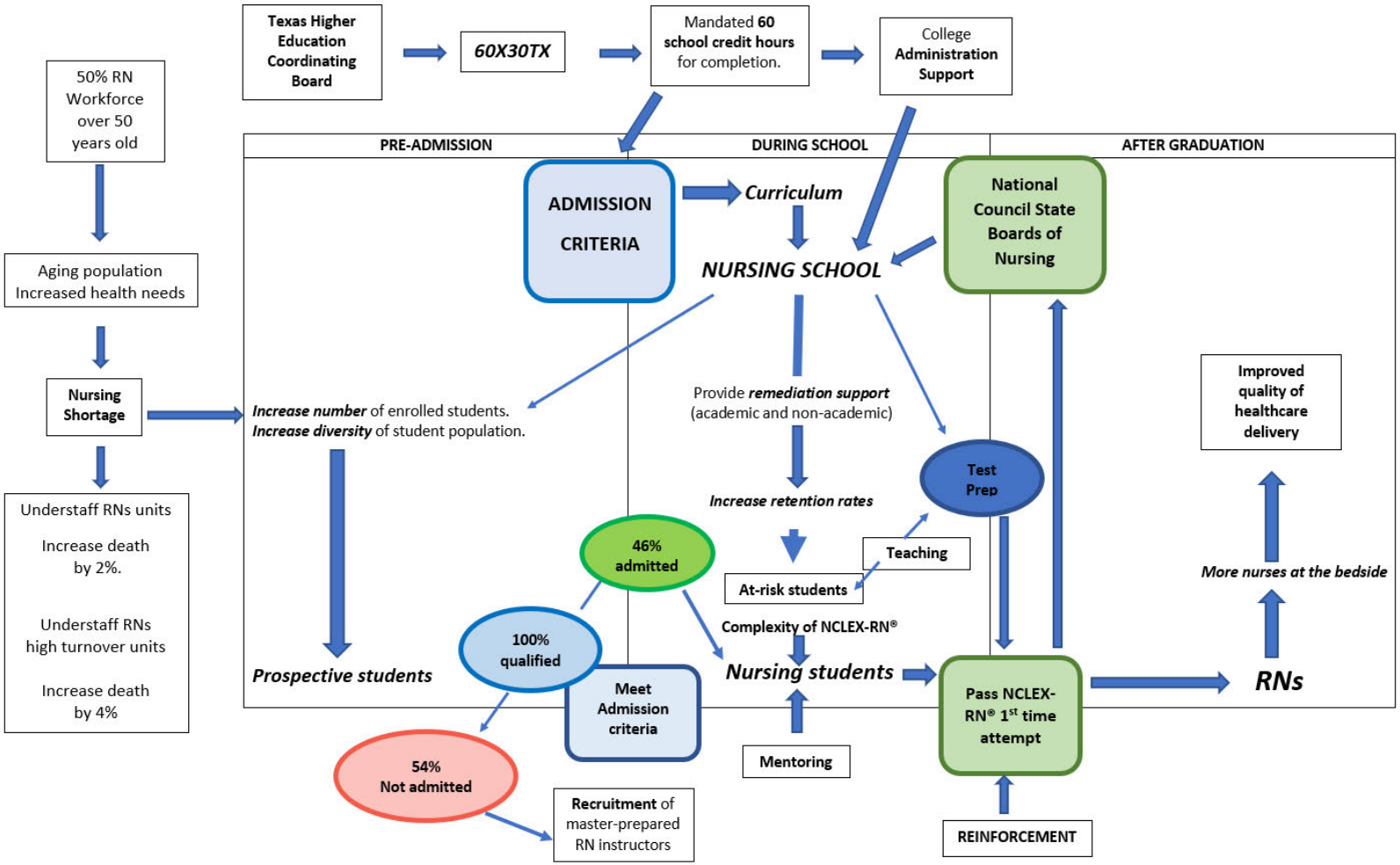


Figure 19. The "Big Picture" of stakeholders and themes impacting nursing students' success.
(Adapted from Blegen et al., 2011; Cimiotti et al., 2012; CHS, 2016; HRSA, 2017; NCSBN®, 2013; Needleman et al., 2011; Rosseter, 2017; THECB, 2013)

The impact of administrative support and findings related to the remedial strategies and policies the participating nursing programs had in place for student success will be discussed in Chapter 5. Chapter 5 will begin with a discussion of the nursing shortage, followed by the research questions, the participating programs' admission criteria, and impact on all stakeholders. The significance of the findings within each of the five identified themes will be discussed. Lastly, it will present the limitations of the study, significance of the study, implications for practice, and recommendations for future research.

Nursing Shortage

In 2030, several states across the United States will experience a nursing shortage (HRSA, 2017). According to the HRSA report (2017), Texas will be one of the states affected by this shortage. One of the attributing factors to the anticipated nursing shortage is the limited availability of openings in nursing school programs for qualified applicants. Reflective of previous studies in reference to lack of available nursing student spots, the participating nursing programs did not have enough available spots to offer enrollment to their 1,616 qualified applicants, with a combined total capped enrollment of 747 (Appendix B). Consequently, the established capped enrollment for these programs turned away 869 (54%) fully qualified applicants (CHS, 2016). Figure 20 provides a visualization of this concept.

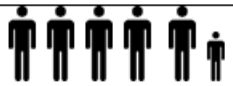
School	Qualified applicant/enrolled cap	Qualified Applicants
School 1	[663/280]	100%
School 2	[170/179]	
School 3	[14/20]	
School 4	[365/70]	
School 5	[120/108]	
School 6	[284/*90]	
Total	(1616/747)	
Available slots 747	Vacancies for applicants 46%	
Potential RNs lost 869	NO vacancies for qualified applicants 54%	

Figure 20. Lack of available spots in nursing schools for qualified applicants. (Adapted from CHS, 2016)

As noted, turning away qualified students from attending a nursing school and subsequently joining the workforce as an RN is detrimental toward the goal of replacing the overwhelming number of RNs who are anticipated to retire by 2020 (Grant, 2016; Jimenez, 2016). The lost potential of these qualified applicants is hindering, not helping to meet the demand for RNs needed to care for our aging population (Buerhaus, 2008; Elgie, 2007; Kuehn, 2007; Rosseter, 2017; Yeom, 2013). Several studies have shown that quality of healthcare provided, and patients' morbidity and mortality rates are both directly correlated with the number of RNs working on the hospital units (Blegen et al., 2011; Cimiotti et al., 2012; Clarke & Donaldson, 2008; Needleman et al., 2011; Tubbs et

al., 2013).

However, some of the participating schools had vacancies, and others reflected limited space available for qualified applicants. Four out of the six participating nursing schools corroborated this finding of the literature review. Nursing Schools 1, 2, 3, and 4 had a total of 1,432 qualified applicants seek enrollment into one of their nursing programs and had to deny admission and turn away 876 of those qualified applicants. Conversely, the nursing programs at Schools 5 and 6 had collectively 15 nursing students spots out of their allocated capped enrollment left unfilled. Schools 5 and 6 had 184 qualified applicants seek enrollment, and 183 students were offered a position in one of their nursing programs. These vacancies or lack of vacancies could be attributed to a number of factors, such as geographical location of these schools or their admission criteria which differ from the other schools, in particularly School 5's minimum GPA criteria of the pre-requisite courses was a letter grade-B.

Significance of Remediation and Research Questions 1 and 2

Frequently, when one thinks of the word "remediation" in the academic setting, it is generally viewed as it relates to academic skills and aptitudes associated with students' ability to be successful. One dictionary defines remediation as "the process of improving or correcting a situation" and gives the example of "remediation of reading problems" (Remediation, n.d. - a). Another defines it as "the act or process of remedying something that is undesirable or deficient," providing the example of "the act or process of providing remedial education" (Remediation, n.d. - b) Free Dictionary.com), and another states that it is "the act or process of remedying" (Remediation, n.d. - c). The participating schools in this study not only provided academic remediation for students

but also provided remedial options to help students with everyday life stressors outside of the classroom that can impact student's successful (Horton, 2015). The significance of the different school's admission criteria will be discussed first, followed by the findings of this study's emergent themes related to the research questions in the following order: At-Risk Students, Teaching, Mentoring, Reinforcement, and Administrative Support.

Significance of Admission Test Criteria

All the participating nursing programs began assessing potential nursing students for being at risk for failing by screening all of their applicants with an admission test. Theses admission tests are intended for the nursing programs to rank applicants based on the applicant's performance on these tests. The admission tests used by the nursing programs are designed to predict a student's potential performance in a nursing program. The participating schools used either the ATI Test of Essential Academic Skills (TEAS) or the HESI Admission Assessment Exam (A2). Significantly, even though the participating nursing programs may have used the same standardized admission tests for their applicants, they all used the reported results in a different manner and had different criteria established for their admission requirements.

Schools 1, 2, 4, and 6 used the HESI A2 exam as their admission test. Schools 1 and 4 required applicants to earn a minimum score of 75% in all of the different sections, which include Reading Comprehension, Grammar, Vocabulary/General Knowledge, Anatomy and Physiology, and Math. School 2's criteria for the HESI A2 differed from the other schools in that the minimum score allowed for the Reading section was 75%, but Grammar, Vocabulary/General Knowledge, Anatomy and Physiology, and Math were a cumulative average with a minimum acceptable score of 75%. School 6's criteria for

scores from each section of the HESI A2 exam was greater than the other schools and only used the Reading, Vocabulary/General Knowledge, and Math sections, with a minimum score of 80% for each section.

Notably, School 1 used the Critical Thinking section of the HESI A2 exam, requiring the applicants to earn a minimum score of 750. The critical thinking section of the HESI A2 assesses different aspects of the student's critical thinking aptitude, along with the student's preferred learning style. According to one study, students who show a preference for Kolb's "accommodator" learning style were more at risk of failing the NCLEX-RN® exam (Lockie et al., 2013). Another study also noted critical thinking was important for a nursing student to be successful (Chan, 2013). The other respondents who used the HESI A2 exam did not mention the "Critical Thinking" section during their interview, and it was not listed on the programs' website as part of their admission criteria.

Elsevier-HESI, a standardized testing company that provides the HESI A2 admission exams for nursing programs, states that there are no official passing scores for the HESI A2. However, the company's website offers a set of guidelines for nursing programs on how to rank and award admission points for prospective students based on composite scores earned on the HESI A2 exam (Elsevier, 2012). The scoring point system suggested by Elsevier is that students who score 75% or below should be awarded zero admission points; students who score between 75% and 79% should be awarded one admission point; students who score between 80% and 89% should be awarded two admission points; and students who score 90% or better on the HESI A2 exam should be awarded three admission points. These guidelines suggest that the higher a student scores

on the HESI A2, the more likely the student is to be successful in a nursing program. Therefore, students admitted into School 6's nursing program should fare well in their school, and School's 6 admission criteria of a minimum HESI A2 score of 80% should be considered a good admission screening for applicants, due to the fact that there are no prerequisite courses for admission into their nursing program.

Schools 3 and 5 used the ATI TEAS test to rank their applicants for admission. The different sections of the ATI TEAS test include Reading, Math, Writing, and Science. School 3's participant did not mention a minimum acceptable score for each section as admission criteria, and acceptable scores were not listed on the school's website. The school's posted admission criteria stated that the highest scored section from different exams would be considered, as long as the student did not take the TEAS exam more than two times in the same academic year. School 5's college's website listed minimum scores for each section: 73% for Reading, 69% for Math, and 58% for Science, along with 69% for English/Writing as an "optional section." A cumulative score of 66% of all the sections was also listed as one of the criteria for admission. The implication of the English/Writing section being optional is that, if a student chose not to do the optional section and only scores the minimum in the other sections, they would still be required to earn a score above 66%, with a score of 66.66%. If a student chose to complete the optional English/Writing section and scores only the minimum score in all of the other sections, the cumulative average would be 67.25%.

According to the listed interpretation of ATI TEAS scores by the ATI company, the minimum scores accepted by School 5 are considered "proficient." ATI implies that an applicant scoring between 58.7% and 77.3% has a moderate level of overall academic

aptitude necessary to be successful in a nursing and/or allied health-related field, but may require additional remedial education. ATI's interpretation of its scores is reflected in Table 32

ATI's Interpretation of TEAS Scores and Student Academic Preparedness

ATI's Interpretation of TEAS Scores and Student Academic Preparedness	
Category/Scores	**Interpretation**
Exemplary (≥ 90.7%)	Applicant has a very high level of overall academic aptitude necessary to be successful in a nursing and/or allied health-related field, and most likely will not require additional remedial education to be successful in the nursing program.
Advanced (78.0 to 90.6%)	Applicant has a high level of overall academic aptitude necessary to be successful in a nursing and/or allied health-related field, and most likely will not require additional remedial education to be successful in the nursing program.
Proficient (58.7% to 77.9%)	Applicant has a moderate level of overall academic aptitude necessary to be successful in a nursing and/or allied health-related field but may require additional remedial education.
Basic (41.3% to 58.6%)	Applicant has a low level of overall academic aptitude necessary to be successful in a nursing and/or allied health-related field, and most likely require additional remedial education.
Developmental (41.2% and below)	Applicant has a very low level of overall academic aptitude necessary to be successful in a nursing and/or allied health-related field and will require extensive additional remedial education.

Note. Adapted from Tod & Mills, 2017.

Significance of prerequisite courses.

As with the admission tests, each of the nursing programs had different criteria for prerequisite courses. All of the participants, with the exception of School 6, require applicants to complete prerequisite courses as part of the admission criteria. School 1 required an English course and Anatomy and Physiology 1, with a minimum accepted

cumulative GPA of 2.7. School 2's required prerequisites consisted of an English course, Anatomy and Physiology 1 & 2, and a psychology-type course, with a minimum accepted GPA of 2.5. School 3's prerequisite courses consisted of Anatomy and Physiology 1 & 2 and a Statistical Math course, with the caveat of a minimum GPA of a "C" if the course was taken at another college. The prerequisite courses required for School 4's nursing program consisted of Anatomy and Physiology 1 & 2 and a course in Microbiology, with a minimum GPA of 2.0. School 5's nursing program required the prerequisite courses of English, Anatomy and Physiology 1, a nutrition course, and College Algebra, with a minimum grade of a "B." Table 33 summarizes prerequisite courses for nursing program applicants.

Table 33

Summary of Admission Prerequisite Courses for Nursing Program Applicants

Summary of Admission Prerequisite Courses for Nursing Programs		
Participant	**Prerequisite courses**	**Minimum GPA accepted**
School 1	English Anatomy & Physiology 1	Average GPA 2.7
School 2	English Anatomy & Physiology 1 Anatomy & Physiology 2 Psychology	GPA 2.5
School 3	Anatomy & Physiology 1 course Anatomy & Physiology 2 course Statistical Math	Minimum GPA "C" accepted if taken from another college
School 4	Anatomy & Physiology 1 Anatomy & Physiology 2 Microbiology	Minimum GPA 2.0
School 5	Anatomy & Physiology 1 Nutrition English 1 College Algebra	Minimum GPA "B"
School 6	No Prerequisite courses required to apply	Non-applicable

Note. Adapted from the schools' nursing program prerequisites, as listed on their websites

Differences in admission criteria's impact on all stakeholders.

So, what does this mean in reflection of the applicants applying to the different programs and for the nursing programs screening applicants? First of all, as stated previously, it is logical that School 6's minimum accepted score on the HESI A2 exam was 80%, due to its lack of prerequisite courses. Not having prerequisites for application into its nursing program had potential to place School 6's admission committee at a disadvantage for identifying potentially at-risk students. Previous studies have shown

lack of preparation or lack of ability to recall previously taught content from the science-based courses, like anatomy and physiology, biology, and pharmacology, made it more difficult for a student to be successful in a nursing program (Lockie et al., 2013; Trofino, 2013).

As noted previously, the other nursing programs that had prerequisite courses also had different prerequisite criteria for which courses were required and minimum GPAs accepted. It is commendable that School 1 had a 100% pass rate on its 2017 cohort's first-time attempt of the NCLEX-RN® exam, and other than School 6, it had the least number of prerequisites, with a minimum accepted average of 2.7 GPA to screen applicants. However, School 1 also had the lowest acceptance rate – 18% – out of all the participating programs, leading one to surmise that the students selected for admission into the program had higher than the minimum accepted GPAs and higher HESI scores than those selected by other campuses in their college system. The nursing director of School 1 stated: "You would expect that since the higher-performing students get into 'School 1' they would be successful. However, nursing education is different from the admission courses. In the admission courses, they just have to memorize." She expounded: "In nursing school they need to know and understand the 'why' part. It is a different level of studying and way of learning." The noted retention rate for School 1 was 84%, which may substantiate the nursing director's perspective of the difference between the level of knowledge comprehended within prerequisite and nursing curriculum courses. The nursing director also mentioned that she wished the Anatomy and Physiology 2 course could be added to the program's prerequisites because one of the science professors told her that Anatomy and Physiology 1 was a very basic course and

that Anatomy and Physiology 2 was more challenging and therefore a better indicator of a student's critical thinking skills.

Schools 2, 3, and 4 required nursing student applicants to complete both Anatomy and Physiology 1 & 2 prior to applying for admission. Similar to the admission tests, there were differences between each school's accepted GPA for the courses. Schools 3 and 4's minimum accepted GPA for these courses was 2.0, while School 2 required a 2.5 GPA. School 2 was also similar to School 1, with a commendable first-time attempt NCLEX-RN® pass rate of 95%. However, the school had an acceptance rate of 41% and a retention rate of 70%. One may wonder whether the limited acceptance rate was due to the additional required course of Anatomy and Physiology 2 and higher minimum accepted GPA of 2.5.

Likewise, one may wonder whether School 2's retention rate reflected School 1's nursing director's perspective that the difference in the levels of knowledge between the prerequisite courses and the nursing curriculum is evident when one compares a nursing student' GPAs between their prerequisite courses and their nursing courses. School 4's acceptance rate was similar to School 2's, with a rate of 42%. However, School 4's first-time attempt NCLEX-RN® pass rate was lower, but still respectable, at 88%. Additionally, School 4 had a remarkable and commendable retention rate of 100%. School 3's first-time attempt NCLEX-RN® pass rate was 84%, and it had a respectable 86% retention rate. This comparison is noteworthy because School 3's acceptance rate was 89%. School 3, similar to School 5, required students to take a math course as a prerequisite prior to applying to the nursing program.

School 5 did not require applicants to take Anatomy and Physiology 2, but it did

require Anatomy and Physiology 1, Nutrition, English 1, and College Algebra. Out of all of the schools, it required the highest GPA: a "B" in the prerequisite courses. The acceptance rate for School 5 was a noteworthy 100%. One may wonder whether the 100% acceptance rate and unfilled nursing student spots were due to a lack of applicants, and whether this was due to the college's rural location and/or the high GPA requirement for the prerequisite courses, thus limiting the number of qualified applicants for the available nursing student positions. School 5's first-time attempt pass rate for the NCLEX-RN® exam was a suitable 83%, and it had a noteworthy retention rate of 86%.

It must be noted that the first-time attempt NCLEX-RN® pass rate for School 6 was very commendable at 92%, but its retention rate of 69% was the lowest of all the participating schools. One could speculate whether the retention rate of School 6 was due to its 99% acceptance rate and/or the lack of prerequisite courses for admission into the program. Additionally, did the school's admission process limit its ability to screen applicants for nursing program academic aptitude, thus increasing the number of accepted applicants who may have been otherwise considered not qualified to apply in the other participating schools?

Notably, all the participating schools had different criteria for the admission prerequisite courses, similar to their different criteria for applicants' admission tests. As stated previously, studies revealed there is a significance and correlation between a student's performance on the admission tests and the prerequisite courses, particularly the science courses (Lockie et al., 2013; Trofino, 2013). Furthermore, assessment of a student's reading comprehension is another predictor of a student's success in a nursing program. As found by one study, the verbal section of the Standardized Assessment Test

(SAT) is a good predictor of whether a nursing student will be successful (Grossbach & Kuncel, 2011). Students enrolled at a community college are not required to take the SAT as part of the admission process, but fortunately, reading comprehension was one of the testing criteria for both of the assessment admission exams that the admission committees used as part of their screening process to select students for admission into their nursing programs.

Which admission criteria stands out as the best criteria for selecting applicants for admission into a nursing program is not easily answered and is as convoluted as the complexity of the subject itself. Many factors impact which admission criteria to adopt, and many are beyond the control and desire of the nursing program's admission committees. One significant contributing factor influencing the admission criteria adopted by these nursing programs, which was an expressed concern by several of the nursing directors, was the THECB's 2013 decision, mandating that in 2015, all ADN programs were to be completed in 60 school credit hours, since the degree earned through the program was an associate degree in nursing.

Individuals in a position of authority need to consider, in their decision-making process, which admission criteria are best to implement by determining what they intend the nursing program to accomplish. Is the intent to increase the retention rates or to increase the pass rates of the first-time attempt NCLEX-RN® exam, or both? Metaphorically speaking, admission criteria can be considered one of the ingredients of a good stew. The stakeholders and those in charge need to look at the other criteria in the nursing program as in preparing a stew: which combination of ingredients, cooked at the right temperature and simmered for the right amount of time, make it just right? Or, in the

case of the nursing programs, which combination retains the most students while achieving the desired first-time attempt NCLEX-RN® pass rates?

Significance of At-Risk Students and Strategies

When evaluating a student for being at risk of not being successful in the academic setting, academia needs to view the student holistically. Yes, it is important to evaluate a student's academic aptitude. However, academia also needs to look at the student's everyday life stressors outside of the classroom that can have a direct impact on a student's success (Bednarz et al., 2010; Choy, 2002; Harris et al., 2014).

It is commendable that all of the participating nursing programs and their colleges offered some sort of remedial assistance for academic challenges and non-academic stressors that could impede an at-risk student from being successful in the academic setting. Reflectively, portions of Tinto's Model of Student Retention discussed in Chapter 2, Figure 12, were ascertained in this study in relationship to the variables and strategies that impact a student being successful or not. Variables and strategies associated with the at-risk students will be discussed in the following order: early identification, contributing academic factors, and contributing non-academic factors.

Early identification of at-risk students.

According to the literature review, early identification of a student being at risk for failing is essential to increase the student's chance of being successful (Abele et al., 2013; Custer, 2016; Yeom, 2013). A student's prior academic performance in science courses and reading ability have shown to strongly correlate with a student's ability to be successful. The consensus of the participants interviewed is that a student is not considered or identified a student as an at-risk student until the student has failed a test or

an exam in the nursing program. This belief was based on the premise that the students were screened through the admission process and deemed to be considered academically prepared by being granted enrollment into the nursing program. All of the participating respondents stated that 75% is the minimum passing score for all courses in the nursing program. All the nursing programs, with the exception of School 1, identify a nursing student as an at-risk student as soon as they scored below 75% on a test or an exam. Most of the nursing programs implemented remediation strategies once a student failed an exam.

Conversely, School 1 identified a student as an at-risk student as soon as a student scored below 80% on a test or an exam. School 1's faculty were proactive in their approach by initiating remedial strategies before a student failed a test or an exam. School 1's early intervention of providing remedial strategies before a student's GPA went below 75% aligned with findings from previous studies indicating that the earlier a student at-risk for failing is identified and the sooner remediation begins, the more likely the student will be successful (Abele et al., 2013; Custer, 2016; Yeom, 2013).

Academic factors and strategies for at-risk students.

Most of the nursing students had access to either a retention specialist, success coordinator, or success counselor to provide remedial instruction, and all of the participating schools provided college counselors to assess students for learning disabilities and develop individual education plans as needed. All the participating respondents indicated their nursing programs were proactive in initiating different strategies to help nursing students overcome academic challenges. One of the most used and important strategies implemented was one-on-one meetings between a faculty

member and student to review the student's performance on an exam and subsequently develop and implement remediation strategies personalized for the student, based on the meeting. These one-on-one meetings can be considered a form of coaching to help students better grasp the context of the content being taught. As noted in the literature review, students who are coached gain a better understanding of material being taught, are less frustrated, and feel more satisfied during their educational journey. A previous study found that students who are coached, in comparison to those students not coached, are 15% more likely to graduate (Bettinger & Baker, 2013). Most of the nursing programs used tutors to help students who had been identified as in need of extra remedial instruction to be successful.

Non-academic factors and strategies for at-risk students.

Many of the students from the participating nursing programs had many of the factors and variables identified from previous studies as elements placing them at an increased risk of not being successful in the nursing programs. Initially, when asked to clarify what they meant by "at-risk students," all of the participating respondents defined this category as students who were struggling academically in the program. However, in conversation with the respondents, they did describe factors and variables that have been identified as indicators for at-risk students, as "challenges" and "stressors" for their students. The message that all of the respondents conveyed was that these challenges and stressors were present but were manageable with the proper guidance and support provided to their students. It was very evident that all of the respondents were very passionate and devoted to facilitating and guiding their students toward success.

Overall, 31% of the participating nursing programs' students were "non-

traditional students," ranging between 25 and 64 years old. Additionally, more than one-third of the nursing students enrolled were listed as a minority. The percentage of minority students enrolled at these campuses ranged from 31% to 53% of the student population. Furthermore, a high percentage of the student population in these nursing programs received financial aid to attend school. More than half of the students, 59%, collectively from all of the nursing programs were receiving financial aid. Three out of the six participating nursing programs were documented to have 75% to 77% of their student population receiving financial aid. Collectively, the participating nursing programs had an overwhelmingly high percentage of students enrolled in their programs with risk factors that have been identified by previous studies as contributing to not being successful and having a higher attrition rate (Bednarz et al., 2010; Gardner, 2005a).

Several of the participants reported that they had several first-generation college students in their nursing programs. However, no numerical data reflecting the percentage of first-generation students within the participating schools could be located from published documentation. Nationally, 38% of first-generation college students are enrolled in community colleges, in comparison to 20% of students in four-year higher education institutions whose parents were not college graduates (CCRC, n.d.).

Additionally, most of the participants stated that some of their nursing students dealt with mental health issues, such as anxiety and stress, which require some form of counseling. The respondents said many of their students experienced difficulty with issues such as time management, organizational skills, prioritization, and family and work commitments. All the programs' students received instruction on strategies of time management and prioritization of commitments and tasks. These remedial activities were

usually taught within the first few weeks of the first semester of the nursing programs. As mentioned previously, all these variables have been shown to have a negative impact and could impede the student from being successful in school.

Fortunately, all of the participating nursing programs and their colleges had identified these variables as present in their student population. Additionally, the THECB also recognized and identified the needs of the young people enrolling into higher education institutions in Texas and developed its educational strategic plans based on these circumstances (THECB, 2006, 2015). Most of the nursing programs had strategies in place to prevent these stressors from impeding students' ability to be successful. The nursing programs also collaborated and networked with additional sources to help students in need of additional remedial strategies.

These remedial strategies and resources available for students were supported either by federal funding, by grants, or by private funds and resources donated by local charities and organizations. Emergency relief funding for everyday stressors such as mechanical car repairs, money to pay rent, gas, or electricity bills, and referrals for food pantries and assistance in obtaining other necessities for students' dependents were usually provided by private charities and organizations. Funding for additional tutors' salaries, purchasing books or lab equipment, and the providing daycare services for students' children to attend at a reduced or free-of-charge rate while students attended classes and clinicals were either subsidized by federal funding or grant money. The importance of identifying factors contributing to at-risk status and implementing remedial strategies to help students achieve success all corroborated findings from previous studies. The summary by School 6's nursing director best describes the overall impact of

these remedial strategies: “You know once the student eliminates the stress of money worries, meeting their basic needs, roof over their head, food in the cabinet, and clothes on their children, then it is a lot easier for them to be successful.”

Significance of Teaching Strategies

Block-based curriculum versus integrated curriculum.

***Findings of block-based curriculum versus integrated curriculum*.** The curriculum designs utilized by the participating nursing programs were evenly split, with Schools 1-3 using an integrated curriculum design and Schools 4-6 using a block-based curriculum design. The nursing programs who used a block-based curriculum had an average of 85% student retention rate, in comparison with nursing programs using an integrated curriculum, which had an 80% student retention rate. However, the schools using an integrated curriculum had a higher average first-time attempt NCLEX-RN® pass rate of 93% versus an 87% first-time attempt NCLEX-RN® pass rate for the nursing programs using a block-based curriculum.

Ultimately, it appears that the delivery of block-based curriculum increased student retention rates, while an integrated curriculum increased first-time NCLEX-RN® pass rates. However, it is important to bear in mind the core purpose and outcome of a nursing school program and its impact for all stakeholders involved. The first outcome is to prepare a student to pass the licensing board exam to be able to work as a RN. The second outcome is nursing schools’ ability to maintain their accreditation status by keeping the NCLEX-RN® pass rates above 80% and maintain acceptable student retention rates. Crucial, and affecting the most stakeholders, is the need to produce more registered nurses (RNs) to help minimize the nursing shortage, which is predicted to have

an increasingly negative impact on our nation's health and well-being as the numbers of our aging population grows (Blegen et al., 2011; Cimiotti et al., 2012; Needleman et al., 2011; Tubbs et al., 2013).

It is important for nursing programs to strive for and achieve high first-time attempt NCLEX-RN® pass rates, and nursing programs that achieve pass rates above 90% to be recognized as commendable programs. But in the scheme of things, the bigger picture, the focus of nursing education needs to continue maintaining first-time pass rates on the NCLEX-RN® exams while at the same time admitting and retaining as many nursing students as possible. Earning a score of 80% or above on the NCLEX-RN® has been deemed by the National Council of State Boards of Nursing (NCSBN) as demonstrating that a nursing student has entry-level competence to deliver safe nursing care to the public. Significantly, it is important to support the NCSBN's established benchmark because "lowering standards and regulations may lead to an increase in errors … and a workforce that is inadequately prepared to meet the challenges of providing health care safely in the 21st century" (Roa et al., 2011, p. 373-374).

The participating nursing programs that used an integrated curriculum had cumulative overall higher first-time attempt NCLEX-RN® pass rates in comparison to the participating nursing schools who used a block-based curriculum. When comparing whether an integrated curriculum or block-based curriculum is the better mode of instruction, several factors should be taken into consideration. One of the factors is that nursing programs have no control over the number of students they are allowed to admit to their programs. Nursing programs' capped enrollment numbers are based on factors such as the finances of a college system and the availability of qualified nursing

instructors who are willing to teach, despite their counterparts working in the healthcare field earning double or more than a nursing faculty member's salary (Rosseter, 2017). Please keep in mind that the following discussion comparing integrated versus block-based curriculum is exclusively based on numbers and is not reflective of the great work and dedication expressed for student success by the individual participants' nursing programs and/or faculty, but is instead often reflective of circumstances and factors beyond their control, such as capped enrollment numbers for the participating nursing programs and geographical location of their programs.

One factor to consider is nursing programs that used an integrated curriculum's lower average acceptance rate of 49%, in comparison to the nursing programs who used a block-based curriculum, which had an average acceptance rate of 80%. This implies the nursing programs who used an integrated nursing curriculum statistically had a larger pool of qualified applicants to screen and select from for admittance into their programs. Another factor to consider is that schools that used an integrated curriculum had a lower student retention rate in comparison to the nursing schools using a block-based curriculum. An implication of this is that the smaller number of students retained decreased the number of students taking the first-time attempt on the NCLEX-RN®, thus decreasing the number of students failing the exam due to not being successful in the nursing programs using an integrated curriculum.

An additional finding of this study is that, when including each program's acceptance rate, it appeared that nursing programs that used a block-based curriculum retained and statistically produced more RNs in comparison to the nursing programs that taught using an integrated curriculum. To determine which mode of instruction appeared

to produce more RNs, the participating nursing schools were grouped into two groups: those using an integrated curriculum and those using a block-based curriculum. The findings were determined using two different approaches. The first way of determining the number of RNs produced was to look only at the retention rate for each school and the first-time attempt NCLEX-RN® pass rates. The second way included the overall acceptance rate for each of the schools, along with the retention rate and the first-time attempt NCLEX-RN® pass rates, to determine which mode of instruction produced the most RNs.

With the first way of determining which mode of instruction produced the most RNs, there appeared to be no significant difference; both modes of instruction appeared to produce the same number of registered nurses. The cumulative retention rate for each group was determined and represented by the number of student figures, where each full student figure represented 10%. For those using an integrated curriculum, the cumulative retention percentage was 80%. The eighty percent was then multiplied by the cumulative pass rate of 93%, which resulted in seven and four-tenths RNs produced by that mode of integrated curriculum (8 graduating students x .93 NCLEX-RN® pass rate = 7.4 RNs). Figure 21 visually reflects the calculation of the comparison of block-based curriculum versus integrated curriculum programs' number of RNs produced.

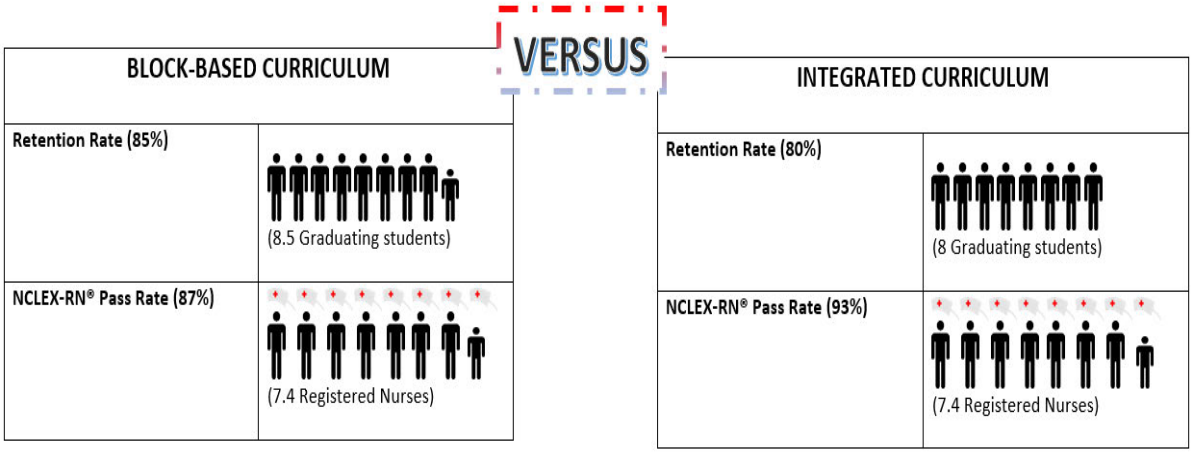


Figure 21. Cumulative average block-based curriculum versus integrated curriculum (Adapted from CHS, 2016 and Texas Board of Nursing, 2018a.)

The second way of evaluating which mode of curriculum appeared to produce the most nurses included the acceptance rate for each of the nursing programs. The acceptance rate for each of the curriculum groups was determined by averaging the acceptance for each of the schools representing the two different modes of curriculum. The cumulative acceptance percentage was represented by the number of student figures, where each full student figure represents 10%. The retention rate representation was then the number of student figures representing the acceptance rate times the cumulative retention rate. As an example, the block-based curriculum group acceptance rate was 80%. The 80% was represented by eight student figures. If the retention rate was 85%, then the retention rate of 85% would be multiplied by the eight student figures, resulting in 6.8 (.85 x 8 = 6.8), which was represented by six and eight-tenths graduating student figures. Finally, the first-time attempt NCLEX-RN® pass rate of 87% was multiplied by the number of graduating students (.87 x 6.8 = 5.9) resulting in five and nine-tenths RNs being produced by a block-based curriculum. Figure 22 presents the comparation of the block-based curriculum to the integrated curriculum programs' number of RNs produced,

with the acceptance rate included in the calculation.

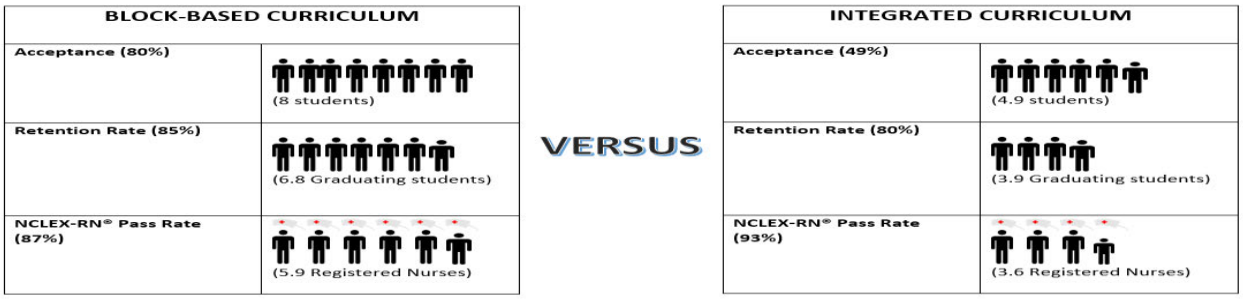


Figure 22. Acceptance rate in block-based versus. integrated curriculum programs resulting in RNs
(Adapted from CHS, 2016 and Texas Board of Nursing, 2018a.)

Another desirable outcome that healthcare leadership has challenged nursing programs with is to increase the number of RNs reflective of our nation's growing minority population. When the participating schools were grouped into a block-based curriculum group and an integrated curriculum group, the groups appeared to have similar percentages of diversity within the student population. Comparing the block-based curriculum programs versus integrated curriculum programs, the percentage of the minority student population appeared to have no impact on the program's overall performance in retention rates or first-time NCLEX-RN® pass rates. Figure 23 presents a comparison of RNs produced by the block-based curriculum group to those produced by the integrated curriculum group, with the percentage of the minority student population included in the calculation.

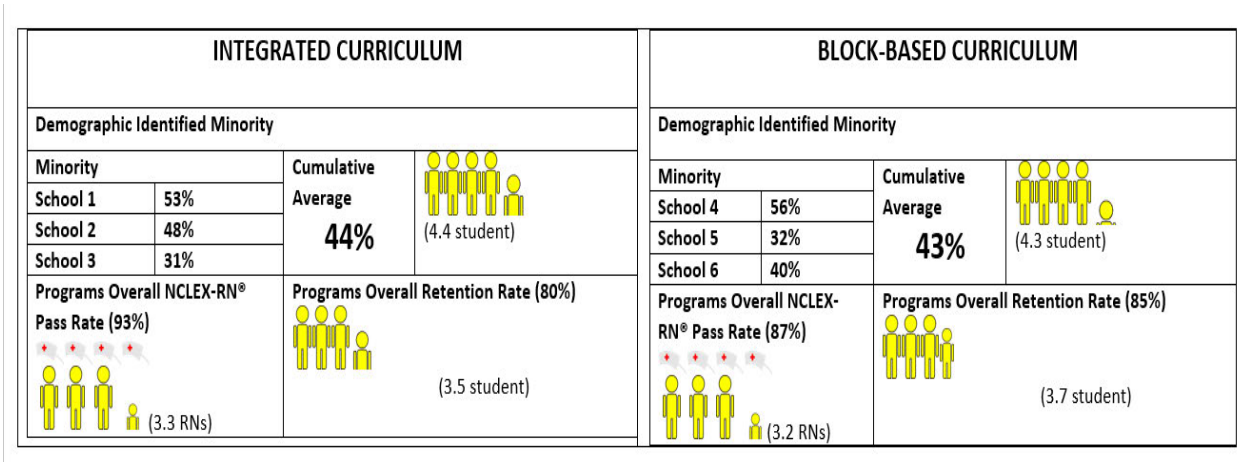


Figure 23. Identified minority percentage of student population and programs' overall retention rates and pass rates
(Adapted from CHS, 2016 and Texas Board of Nursing, 2018a.)

Finally, the last factor to consider was the overall cumulative average for the at-risk factors for the block-based versus integrated curriculum groups, and the overall number of RNs produced. As previously noted, the identified factors placing a student at a greater risk of not being successful included students' identification as a non-traditional student, a minority, and/or of lower socioeconomic status (Bednarz et al., 2010; Gardner, 2005a). The cumulative average of these risk factors was calculated for each school and then averaged collectively for each identified mode of instruction, either block-based or integrated curriculum. As previously with the other two factors in determining which form of curriculum produced the most RNs from an identified group of students, the calculations were conducted in the same manner. To demonstrate the number of at-risk students from each mode of curriculum, the average of all of the identified risk factors for each group were calculated, and then the percentage of identified at-risk students was represented, with each student figure representing 10% of the percentage of the student body.

This comparison of the block-based curriculum to the integrated curriculum is significant because, when the different forms of curriculum were compared initially, it appeared that both forms of instruction produced the same number of RNs. What is significant is that the participating block-based curriculum nursing programs had a higher percentage of at-risk students and were still able to produce the approximately the same amounts of RNs, when compared to the integrated curriculum programs with a lower percentage of risk factors identified. Figure 24 is a visual demonstrating this concept.

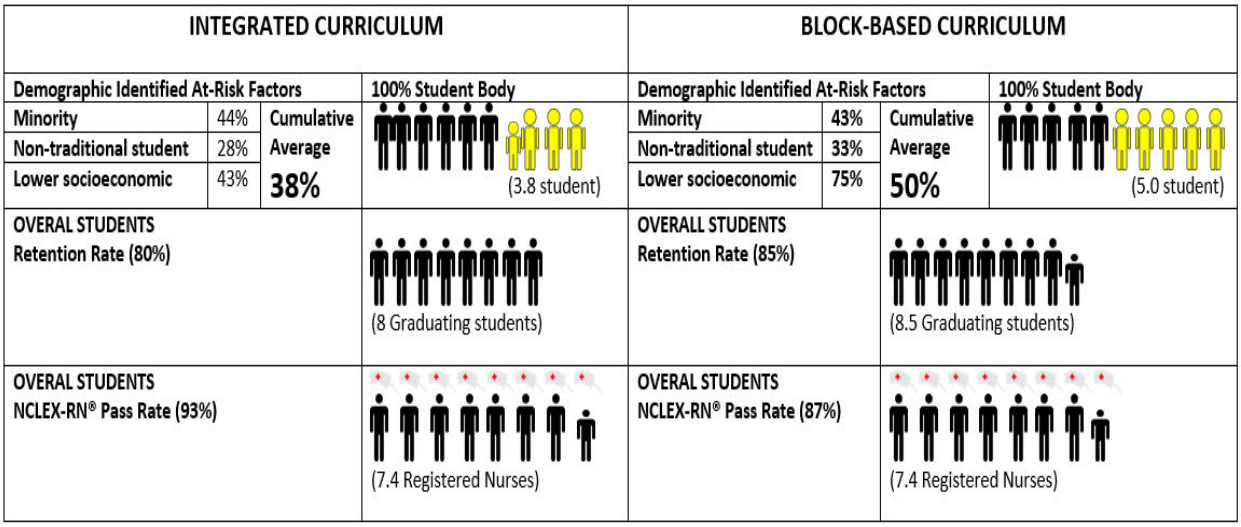


Figure 24. Integrated versus block-based curriculum demographic identified at-risk students' retention rates and first-time attempt NCLEX-RN® pass rates (Adapted from CHS, 2016; Texas Board of Nursing, 2018a; U.S. News & World Report, 2018; Community College Review, 2018)

Teaching strategies for student retention.

When participants were asked about teaching strategies to increase student retention, the respondents' focus and replies were mixed. All of the participants mentioned, at minimum, implementing three teaching strategies to help increase student retention. Some of the participants were eager to share and spoke with pride about the different teaching strategies they could offer to help nursing students be more successful.

School 1 appeared to use the most teaching strategies. The participant mentioned a total of 11 different teaching strategies that her nursing program used to help retain students. Following a close second, the Success Coach of School 4 reported having implemented ten different teaching strategies to help retain students. School 6 came in third, reporting a total of seven different strategies implemented to help increase student retention rates. The remaining schools' participants mentioned a total of three different teaching strategies implemented the most to help increase student retention rates. Refer to Table 26: Teaching/Learning Strategies for Student Retention in Chapter 4 for a visualization of the different strategies used by the participating nursing programs.

Altogether, five different teaching strategies were noted to be a common strategy collectively used by three of the nursing programs. The first of these strategies was the use of high-fidelity simulation labs. Schools 1, 2, and 5's participants used and credited the implementation of high-fidelity simulation for the transference of theory knowledge from the classroom to application and better understanding of the content. This belief very much mirrors conclusions from previous studies (Bradley, 2011; Lioce et al., 2015). Further, a Chinese research article reported: "Simulation provides innovative educational experiences that help nurses assess and develop clinical competency, promote teamwork, and improve care processes in a realistic and relatively safe environment without the potential of harm to patients" (Xu, 2016, p 55).

Commercially prepared standardized exams were used in lieu of faculty-prepared exams for nursing courses by three of the participating schools. Schools 2 and 3 used the ATI commercially prepared exams for their nursing courses, and School 6 used the Elsevier-HESI specialty exams for their end- of-course exams. Both ATI and Elsevier-

Evolve nursing educational products were evenly used by all of the participating schools. Schools 1, 4, and 6 used the Elsevier-Evolve products, while Schools 2, 3, and 5 used the ATI products. Finally, the last of the common teaching strategies mentioned by three participants was implementation of individualized tutoring sessions for nursing students.

Teaching strategies for NCLEX-RN® pass rates.

In contrast, when participants were asked about teaching strategies implemented in their nursing programs to help students be more likely to pass the first-time attempt on the NCLEX-RN® exam, only three respondents mentioned they had teaching strategies in place. To review all of the participants' responses of the teaching strategies, refer to Table 29: Teaching Strategies for NCLEX-RN® Pass Rates in Chapter 4.

School 6's participant was eager and excited to share her school's teaching strategies to better prepare its nursing students to be successful on the NCLEX-RN® first-time attempt. She reported the most teaching strategies implemented to help the nursing students to be more successful on the first-time attempt on the NCLEX-RN® exam. The participant explained how she and her upper-level faculty team had developed a well-organized and coordinated plan including eight different strategies using Elsevier-Evolve products and established nursing courses that began at the beginning of the student's last semester prior to graduation, starting with a pharmacology review and exam and administration of the first HESI Exit Exam (HESI E2). Based on the results from those two exams, her team developed a remediation plan to better collectively prepare the nursing cohort for the NCLEX-RN® exam. The implementation of School 6's remediation plan corroborates the findings of previous studies indicating that a student's performance in pharmacology courses and medical-surgical courses was a good

way to predict a student's performance on the NCLEX-RN® exam first-time attempt (Trofino, 2013). The nursing cohort was given the second HESI E2 during the week of finals exams in the last semester prior to graduation. Nursing School 6's participant proudly disclosed that, through the implementation of these teaching strategies, she personally noticed an overall increase of an average of 100 points from a student's first HESI E2 exam taken at the beginning of the semester to the second HESI E2 taken during the finals week prior to the students' graduation.

School 1's participant also reported a coordinated implementation of teaching strategies to better prepare her students to be successful on the first-time attempt taking the NCLEX-RN® exam. Similar to the participant from School 6, the participant was very eager to share and talk about the teaching strategies in place. School 1's nursing program had a total of five teaching strategies in place to prepare the students for the NCLEX-RN® exam, and similar to School 6, preparation for the NCLEX-RN® exam began at the beginning of the last semester prior to the student's graduation. Students used the Silvestri NCLEX Prep Book and were broken into study preparation groups to prepare for the exam. The study prep groups met every other week, and different test-taking strategies and content reviews were covered in preparation for the NCLEX-RN® exam at each session. The students were also required to do an assigned number of "practice-type" NCLEX-RN® questions. Unlike School 6, School 1's nursing program administered both of the two HESI E2 exams towards the end of the semester prior to the nursing student's graduation. The participant from School 1 appeared to be very proud of the program's efforts and strategies to prepare the students, resulting in a commendable 2017 NCLEX-RN® exam pass rate of 100%. School 1's participant mentioned that the

nursing program was scheduled to change the predictability exam from the HESI E2 exam to the ATI NCLEX- predictability exam and wondered how this change was going to impact the upcoming nursing cohort's preparation for the NCLEX-RN® first-time attempt in the future. She stated that she and faculty will approach the change of product with enthusiasm, and time will tell how the students fare with this change. She mentioned that the program's new dean had used the ATI product before, reassured her it was a great product, and had experienced lots of student success with implementing the new product.

The participant from School 2 was the only other participant who responded to using three different teaching strategies to prepare the nursing students. With much enthusiasm, she endorsed and praised the teaching strategy of using the ATI NCLEX Prep Package. She stated that she loved the teaching strategy of using numerous NCLEX-style practice questions, along with the teaching strategy of administering proctored assessments throughout the nursing program, to better prepare the students for the NCLEX-RN® exam.

Significance of Mentoring for Retention and Student Success

Tinto's Model of Student Retention.

Mentoring, as noted in the literature review, plays a significant role in students' retention and success in an academic program leading up to graduation and beyond (Bettinger & Baker, 2013; Giordana & Wedin, 2010). The Social Integration component of Tinto's Model of Student Retention is very relevant for nursing students (Tinto, 1975). All of the respondents stated that their nursing faculty served as mentors to the nursing students. One of the programs, School 1, pre-assigned mentors to new nursing students

to help them acclimate and navigate in their new role as a nursing student and the learn the expectations of the nursing program. Assigning mentors to new students is significant and forward-thinking, because the highest attrition rate in nursing programs is generally in the first semester, followed by the second semester (Knauss & Willson, 2013). The other participating nursing programs allowed mentorship between the faculty and students to occur naturally. It was evident from all of the participants that mentoring aided in establishment of relationships and development of trust. The practice and genuine concern for the students' success corroborates a finding from a previous study that mentorship is impactful "by generating and publicizing resources for student learning, as well as creating policies and learning experiences that assist students in meeting their needs" (Freitas & Leonard, 2011, p. 12).

Community registered nurses' engagement.

Besides faculty members serving as mentors, School 6 employed retired nursing faculty and community RNs to aid in the facilitation of instruction part-time. Employing these RNs helped provide an opportunity for nursing students to form relationships with additional mentors. The retired nursing faculty brought years of wisdom, experience, and advice to share and pass along to the nursing students. The community RNs who helped tutor the students were actively working in the local health facilities and usually were younger nurses whom the nursing students could easily relate to and develop friendships with. Additionally, these RNs could provide encouragement that graduation and becoming an RN was attainable. Two of the other nursing programs, Schools 2 and 4, also used tutors in the form of "peer tutors," who were usually upper classmen who likewise served as mentors for the nursing students.

Student nurses' associations/organizations.

Two of the nursing schools had an active Student Nursing Association or Student Nurse Organization (SNA & SNO) in their programs. The nursing directors of Schools 1 and 6 stated that the presence of these clubs helped foster a sense of community and fellowship amongst the nursing students. Being a member of the nursing student association or organization also aided in establishing peer mentor relationships. Notably, having a student nurse association/organization for the students to join also nurtured a sense of belonging to a profession that is viewed by 82% of the American public as one of the most trustworthy professions and which has topped the annual Gallup poll for honesty and ethical standards for the past 16 years (AHA, 2018; McCarthy, 2018).

Significance of Reinforcement Strategies

Reinforcement for student retention.

The strategies for reinforcement of remedial strategies to increase student retention rates and students' first-time attempt scores on the NCLEX-RN® exam varied greatly between the different participating nursing programs. Some of the nursing programs were more rigid and structured in their implementation and reinforcement of remedial policies than others, while others were lenient and placed the ownership and responsibility on the student to seek out remedial help, highly recommending rather than requiring remediation for students.

A distinct difference was present between the nursing programs' strategies in place for student retention. Schools 1, 3, 5, and 6 had remediation strategies that mandated a student to attend some form of remediation review and provided a remediation assignment or plan of action as a result of a student's low performance on a

test and/or exam. All of these schools required students to attend some form of remediation if they had failed an exam, with the exception of School 1. School 1 appeared to be more proactive in the remedial strategies for student retention, requiring a student to attend mandatory remediation review if they scored below an 80% on a test and/or exam. Schools 3 and 5 used the "consequence of one's actions approach;" School 3's policy was that if a student failed to complete a remediation assignment, then the student did not receive the test grade associated with that assignment, and School 5's policy was that if a student failed to complete a remediation assignment, 10 points were subtracted from the test score associated with the remediation assignment.

The studies from the literature review indicated that students would not place value and credence on remediation strategies if they were not mandated (Barton, et al., 2014; Lauer & Yoho, 2013) and, in particular, tied to a grade, especially in the case of non-traditional working adult students. The participating nursing programs had a cumulative average of 31% of their student population classified as non-traditional students. The typical non-traditional student has family and additional work-related commitments and responsibilities while attending higher education. Previous studies have shown that remediation protocols and strategies are not valued by students if there are no consequences or mandatory requirements to complete remedial assignments (Lauer & Yoho, 2013). Identifying this, the participant for School 2, which at the time of data collection did not have mandatory remediation, mentioned the need and desire of her program to initiate mandatory remediation the following semester. Further, the participant from School 1, which already had mandatory remediation protocols, wanted to initiate making remediation assignments submitted for completion become part of the

student's grade. The nursing director of School 1 stated that, by tying the remediation assignment to a grade, she hoped that the students would put more effort and time into completing the assignments.

School 4's participant, who was the Success Coordinator for the nursing program, stated that attending her remedial workshops and classes was not required or mandatory for the nursing students. A student was only required to attend remedial sessions with her after the student had failed a nursing course and was readmitted into the nursing program, in attempt to be successful in the second attempt of the nursing course. It appears that there was a lack of communication between the nursing faculty and the Success Coordinator regarding how they could collaborate collectively in promoting student success. The Success Coordinator had implemented many great strategies to increase student success, but unfortunately, if students are not required to attend the remedial sessions and workshops, then the students who would most likely benefit from the extra remediation will most likely not attend, until it is too late and attendance is mandatory due to failing a course. At the time of this study's interview, students attended the additional remediation sessions due to the Success Coordinator self-promoting her services and by word of mouth from students who had previously attended and encouraged their nursing student friends to attend with them.

Reinforcement for first-time attempt NCLEX-RN® pass rates.

Unlike reinforcement strategies for student retention, all of the participants stated that their programs had reinforcement protocols in preparation for students' first-time attempt on the NCLEX-RN® exam. All of the schools used an exit NCLEX-RN® predictability exam, either the ATI Comprehensive Predictor Exam or the Elsevier HESI

E2 exam, for their soon-to-be graduating nursing students. All of the participants stated that the predictor exit exams were low-stakes exams and that their programs would not impede a student who earned a low score on one of the exams from graduating, as long as they met all of the other criteria necessary to graduate. This philosophy is reflective of the NLN Board of Governors' 2012 position statement discouraging the use of high-stakes exams.

Three of the schools used the ATI Comprehensive Predictors Exam and ATI review course starting in the beginning of the nursing students' last semester prior to graduation. The three schools each had a different reinforcement approach to the students' scores earned on the exit exam. School 3 appeared to not have any type of reinforcement or consequences attached to the student's performance on the exit exam, while School 2 used a reward system but had no consequences associated with the student's performance. School 5 held the student accountable, with consequences attached to a student's performance on the exit exam and remediation.

School 2's nursing director stated that they use the "carrot and not as a stick" method to motivate students to perform well on the ATI Comprehensive Predictor Exam 2 given at the end of the semester. School 2's nursing program's approach awarded students with extra points based on their performance on the exit exam. This point of view, with the desire to motivate students by rewarding them with extra points on the exit exam while not wanting to intimate them with negative consequences if they did not perform well, is understandable. Previous studies suggest in order to motivate a certain behavior – in this case, the students studying and preparing for the exit exam – there has to be both the "carrot" and the "stick" present. In some cases, the absence of an award is

not as effective as the threat of a punishment, and it is important for both elements to be present to motivate desired behavior (Andreoni et al., 2003; Eyal, 2008).

School 5's nursing program's approach to reinforcing a student's performance on the exit exam is a polar opposite of School 2's approach. School 5 had two consequences attached to the student's performance on the ATI Comprehensive Exam 2. First, the score the student earned was weighted as part of the final grade for the semester, and second, if the student did not complete all the remediation associated with the exam, the student received an "Incomplete" grade for the semester.

The other three participating schools, Schools 1, 4, and 6, used the HESI E2 exam. Similar to the schools using the ATI exit exams, each of the participating schools discussed different reinforcement strategies associated with preparation for the NCLEX-RN® first-time attempt and use of the HESI exams. The Success Coordinator for School 4 stated that the nursing program administered the HESI E2 exam, and the score earned on the HESI E2 was weighted towards the nursing student's final semester grade, but she was not sure how much it was weighted by or what was considered a passing score since she was not involved with the administration of the exam.

School 1's reinforcement of the HESI exams began with the HESI Mid-curricular exam, which was administered at the end of the first year of the nursing program, between the second and third semester. Students were highly recommended to complete the Elsevier remediation recommendations associated with the student's score earned on the mid-curricular exam, but it was a completion grade rather than being tied to a scored grade, and a remediation plan was developed based on the Silvestri NCLEX Prep book. Between semester three and semester four, students were required to remediate and

complete 250 NCLEX-style prep questions prior to the beginning of their last semester of the nursing program. The nursing director stressed that the HESI E2 exam is not a "gatekeeper" to determine if a student graduates or not; the students' exam results were not weighted or tied to their grades. The nursing director stated: "Some students, because they are already passing the course, do not put effort into this test and thus, it is not entirely predictive." As previously mentioned, studies have indicated that if there are rewards but no consequences or punishments involved with trying to motivate a desired behavior – in this case, the students studying and trying their best on the predictability exams – then it is very hard to do (Andreoni et al., 2003; Eyal, 2008).

School 5's approach to reinforce students' score on the HESI E2 exam impacted its entire nursing cohort. The first HESI E2 exam was given at the beginning of the semester, and based on the overall performance of the nursing cohort on the exam, a remediation plan was formulated for the cohort to complete during the last semester prior to graduation in preparation for the first-time attempt on the NCLEX-RN® exam. The second HESI E2 was administered during the final week prior to graduation. The score the student earned on the HESI E2 exam was weighted 30% toward one of the courses' final semester grade. The nursing director stated that the desired score on the HESI E2 second exam is 900 or better. According to the HESI E2 predictability, a score of 900 or above strongly indicates the student has a high probability of passing the NCLEX-RN® on the first-time attempt (Langford & Young, 2013).

Regardless of which exit exam the schools used to prepare and predict their nursing students' first-time attempt score on the NCLEX-RN® exam, previous studies have noted the significance of placing value and consequences on the students'

performance on these exams. A study examining HESI Exit Exam scores revealed that four standardized exam policy components had shown to lead to higher scores: "The significant policies were(a) a mandatory benchmark score, (b) required participation in a preparation plan, (c) re-testing requirement, and (d) required remediation if the benchmark score was not met" (Barton et al., 2014, p. 73). Additionally, the participating schools' use of standardized testing, along with established testing policies, corroborates previous studies that these implemented policies and strategies help increase NCLEX-RN® first-time pass rates in nursing programs (Schroeder, 2013).

Significance of Administration and Community Support

Administration support.

Two themes emerged, which were not reflected in previous studies through the literature review, as having a significant impact on student success: support the nursing programs received from their college's administration and support received from their local communities. As noted previously, the participants expressed some trepidation to discuss the support they felt their nursing programs received from the college administration. The participants' responses were mixed, from adamantly proclaiming having received full support from the college administration to a non-committal proclamation of support from the college administration.

As stated in Merriam-Webster's dictionary (Administration, n.d.), the definition and essence of administration is the activities involved in running an organization, such as a school. Individuals and different divisions and entities within organizations are dependent upon the decision-making and allocation of resources and funds the administration deem best for the overall good of an organization. Jim Riggs (2009)

noted: “The quality of academic environment, meaningfulness of services for students, and support for the faculty are all driven by dedicated individuals in mid-level leadership positions and not out of the president’s office.” In this study, these mid-level leadership positions would be the nursing directors who are at the ground level working with the nursing faculty and nursing students. One of the nursing directors stated that she felt her program did not get the support needed from the administration in the past until the NCLEX-RN® pass rates plummeted. Once that drop occurred and the possibility of the college not being able to continue offering a nursing program due to its low pass rates, then the administration started to provide the support needed and have ever since been very active and engaged with the nursing program.

Staffing. A common expressed need from two of the participants was the issue of staffing. One participant discussed that she was preparing a proposal for the next budget year requesting administrative assistance to help keep track of high-risk students. At the time of the interview, she served as a “one-man shop” in remediation of the nursing students, which made it difficult for her to track and meet the needs of all of the at-risk nursing students. The respondent stated that she anticipated difficulty getting more funds and convincing the administration of the need for more staffing while the nursing program’s NCLEX-RN® pass rates were above the state average. The respondent further clarified that, from her experience working at different schools in the past, it is usually not until a nursing program’s NCLEX-RN® pass rates drop that the administration will step up and provide the necessary administrative support and resources like additional staffing. Her opinion was corroborated by the other respondent’s reflection that her nursing program did not previously have the support it needed from the administration.

Notably, one of these respondents was one of the participants who initially adamantly proclaimed that they had support from the administration and a very good working relationship with the administration.

Influence on decision-making process. The administration not only impacts staffing and funding for resources; it also influences and impacts the other decision-making processes and actions for the nursing programs. The administration, at times, can be in a precarious spot in which they have to not only act on behalf of the employees of the organization but also on behalf of other stakeholders. One respondent mentioned that sometimes programs may be pressured or highly encouraged to either admit or pass a student who did not make the initial admission selection or meet the requirements necessary to pass a course in order to remain in the nursing program. As an example, to further explain this predicament, the respondent mentioned that, when a student who has either not been accepted into the nursing school and/or has not met the requirements to pass a nursing course and introduces the word "lawyer" into the conversation with the administration, the administration may request the nursing program to reconsider and/or re-evaluate the decision regarding that student's status.

Allocation of funds and resources. The administration's support in relation to allocation of funds and resources is extremely important for nursing programs to be able to deliver the instruction efficiently and continue to holistically meet the needs of their students. As noted previously in this paper and in previous studies, community colleges statistically have a higher number of enrolled "at-risk" students, who require additional resources and services to be successful in an academic setting (NCES, 2015). One-third of the participating nursing programs' students were identified as non-traditional

students. These students face additional stressors outside the classroom that could impact their student success. Significantly, the overall average for "at-risk" student indicators for the participating nursing programs was 45%. Almost half of the student population was identified, according to their college's reported demographics, as having risk factors that could impact their chance of being successful or not in the academic setting without additional remedial interventions available and implemented. Allocation of funds and services to these students is controlled and provided based on the decision-making processes and actions of the college administration.

Texas Higher Education Coordinating Board (THECB). Fortunately, the Texas Higher Education Coordinating Board (THECB) and its strategic plans, including *Closing the Gaps by 2015* and *60x30TX*, recognized the growing and changing demographics and academic and non-academic needs of today's Texan community college students. The community college administrations have been charged with acting as gatekeepers of the funds and grants available for their institution's students. The community college administration has the responsibility to not only be accountable for these funds, but also to be responsible for determining the allocation and disbursement of monies that serves the best interest of the college and all of the stakeholders as a whole. To meet the nursing students' needs and help them reach success, nursing programs need to have a working relationship and maintain communication with their administration to request funding and resources needed to best serve their students. Through the decision-making process and disbursement of funds by the college administration, nursing students may be the recipients of these funds and resources. One example of funding for these resources are the daycare centers aligned with the colleges, which offered free and/or

reduced fees, along with extended hours for daycare services for the students' children, so the students can attend clinical training at the hospitals. Another example of allocation of services and resources was the funding for tutors for students who need remedial instruction in order to be successful in the academic setting.

Local community support.

Alongside the impact college administration has on student success was the impact of the support local communities had shown and given the nursing programs to help their students to be successful. The community resources provided support and services to the nursing programs' students to help manage the stresses and demands of life outside the classroom that could impact a student's success. According to the respondents, as an example, some nursing students have received private funding to help pay for mechanical car repairs. The generous and kind act of providing funds for car repairs is significant in impacting a student's success, in particular for students who may live in a rural or suburban area in which there is no public transportation. Without the resource of a car to provide transportation to and from school, a student is placed at an increased risk of failing out of school. Further, with the issue of not having transportation to go back and forth to work, a student does not have the means to earn the financial funds necessary to continue attending school. The support from the community contributed to student success and assisted in the common goals of increasing student retention rates and increasing first-time attempt scores on the NCLEX-RN® exam.

Limitations

Response rate.

There were several noted limitations of this study. The first limitation was the

small number of participating nursing program designees and having no participants representing the western region (El Paso) or the Rio Grande Valley, commonly called "The Valley" (Brownsville and McAllen), region of Texas (Figure 26). A total of 44 ADN programs were identified to meet the criteria to participate in the study. Initially, the researcher was hopeful that at least 20% of the eligible nursing programs would participate, which would have provided approximately eight to nine designees from the invited identified nursing programs whom met the inclusion criteria.

The 20% response rate initially appeared to be feasible when nine respondents emailed back with interest in participating. However, the total number of participating respondents was six, representing a 14% response rate. Unfortunately, lack of participants has been a reoccurring theme in nursing education research. One article focused on the difficulty of recruiting and retaining nurse educators as participants for nursing research. It attributed the low response rate from nurse educators to participate in nursing research to several reasons. Some of the factors influencing a low response rate could range from email invitations going into spam email accounts, limited available time for nurse educators to participate, nurse educators' reluctance to participate due to potential institutional repercussions, and lack of a sense of empowerment and job satisfaction that could discourage participants (Raymond, Profetto-McGrath, Myrick, & Strean, 2018).

Texan regions of participating and non-participating school participants. The lack of participants from the western region and the Rio Grande Valley region can be considered a significant limitation to the study because of the unique demographics for these regions and the higher percentage of student population identified as having "at-

risk" factors and these factors' impact on student success. Both of these regions are located along the United States and Mexico border. The majority population in the Valley is Hispanic, and according to the Texas Association of Community Colleges, the student population enrolled in the community colleges for the region is reported to range from 95% to 97% (TACC, 2018). According to the U.S. Census Bureau, a majority of the households in these regions are predominantly Spanish-speaking, a large number of the population are migrant workers, and the population living below the poverty line for this region ranges from 26% to 33% (U.S. Census Bureau, 2017). Similar to the Valley region, El Paso's population, according to the U.S. Census Bureau (2017), is 87% Hispanic. El Paso's population's economic status fares somewhat better than the Valley's, where 21% of the population is reported to be living below the poverty line. In the U.S. News and World Report on Community Colleges (2018), students receiving financial aid was not specifically listed for each of the non-participating schools, but the report stated that 65% of students received grant money and/or scholarships to fund their education. Non-participating colleges for the Valley region and western region of Texas, along the U.S.-Mexico border, are noted in Figure 25 as the red boxes numbered 7 through 10.

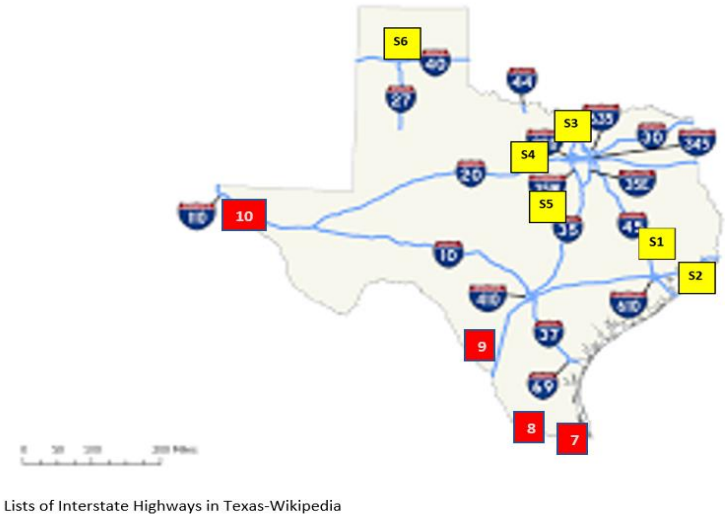


Figure 25. Geographical areas' participating & non-participating nursing school programs
(Adapted from List of Interstate Highways in Texas, n.d. and TACC, n.d.)

Questionable influence of the recorded telephone interviews.

The telephone interviews were recorded to increase accuracy of the transcription and analysis for the emerging themes of the interviews. An additional three participants had expressed an interest in participating in the telephone interviews, but did not end up participating. Without any data to corroborate the claim, it cannot be assumed that their lack of participation was because their conversation was to be recorded, however, an article noted that the use of audio or video recording can make participants less willing to divulge and talk openly and freely about educational practices implemented at their place of employment (al-Yateem, 2012).

Limited knowledge of some of the respondents.

Another limitation noted was the limited knowledge of some of the participating schools' respondents regarding the policies and remedial strategies in place and implemented for the nursing cohort who took the first-time attempt of the 2017 NCLEX-

RN® exam. One of the respondents stated that she had joined the staff just eighteen months prior to the interview and had limited exposure to the nursing cohort who took the 2017 NCLEX-RN® exam. She further explained that the nursing program had a large staff turnover rate and that she was not sure which policies and remedial strategies were in place prior to her arrival to the nursing school.

Self-reported data by participants.

Another limitation was that the remedial strategies and policies were self-reported by the respondents, leaving results to potentially be subject to bias and underreporting or overreporting of which strategies were implemented in the participants' nursing programs. Additionally, the researcher did not have copies of the nursing programs' documents listing the remediation policies and strategies. Notably, when the participants were initially asked if their nursing program had a remediation program, with the exception of the Success Coordinator, each of the participants stated that their program did not have a remediation program in place. This indicates that the participants, when initially asked about remediation programs, associated the program(s) as formalized entities separate from the nursing program rather than as a remedial strategy or policy the nursing school itself had in place to increase student retention and first-time attempt NCLEX-RN® pass rates.

Significance of the Study

Impact on nursing shortage.

This study aimed to gain a better understanding and provide insight on which remediation strategies and policies appear to increase student retention rates and first-time pass rates on the NCLEX-RN® exam. According to a HRSA report (2017), several

states across the United States are experiencing a nursing shortage, and it is predicted to get worse as our nation's population ages. The impetus of an aging population increases the need for more RNs to provide care for that population. As individuals become older, their health begins to decline, and they thus require more healthcare intervention; this care is usually delivered by RNs. Compounding this gloomy outlook and urgency to remediate this scenario is the fact that a large number of working RNs (approximately 55%) are over the age of 50 and will be retiring from the workforce over the next 10 to 15 years (NCSBN®, 2013).

Increase of enrollment numbers and diversity of student population.

To add to the significance of the importance of effective remedial strategies and policies to increase student retention rates and first-time attempt pass rates on the NCLEX-RN® exam, nursing programs have been charged to increase the enrollment of students into their programs and increase the diversity of their student nursing population. The participating schools were Texan nursing schools and were reflective of the growing diversity of our nation's population. The participants were designees of two-year ADN programs taught in the community college setting. It has been noted that students attending community colleges have statistically been identified as students with more factors placing the student at increased risk of not being successful in the academic setting (THECB, 2008). Therefore, it is imperative that student support services and remedial policies and strategies be in place to help these students to achieve success (Bednarz et al., 2010; Choy, 2002; Harris, Rosenberg, & O'Rourke, 2014). The remedial strategies and policies the participating nursing programs have implemented appear to be successful in promoting student success.

Implications for Practice

Academic and non-academic remediation.

The remedial strategies and policies described and shared by the participating respondents should provide other nursing programs and educational programs in other disciplines with additional tools and ideas to help better remediate their students. The common thread interwoven throughout this study was the identification and implementation of remediation strategies that not only provided remedial strategies in the area of academics, but provided remedial strategies for non-academic stressors that could impact a student's ability to be successful. The importance of remediating nursing students to be successful is more evident and more important today in order to produce more RNs to continue providing skilled nursing care to the American public. It is especially imperative for our nation's well-being to retain and prepare more nursing students to be successful, as our nation's population is aging, which increases the need for more RNs at the bedside to maintain the quality of healthcare delivery and decrease the mortality and morbidity rates of patients (Needleman et al., 2011; Tubbs et al., 2013).

Increase recruitment and enticement of master-prepared nurses.

Additionally, the significance of the role and impact college administration has in student success by providing the funds and resources for the remediation of students was noted. Moreover, administration has a significant role in influencing the number of available slots for nursing students to enroll, as the limited number of available nursing school spots for fully qualified students is listed as one of the factors producing the nursing shortage (Rossetter, 2017). The participating nursing programs in this study experienced this predicament, as evidenced by having to deny admission to 876 qualified

applicants. More than half of qualified applicants, 54%, if given the chance to attend one of the nursing programs, could have been successful and helped fill the void of the nursing shortage. Collectively, college administrators and the Texas Higher Education Coordinating Board need to develop a strategic plan to create more available nursing student slots and realistically take into consideration that one of the reasons for lack of available slots in the nursing programs is not because of space in college facilities, but due to a lack of master-prepared or higher nursing faculty who are qualified to teach in an ADN program. Realistically, administrators, in their strategic planning to remediate the limited number of nursing student slots, need to consider that the lack of available nursing faculty is not due to the limited quantity of master-prepared or higher nurses, but is instead due to the fact that the salary of a nursing faculty is generally significantly lower than their peers working in the health field, industry, or business.

Change of perspective by the leaders of nursing education and boards of nursing.

Furthermore, the leaders of nursing education and the NCSBN may want to consider advocating for increasing programs' capped nursing student enrollment numbers, while at the same time encouraging nursing programs to admit more students whose GPAs and admission assessment scores may not be as high as the students whom they do select into their programs. The schools that had a commendable high pass rate of 100% and 95% on the NCLEX-RN® exam also had the lowest acceptance rate for admission into their programs, with the exception of School 6. The NCSBN and state Boards of Nursing highly encourage schools to aim for a first-time attempt pass rate on the NCLEX-RN® exam above 90%, and these entities recognized these schools for

commendable pass rates. Recognition for high pass rates may discourage some nursing schools and college administrations from increasing capped nursing student enrollment numbers due to the fact that, if more students are admitted, then their commendable pass rates may be at-risk of dropping to below 90%.

Based on the NCSBN deeming an 80% pass rate for the NCLEX-RN® as an acceptable reflection of a nursing school's performance in preparing students to become safe practicing nurses and preparing them to earn a passing score on the NCLEX-RN®, nursing education leaders and college administrators may want to consider changing their practice of commending and recognizing only the nursing programs who achieve high pass rates. The leaders may want to consider adding to their practice of commendations, perhaps placing more emphasis on recognizing the programs who admit and produce the most students to become RNs, making them eligible to enter the workforce and thus decreasing the nursing shortage and placing more RNs at patients' bedsides. This controversial perspective is best demonstrated by Figure 22, which visually demonstrates that Schools 3, 5, and 6 had an average admission acceptance rate of 80% and, taking into consideration their overall average retention rate of 85% and pass rates of 87%, produced an average of 5.9 RNs to enter the workforce. Meanwhile, Schools 1, 2, and 4 had an average acceptance rate of 49% and, taking into consideration their overall average retention rate of 80% and pass rate of 93%, produced 3.6 RNs to enter the workforce.

Recommendations for Future Research

A few future research studies are recommended based on the findings of this study. A future study is needed in ADN and BSN pre-licensure nursing programs in the form of an analysis comparison of block-based versus integrated curriculum, using

archival data from the past five years of NCLEX-RN® pass rates and student retention rates. It would be interesting to compare the policies and strategies implemented with additional analysis of the findings' impact in comparison to identified at-risk student factors and admission rates included in the study for comparison between the two different modes of curriculum. Another recommendation would be to conduct similar research comparing block-based versus integrated curricula, but also including the relatively new delivery mode of nursing education, termed "concept-based," as part of the comparison. Additionally, another recommended future study should follow up on Schools 1, 2, and 4's NCLEX-RN® pass rates and student retention rates, because the participants from each nursing program mentioned that the delivery of curriculum and remediation strategies for future nursing cohorts were scheduled to change from what was in place for the cohorts who took the 2017 NCLEX-RN® exam.

Conclusion

The achievement of student success was praiseworthy, especially when the odds were against the students enrolled in the participating nursing programs, with an overall average of 45% of their student population identified as students at-risk for failing. These nursing programs demonstrated student success by maintaining an average student retention rate of 82.5% and a first-time attempt pass rate of 90.5% on the NCLEX-RN® exam. Contributing to the student success was the nurse educators' holistic approach in implementing remedial strategies and policies, along with the collaborative partnership between the schools of nursing, college administration, and local community members to provide the skills, knowledge, tools, resources, and mentorship in promoting a sense of unity and the common goal of success and triumph for the students and all stakeholders.

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Appendix A

Interview Questions

Each of the participating respondents were asked the same three pre-determined questions in the order presented. Additional probe questions were asked as deemed appropriate in response to the participant's responses, using the participant's terminology for clarification and in effort not to sway the participant's response.

A1

Interview Questions

Researcher Name:
Mode of communication:
Participant name:
Institution/department/job title:
Date:
Start time: End time:

1. Please describe the remediation policies and/or strategies your program uses to increase your student retention rates?
2. Please describe the remediation policies and/or strategies your program uses to increase your students first-time attempt NCLEX-RN® pass rates?
3. Does your program use an "Exit" predictability exam *(if "YES")* and please describe the consequences related to the result of the score the student earns on it?

   ---------- *(question 1 - 3 required to be asked)* ---------- *(questions 3-10, if time permits) Note. Question 10 was asked of each participant prior to ending the interview questions.*

4. *If not mentioned* in response to question 1-2; Does your nursing program use criteria to identify "at-risk" students? If answers "YES", please describe what criteria does your program use?
5. *If not mentioned* in response to question 1-2; Are your remediation strategies mandatory or highly recommended?
6. Do you feel your program has been given the support and resources from administration to provide effective remediation for your students to be successful?

(Demographic information)

7. What is your program's curriculum design? Block-based, Integrated-based, Concept-based
8. How many full-time nursing faculty members are part of your nursing program?
9. How many adjunct faculty members are part of your nursing program?
10. Is there anything else, you would like to add in reference to your remediation program's strategies and policies or your nursing program?

Appendix B

Letter of Introduction to the Study

B1 Letter of Introduction

Katherine T. Ralph RN, MSN
Doctorate Student
College of Education
University of Houston

Good day, my name is Katherine Ralph,

I am a doctoral student at the University of Houston, enrolled in the Doctorate of Executive Leadership with an Emphasis in Health Science Education program. I am conducting a study in the remediation policies and strategies in nursing schools designed to increase student retention rates and first-time attempt NCLEX-RN® exam pass rates. I believe a quality nursing remediation program leads to successful learning as evidenced by first-time attempt NCLEX-RN® exam pass rates and student retention.

I am conducting telephone interviews with nursing program's directors and/or designee to gather information regarding the policies and strategies implemented in their nursing school's remediation programs. The goal of this study is to investigate which policies and strategies are being implemented by nursing programs to increase the first-time attempt NCLEX-RN® exam pass rates and student retention and to identify a commonality of interventions that are being done.

I value your knowledge and expertise as a nurse educator and I am inviting you and/or a designee of your program who is knowledgeable the policies and strategies used in your nursing school's remediation program to participate in this study. The interview will be by telephone and should last between 15-30 minutes in length. Your identity and institution's identity will remain confidential. More information about this study is included in the consent form attached.

If you or an appointed designee is interested in participating in the study, please provide three days with times, along with a contact name and a preferred telephone number to conduct an interview that is convenient for you. Weekends and evening hours are included, along with the normal business hours and days of the week. Please choose days and times most convenient for you to participate in a telephone interview.

Please signed the attached consent form, attached to your email response to participate in this study. I will reply back with a date and time to conduct the interview.

The last day to participate in this study will be ***21 Sep 2018***.

"This research study has been reviewed by the University of Houston Institutional Review Board".

Thank-you for your time and your participation in this study, it is greatly appreciated.

Regards, Katherine T. Ralph

Appendix C

Participating Nursing Programs Retention Rates/NCLEX-RN® Pass Rates/Acceptance Rates

The retention rates were determined based on the data reported on the Texas Board of Nursing "2016" Enrollment, Graduation, and Admissions Professional Nursing Programs – Pre-RN Licensure Student Admissions for Academic Year 2015-2016- Registered and Enroll number of students for each nursing program. The first-time attempt "2017" NCLEX-RN® exam pass rates were determined by the number of students reported taking first-time attempt on the NCLEX-RN® and the number of students reported on the state of Texas BON website passing for each of the participating nursing programs.

Table B1

Participating Nursing Programs Retention Rates/Pass Rates/Acceptance Rates

CODE	SCHOOL-	RETENTION RATE	Took board	NCLEX-RN PASS RATE	ACCEPTANCE RATE	OFFERED	Qualified Applicants/capped enrollment	ENROLLED
S1	School 1	84	52	100	18	65	[365/70]	62
S2	School 2	70	63	95	43	123	[284/90]	90
S3	School 3	86	88	84	89	107	[120/108]	102
AVERAGE	Integrated Curriculum	80	203	93	49	98	[256/89] 35%	85
S4	School 4	100	270	88	42	279	[663/280]	270
S5	School 5	86	12	83	100	14	[14/20]	14
S6	School 6	69	117	92	99	170	[170/179]	169
AVERAGE	Block-based Curriculum	85	399	87	80	163	[291/160] 55%	151
	Overall average for all	83	100	91	65	126	[1616/747] 46%	118
				* rounded to nearest whole number	* rounded to nearest whole number			

Appendix D

Instructions on the Format and How the Interview was to be Conducted

Prior to asking the questions for the study, introductions were made to each of the participants and permission to record the participant's interview and use of the data gather from the interview was asked and granted to be used in future publications and/or presentations.

D1 Instructions _____

Thank-you for giving me this opportunity to interview you. I appreciate your time and expertise. There are no right or wrong answers to my questions. There are three pre-determined questions asked of all participants based to answer the two research questions. If you feel you need any clarification or have questions during this interview or want to stop and/or add additional information please feel free to do so. In approximately 5-10 days upon completion of this interview I will email you an attachment of a transcription of the highlights of this interview for you to review and revise and/or add to any other additional information you would like to add. If the transcribed recorded interview meets your approval and you wish not to revise and/or add any additional information, you do not need to reply to the emailed attachment and no reply or response received from by the noted date in the email will imply you agree to the transcription. You may stop this interview whenever you please if you desire to. Do you have any questions before we start?

Appendix E

Letter in Reference to the Transcription of the Interview

An email was sent to the participant approximately 5-10 days upon completion of the interview. The email had an attachment of a transcription of the highlights of the participant's interview to review and revise and/or add to any other additional information.

E1 Letter in reference to transcription of the telephone interview

Greetings (Respondent),

Thank-you very much for participating in the interview for my research project. Your time and professional experience and expertise is greatly appreciated.

Attached is the transcription of the recorded interview. Please review and let me know if you have any questions and/or want to make clarifications or add additional information. Please respond within one week, (DATE) if you want to add additional information and/or clarify, change some of your responses. It will be implied if a response is not received by (DATE), the transcription of the recorded interview meets your approval and acceptance of the transcription of the interview.

Regards,

Katherine Ralph

Appendix F

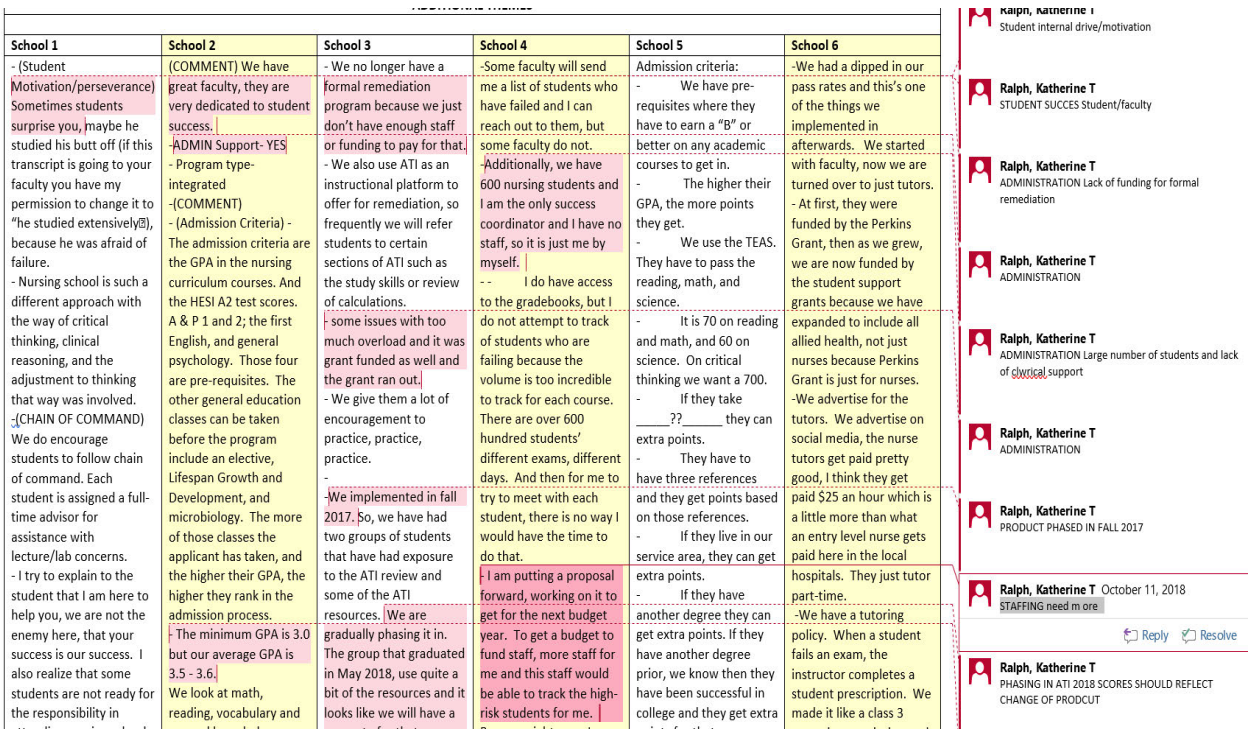
Coding Template

The coding template was created in which each of the participating schools were aligned in columns with their copied and pasted responses in their perspective columns. The review and analysis of the responses of the participants went through a series rounds to look for emerged themes. The emerged themes were reflective of the identified independent constructs form the literature review and the non-identified theme of Administration Support which was initially listed under additional comments. The final round consisted of the copied and pasted participant's responses in relationship to answering the two research questions.

F1 Initial Coding Template of the Participants' Responses

School 1	School 2	School 3	School 4	School 5	School 6
- (Student Motivation/perseverance) Sometimes students surprise you, maybe he studied his butt off (if this transcript is going to your faculty you have my permission to change it to "he studied extensively"), because he was afraid of failure. - Nursing school is such a different approach with the way of critical thinking, clinical reasoning, and the adjustment to thinking that way was involved. -(CHAIN OF COMMAND) We do encourage students to follow chain of command. Each student is assigned a full-time advisor for assistance with lecture/lab concerns. - I try to explain to the student that I am here to help you, we are not the enemy here, that your success is our success. I also realize that some students are not ready for the responsibility in attending nursing school	(COMMENT) We have great faculty, they are very dedicated to student success. -ADMIN Support- YES - Program type- integrated -(COMMENT) - (Admission Criteria) - The admission criteria are the GPA in the nursing curriculum courses. And the HESI A2 test scores. A & P 1 and 2; the first English, and general psychology. Those four are pre-requisites. The other general education classes can be taken before the program include an elective, Lifespan Growth and Development, and microbiology. The more of those classes the applicant has taken, and the higher their GPA, the higher they rank in the admission process. - The minimum GPA is 3.0 but our average GPA is 3.5 - 3.6. We look at math, reading, vocabulary and general knowledge	- We no longer have a formal remediation program because we just don't have enough staff or funding to pay for that. - We also use ATI as an instructional platform to offer for remediation, so frequently we will refer students to certain sections of ATI such as the study skills or review of calculations. - some issues with too much overload and it was grant funded as well and the grant ran out. - We give them a lot of encouragement to practice, practice, practice. - -We implemented in fall 2017. So, we have had two groups of students that have had exposure to the ATI review and some of the ATI resources. We are gradually phasing it in. The group that graduated in May 2018, use quite a bit of the resources and it looks like we will have a pass rate for that group	-Some faculty will send me a list of students who have failed and I can reach out to them, but some faculty do not. -Additionally, we have 600 nursing students and I am the only success coordinator and I have no staff, so it is just me by myself. - - I do have access to the gradebooks, but I do not attempt to track of students who are failing because the volume is too incredible to track for each course. There are over 600 hundred students' different exams, different days. And then for me to try to meet with each student, there is no way I would have the time to do that. - I am putting a proposal forward, working on it to get for the next budget year. To get a budget to fund staff, more staff for me and this staff would be able to track the high-risk students for me. Because right now, I	Admission criteria: - We have pre-requisites where they have to earn a "B" or better on any academic courses to get in. - The higher their GPA, the more points they get. - We use the TEAS. They have to pass the reading, math, and science. - It is 70 on reading and math, and 60 on science. On critical thinking we want a 700. - If they take _____??_____ they can extra points. - They have to have three references and they get points based on those references. - If they live in our service area, they can get extra points. - If they have another degree they can get extra points. If they have another degree prior, we know then they have been successful in college and they get extra points for that	-We had a dipped in our pass rates and this's one of the things we implemented in afterwards. We started with faculty, now we are turned over to just tutors. - At first, they were funded by the Perkins Grant, then as we grew, we are now funded by the student support grants because we have expanded to include all allied health, not just nurses because Perkins Grant is just for nurses. -We advertise for the tutors. We advertise on social media, the nurse tutors get paid pretty good, I think they get paid $25 an hour which is a little more than what an entry level nurse gets paid here in the local hospitals. They just tutor part-time. -We have a tutoring policy. When a student fails an exam, the instructor completes a student prescription. We made it like a class 3 narcotic prescription pad

F2 Block-Template Coding Participants' Responses



School 1	School 2	School 3	School 4	School 5	School 6
- (Student Motivation/perseverance) Sometimes students surprise you, maybe he studied his butt off (if this transcript is going to your faculty you have my permission to change it to "he studied extensively"), because he was afraid of failure. - Nursing school is such a different approach with the way of critical thinking, clinical reasoning, and the adjustment to thinking that way was involved. -(CHAIN OF COMMAND) We do encourage students to follow chain of command. Each student is assigned a full-time advisor for assistance with lecture/lab concerns. - I try to explain to the student that I am here to help you, we are not the enemy here, that your success is our success. I also realize that some students are not ready for the responsibility in	(COMMENT) We have great faculty, they are very dedicated to student success. -ADMIN Support- YES - Program type- integrated -(COMMENT) - (Admission Criteria) - The admission criteria are the GPA in the nursing curriculum courses. And the HESI A2 test scores. A & P 1 and 2; the first English, and general psychology. Those four are pre-requisites. The other general education classes can be taken before the program include an elective, Lifespan Growth and Development, and microbiology. The more of those classes the applicant has taken, and the higher their GPA, the higher they rank in the admission process. - The minimum GPA is 3.0 but our average GPA is 3.5 - 3.6. We look at math, reading, vocabulary and	- We no longer have a formal remediation program because we just don't have enough staff or funding to pay for that. - We also use ATI as an instructional platform to offer for remediation, so frequently we will refer students to certain sections of ATI such as the study skills or review of calculations. - some issues with too much overload and it was grant funded as well and the grant ran out. - We give them a lot of encouragement to practice, practice, practice. - -We implemented in fall 2017. So, we have had two groups of students that have had exposure to the ATI review and some of the ATI resources. We are gradually phasing it in. The group that graduated in May 2018, use quite a bit of the resources and it looks like we will have a	-Some faculty will send me a list of students who have failed and I can reach out to them, but some faculty do not. -Additionally, we have 600 nursing students and I am the only success coordinator and I have no staff, so it is just me by myself. - - I do have access to the gradebooks, but I do not attempt to track of students who are failing because the volume is too incredible to track for each course. There are over 600 hundred students' different exams, different days. And then for me to try to meet with each student, there is no way I would have the time to do that. - I am putting a proposal forward, working on it to get for the next budget year. To get a budget to fund staff, more staff for me and this staff would be able to track the high-risk students for me.	Admission criteria: - We have pre-requisites where they have to earn a "B" or better on any academic courses to get in. - The higher their GPA, the more points they get. - We use the TEAS. They have to pass the reading, math, and science. - It is 70 on reading and math, and 60 on science. On critical thinking we want a 700. - If they take _____??_____ they can extra points. - They have to have three references and they get points based on those references. - If they live in our service area, they can get extra points. - If they have another degree they can get extra points. If they have another degree prior, we know then they have been successful in college and they get extra	-We had a dipped in our pass rates and this's one of the things we implemented in afterwards. We started with faculty, now we are turned over to just tutors. - At first, they were funded by the Perkins Grant, then as we grew, we are now funded by the student support grants because we have expanded to include all allied health, not just nurses because Perkins Grant is just for nurses. -We advertise for the tutors. We advertise on social media, the nurse tutors get paid pretty good, I think they get paid $25 an hour which is a little more than what an entry level nurse gets paid here in the local hospitals. They just tutor part-time. -We have a tutoring policy. When a student fails an exam, the instructor completes a student prescription. We made it like a class 3

Ralph, Katherine T
Student internal drive/motivation

Ralph, Katherine T
STUDENT SUCCES Student/faculty

Ralph, Katherine T
ADMINISTRATION Lack of funding for formal remediation

Ralph, Katherine T
ADMINISTRATION

Ralph, Katherine T
ADMINISTRATION Large number of students and lack of clwrical support

Ralph, Katherine T
ADMINISTRATION

Ralph, Katherine T
PRODUCT PHASED IN FALL 2017

Ralph, Katherine T October 11, 2018
STAFFING need m ore

Reply Resolve

Ralph, Katherine T
PHASING IN ATI 2018 SCORES SHOULD REFLECT CHANGE OF PRODCUT

F3 Participants' Responses Aligned According to Emerged Themes in Reference to Research Question 1

	ID'd student at-risk	Teaching	Mentoring	Reinforcement	Other
Retention Policies and Strategies	**ID'd student at-risk**	**Teaching**	**Mentoring**	**Reinforcement**	**Other**
S1	-Students tracked by assigned faculty -Test score drops 80%; need to meet with assigned faculty -weak student, passed all the way through with a 75% - work issues, sometimes work and family life interferes with school - He was Filipino -I looked at where the student's grades are at and other factors that impede their success (family responsibilities, work issues, etc.) - There are four to five college-based counselors on campus that students can go to evaluation for learning disabilities. One of the counselors just happens to housed in our nursing office suite, so she is very well versed of the nursing program expectations. - The first test is a good indication of where they are going. With the students who score below 80% on	- Review worksheet after each exam; why they missed the question, whether they just didn't know the answer, change the answer, didn't have the correct rationale. - Elsevier adaptive quizzing and make post test assignments centered around the type of content that they missed - She is classified as faculty but she is fully devoted to doing Sim. She will bring in clinical groups during the week, in groups of (10). They are split into (5). While one group is actually participating in the simulation exercise, the other group is observing and then they switch. - If they are struggling in lecture, the advisor and the student reviews one-on-one the student's test/exam together. - learning contract and it outlines the necessary	--3 fulltime faculty divided up between first year students can go to for help and guidance. -Students are divided up amongst the fulltime faculty to monitor student's academic progress, advising, and counsel as needed in both levels. - The faculty to student ratio is about 12-15 students to 1 faculty for advising. - student nursing organizations - I do know the faculty work very closely with all students. You know sometimes the relationship you have with them allows you to say "Look dude you got to bring this up". - We have a nursing student organization and it usually meets once a month. Designed to promote camaraderie, between the levels. In	- HESI scores were consistent to what he did in the program. -If they score below an 80%, the student has to go see their advisor. - If the student does not go see the advisor, they get a "Critical Incident" written up for not going to their advisor to review their exam with them. We as faculty not going to seek the student out if they scored below 80%, and the student has to come to us. - During that one-on-one meeting with the advisor, we do what we call "Learning Contracts" that gives a prescription to help the student to be successful. - Critical incidents do not cause a student to fail – passing a course is based on performance; they provide the documentation that the student was informed and what faculty did to help them -With a "Critical Incident" I	- (Student Motivation/perseverance) Sometimes students surprise you, maybe he studied his butt off (if this transcript is going to your faculty you have my permission to change it to "he studied extensively"), because he was afraid of failure. - Nursing school is such a different approach with the way of critical thinking, clinical reasoning, and the adjustment to thinking that way was involved. -(CHAIN OF COMMAND) We do encourage students to follow chain of command. Each student is assigned a full-time advisor for assistance with lecture/lab concerns. - I try to explain to the student that I am here to help you, we are not the enemy here, that your success is our success. I also realize that some students are not ready for

F4 Participants' Responses Aligned According to Emerged Themes in Reference to Research Question 2

NCLEX Pass rates Policies and Strategies	ID'd student at-risk	Teaching	Mentoring	Reinforcement	Other
S6		-Then at the very end of the program, and this is a course I teach, "Professional Nursing Leadership and Management". They also have a NCLEX Community they sign up for, it does not cost them anything. It is a way to communicate to our potential graduates, to all of our level 4 nursing students. - - In that NCLEX Prep, we do the HESI Exit exam, we call it our "Capstone Exit". We do that on week 2, of the last semester. From that week 2, we build a cohort report based on the results of the HESI Exit 1 exam. We build a cohort remediation plan using adaptive quizzing. For every week, they have three what we call AEQ quizzes that are due. If they make 75% or greater on the second one, they don't have to take the		Professional Nursing. Professional Nursing doesn't have a comprehensive final, so that capstone course has the HESI Exit 2 exam tied into it and they take it again , it is 30% of their grade - -In general, those who score 900, but we do have some students who score below 900 and still manage to pass. Where I generally really worry about students not passing are those students who score in the 600's-700's. That is just me looking at the results and comparing them against the NCLEX results on who passes and who didn't. The students who scored low on the Exit exams are usually the students who have been struggling in class all along the program. So, in the Professional Nursing Course that is where we try	-We use Evolve. Elsevier products. We use A2 to admit them. That is the very first thing we do. -We make sure that their reading and language comprehension is at the level to read and understand our textbooks. -We use the math too, but math is not a problem for us. Language and grammar are more of a problem for us. - We use 80%. -We don't use any of the sciences because we don't use any of as pre-reqs because they can take A & P anywhere and we wouldn't know it. So, we use just use the language, English and math. - -In general, those who score 900, but we do have some students who score below 900 and still manage to pass. Where I generally really worry about students not passing are those students who score in the

Appendix G

Institutional Research Board Approval Letter

UNIVERSITY of HOUSTON

DIVISION OF RESEARCH
Institutional Review Boards

APPROVAL OF SUBMISSION

August 30, 2018

Katherine Ralph

Dear Katherine Ralph:

On August 29, 2018, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	QUALITY REMEDIATION PROGRAMS LEADS TO SUCCESSFUL LEARNING
Investigator:	Katherine Ralph
IRB ID:	STUDY00001172
Funding/ Proposed Funding:	Name: Unfunded
Award ID:	
Award Title:	
IND, IDE, or HDE:	None
Documents Reviewed:	• revised K.Ralph's Letter of Introduction, Category: Recruitment Materials; • revised K.Ralph's HRP-503- Template -Protocol, Category: IRB Protocol; • revised K.Ralph's Informed Consent, Category: Consent Form; • K.Ralph interview questions, Category: Other;
Review Category:	Expedited
Committee Name:	Not Applicable
IRB Coordinator:	Danielle Griffin

The IRB approved the study from August 30, 2018 to August 29, 2019, inclusive.

To ensure continuous approval for studies with a review category of "Committee Review" in the above table, you must submit a continuing review with required explanations by the deadline for the July 2019 meeting. These deadlines may be found on the compliance website (http://www.uh.edu/research/compliance/). You can submit a continuing review by navigating to the active study and clicking "Create Modification/CR."

UNIVERSITY of HOUSTON

DIVISION OF RESEARCH
Institutional Review Boards

For expedited and exempt studies, a continuing review should be submitted no later than 30 days prior to study closure.

If continuing review approval is not granted on or before August 29, 2019, approval of this study expires and all research (including but not limited to recruitment, consent, study procedures, and analysis of identifiable data) must stop. If the study expires and you believe the welfare of the subjects to be at risk if research procedures are discontinued, please contact the IRB office immediately.

Unless a waiver has been granted by the IRB, use the stamped consent form approved by the IRB to document consent. The approved version may be downloaded from the documents tab.Attached are stamped approved consent documents. Use copies of these documents to document consent.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

If your study meets the NIH or FDA definitions of clinical trial, or may be published in an ICMJE journal, registration at ClinicalTrials.gov is required. See the UH ClinicalTrials.gov webpage for guidance and instructions.

Sincerely,

Research Integrity and Oversight (RIO) Office
University of Houston, Division of Research
713 743 9204
cphs@central.uh.edu
http://www.uh.edu/research/compliance/irb-cphs/