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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

EXPLORING THE RELATIONSHIP AMONG CLINICAL JUDGMENT, ACADEMIC RESILIENCY, STUDENT PREDICTORS, AND EXAM REMEDIATION IN PRELICENSURE NURSING STUDENTS PREPARING FOR NEXT GENERATION NATIONAL COUNCIL LICENSURE EXAMINATION [FOR] REGISTERED NURSES

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

James Franklin Oberlander

College of Natural and Health Sciences
School of Nursing
Nursing Education

December 2023

This Dissertation by: James Franklin Oberlander

Entitled: *Exploring the Relationship Among Clinical Judgment, Academic Resiliency, Student Predictors, and Exam Remediation in Prelicensure Nursing Students Preparing for Next Generation National Council Licensure Examination [for] Registered Nurses*

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in the College of Natural and Health Sciences in the School of Nursing, Nursing Education Program.

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ABSTRACT

Oberlander, James Franklin. *Exploring the Relationship Among Clinical Judgment, Academic Resiliency, Student Predictors, and Exam Remediation in Prelicensure Nursing Students Preparing for Next Generation National Council Licensure Examination [for] Registered Nurses.* Published Doctor of Philosophy dissertation, University of Northern Colorado, 2023.

As the field of nursing becomes increasingly more complex, nursing students are psychologically challenged as they progress through a program of study, prepare for the licensure examination, and enter professional practice. Identifying factors that influence student outcomes is necessary for faculty to effectively guide students toward successful completion of nursing school and passing the National Council Licensure Exam for Registered Nurses (NCLEX-RN). Along with academic and nonacademic demographic variables, the main objective of this exploratory, quantitative research study was to investigate the relationship between clinical judgement, academic resiliency, exam remediation, and NCLEX-RN first attempt pass rates.

One hundred six senior, prelicensure, baccalaureate nursing students from a midsize Midwestern public university in the United States participated in this study by completing multiple surveys in April of 2023. The surveys included an academic and nonacademic demographic survey, the 10-item Connor-Davidson Resiliency Scale (CD-RISC-10), and the 11-item Lasater Clinical Judgment Rubric (LCJR). Both the CD-RISC-10 and the LCJR were assessed for construct validity through expert review and reliability through the Cronbach's alpha. Five content experts found the two instruments to have strong item and scale construct

validity. The Cronbach's alpha for the pre-CD-RISC-10 was 0.856 and for the post-CD-RISC-10, it was 0.796. While the deletion of Item 3 slightly increased the Cronbach's alpha, no adjustments were permitted by the author of the instrument. The Cronbach's alpha was 0.886 for the pre-LCJR and 0.762 for the post-LCJR; no items were recommended for deletion.

A variety of statistical tests were used to evaluate the data and identify major findings in this exploratory study. Exam remediation correlated with higher clinical judgment, higher academic resiliency, and course exams. Factors related to improved NCLEX-RN pass rates included higher NCLEX-RN preparation course grades, higher overall grade point average, fewer course failures, and self-identifying as Caucasian. Academic resiliency and clinical judgment had an inverse relationship with course failures. In this study, exam remediation was positively related to clinical judgment, academic resiliency, and multiple academic and nonacademic variables, yet the relationship between exam remediation activities and NCLEX-RN performance was not able to be directly analyzed. While interrelated variables suggested a connection among resiliency, clinical judgment, exam remediation, and NCLEX-RN exam performance, future studies are needed prior to making evidence-based recommendations to nursing academe.

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CHAPTER I

INTRODUCTION TO THE STUDY

Background

Going through nursing school and becoming a nurse is psychologically, physically, and academically challenging. The perceived degree of difficulty has resulted in the urban myth that the *Guinness Book of World Records* selected the Bachelor of Science in Nursing (BSN) as the most challenging undergraduate degree (Cairns, 2022). While the *Guinness Book of World Records* clarified the inaccuracy of this claim, there is still some degree of truth to the demanding nature of completing a nursing program (Cairns, 2022). Completing a nursing degree requires that students learn complex concepts, develop a multitude of hands-on skills, and competently apply knowledge in various learning environments. To further intensify academic demands, nursing students and nursing programs must remain up to date within the continuously changing healthcare delivery system to prepare students for the licensure examination.

Healthcare Challenges Burdening Nursing Education

A few of the key healthcare challenges nursing education must suffer under include elevated patient acuity, nursing shortage, and nurse incivility. Each of these factors plays a unique role toward increasing the academic and psychological strain on nursing students and new professionals. For instance, patients admitted to healthcare facilities consist of increasingly more complex and more severe conditions, which results in higher patient acuity levels (Wexler et al., 2014). Increased patient acuity has forced academic institutions to increase the rigor,

depth, and breadth of academic programs to ensure that new graduates are effectively prepared to immediately enter the workforce (Fitzpatrick et al., 2013; National Council of State Boards of Nursing (NCSB), 2013; U.S. Department of Health and Human Services: Health Resources and Services Administration, 2013).

To compound the impact of increased patient acuity, the current nursing shortage is resulting in fewer qualified nursing staff available to provide care to the growing healthcare needs of the population. Between 2018 and 2028, the anticipated national demand for nursing is expected to grow 24 times faster than the general U.S. workforce with nearly 375,000 new nursing positions being created in addition to the nearly 500,000 vacant nursing positions (U.S. Department of Labor: Bureau of Labor Statistics, 2022). Without a sufficient workforce, fewer nurses will be available to provide quality care to increasingly more complex patients and fewer nurse educators will exist to instruct students. Fewer nurse educators will result in increased student-faculty ratios, increased class sizes, and decreased opportunities for students to interact with faculty, likely leading to heightened academic strain and lower student outcomes (Bae, 2021; Duchscher & Windey, 2018; Ganley & Sheets, 2009).

While nursing has been awarded the distinction of the most honest, ethical, and trusted profession, nurses are employed in some of the most stressful work environments (Lee et al., 2019; Reinhart, 2020). To some nurses, the demands of the workplace might wear down one's ability to patiently serve alongside less experienced staff members and have been connected to the phenomenon of nursing incivility (Mefoh et al., 2019). Incivility consists of physical and psychological harm to a co-worker through acts of hostility (Meires, 2018). While nursing students are in clinical learning environments, they are often subjected to uncivil behaviors from professional staff (Lee et al., 2019; Mefoh et al., 2019). The overall result is that nursing

students are expected to manage increased academic demands to function in an ever-changing healthcare delivery system while simultaneously navigating and coping with the psychological strain of learning in a potentially hostile environment (Duchscher & Windey, 2018; Lee et al., 2019; Mefoh et al., 2019).

National Council Licensure Examination-Registered Nurse

Once students graduate, they must continue to manage the stressors related to preparation and successful completion of the nursing licensure exam. The National Council Licensure Examination-Registered Nurse (NCLEX-RN) is the national licensing examination graduate nurses must pass to officially practice as a registered nurse (RN). The NCLEX-RN, formulated by the National Council of State Boards of Nursing (NCSBN, n.d.), is a key data point in the accreditation and evaluation of all U.S. prelicensure nursing programs (Aucoin & Treas, 2005; McDowell, 2008). The NCSBN is charged with upholding regulations that preserve "public health, safety and welfare, and protecting the public by ensuring that safe and competent nursing care is provided by licensed nurses" (p. 1). In essence, the NCLEX-RN aims to directly measure each applicant's clinical knowledge and clinical judgment skills and indirectly evaluate each nursing program's ability to develop nursing students for entering the workforce (Aucoin & Treas, 2005; McDowell, 2008).

Evolution of Licensure Exam

Since the inception of the computer-based NCLEX-RN test version in 1994, the licensure exam has primarily consisted of multiple choice and multiple response question formats based on the nursing process phases of assessing, diagnosing, planning, implementing, and evaluating (NCSBN, 2019). Unfortunately, these formats of questions limit the examination's ability of evaluating higher levels of Bloom's taxonomy such as components of analysis and synthesis

(NCSBN, 2019). In addition to improving evaluation of knowledge, the expanding scope of nursing practice has driven the NCSBN to reexamine the ability of the NCLEX-RN questions to effectively assess graduates' critical thinking and clinical judgment processes (Muntean, 2012). As of April 2023, the Next Generation NCLEX-RN, the newest version of the exam, is based on Tanner's (2006) clinical judgment model (TCJM) and aims to improve the reliability and validity of evaluating graduate nurse critical thinking, clinical reasoning, and clinical judgment abilities (NCSBN, 2019).

Critical Thinking, Clinical Reasoning, and Clinical Judgment

Critical thinking, clinical reasoning, and clinical judgment are closely related concepts. Critical thinking is an empirically-based, cognitive process, and clinical reasoning focuses on cognitive processes related to a specific situation or environment (Victor-Chmil, 2013). Tanner (2006) suggested that clinical judgment is unique from critical thinking and clinical reasoning as clinical judgment extends beyond the cognitive realm and includes psychomotor processes that influence patient and environmental outcomes. Tanner stated that clinical judgment is "an interpretation or conclusion about a patient's needs, concerns, or health problems, and/or the decision to take action or not, use or modify standard approaches, or improvise new ones as deemed appropriate by the patient's response" (p. 204). Clinical judgment, as evaluated by the Next Generation NCLEX-RN, is the clinical ability most related to whether or not a student is going to provide safe patient care (NCSBN, 2019). As mentioned previously, the Next Generation NCLEX-RN expanded its focus beyond knowledge and was developed to evaluate graduate nurse clinical judgment. To improve student and graduate nurse outcomes, nursing programs might need to develop strategies to identify, evaluate, and increase student clinical judgment awareness and abilities.

Resiliency

Nursing students are faced with the reality that the academic environment and licensure examination are becoming more dynamic and demanding. The combined stress from heightened academic and professional expectations might wear down the mental fortitude of students during their academic coursework and throughout the early years of their professional practice (Diffley & Duddle, 2022; Stephens et al., 2017). This might result in students exiting from or being unsuccessful in nursing. In an attempt to improve student nurses' success and first-time NCLEX-RN pass rates on prior versions of the licensure exam, researchers and nursing programs have attempted to predict student outcomes using academic (e.g., course grades and standardized exam performance) and non-academic (e.g., age, gender, and ethnicity) variables (Humphreys, 2008). While use of these variables has provided some predictive guidance on student learning outcomes, other factors might be relevant to successful completion of a nursing degree and entry into professional practice.

As discussed previously, changes in healthcare and academe weigh on the cognitive, physical, and psychological wellbeing of nursing students (Aiken et al., 2001; Armmer & Ball, 2015; Brown, 2018; Sauer, 2018; Snavely, 2016). Thus, nursing programs and educators have to provide increasing amounts of scientific and theoretical knowledge, and they must assist students in navigating their mental, social, physical, and relational well-being to increase the likelihood of entering and remaining in professional practice (Gawlik et al., 2021; Melnyk et al., 2018; Sampson et al., 2019). To overcome the multitude of personal and professional obstacles throughout nursing education, students might require the development of protective forces such as resiliency.

Resiliency is the ability of an individual to overcome difficulties and challenges in all aspects of life (Chisholm-Burns et al., 2019). Personal and professional success might improve with the presence and development of resiliency by limiting the negative influence from stressors and challenges in academic and professional environments (Hodges et al., 2005, 2008). Within academe, increased academic resiliency was identified in relation to elevated perseverance, retention of students, assertiveness, hope, optimism, and improved academic outcomes (Reyes et al., 2015). Additionally, students, academicians, and nursing professionals might need to identify, develop, and implement strategies to improve resiliency and to mitigate negative consequences of psychological strain that decrease academic outcomes, patient care, and personal wellness.

Remediation

The term remediation often refers to interventions that assist students to improve within weaker areas of knowledge or practical skills (Meehan & Barker, 2021). Through remediation, nursing programs might augment student success by helping students maintain academic focus, bounce back from failures, retain a positive outlook, and increase the likelihood of passing the licensure examination (Ching et al., 2020; McFarquhar, 2014; Noble, 2015; Poorman & Webb, 2000). Custer (2018) defined remediation as "the timely, supplemental, individualized instruction provided after identification of a deficit, academic, or otherwise, which benefits the student in some way" (p. 148). For instance, if a student is struggling with skills of nursing care, then the student might need to practice the skills with a peer or faculty member. Another example would include course exam remediation. In this situation, students or faculty would identify knowledge gaps based on course exam or NCLEX-RN Preparation exam results. Based on the exam outcomes, the nursing student would complete a series of learning activities such as

reviewing the exam directly, rereading notes, working with a tutor, or answering additional practice questions (Lutter et al., 2017; Sifford & McDaniel, 2007; Stuckey & Wright, 2020). The intent of remediation is to identify and learn from one's mistakes. While remediation might disproportionately be applied to weaker students, the process of completing additional learning activities can be beneficial for all students (Hedderick, 2009; Shah et al., 2022).

Problem Statement

As the field of nursing becomes increasingly more complex, nursing students are psychologically strained by didactic and clinical challenges as they prepare for the licensure examination and entering professional practice. First, no evidence could be located that explored the potential interconnected relationship between academic resiliency and changes in clinical judgment. Second, more research is needed to develop and evaluate student clinical judgment within a variety of academic environments such as through exam remediation. Third, no evidence was identified that evaluated the influence of academic resiliency or clinical judgment on first-time NCLEX-RN pass rates, especially as the NCLEX-RN converted to the Next Generation test plan in April 2023.

Just as academic and non-academic predictive factors might provide objective measurements of a student's abilities, resiliency needs to be investigated as an additional factor related to the development of student knowledge and clinical judgment (Chow et al., 2018; Diffley & Duddle, 2022). As for development and evaluation of clinical judgment, current research has focused primarily on clinical and simulation environments (Brentnall et al., 2022; Lasater, 2007; Yang, 2021). Therefore, this study proposed to explore the relationship between exam remediation and the development of clinical judgment. Last, this study explored the relationship among academic resiliency, clinical judgment, and NCLEX-RN performance. A

better understanding of the relationship among each of these variables might afford faculty, students, and administrators with enhanced disciplinary knowledge to improve student success.

Purpose and Significance of the Study

The purpose of this exploratory study was to evaluate the following: (a) the relationship between academic resiliency and clinical judgment, (b) the impact of exam remediation on academic resiliency and clinical judgment, and (c) the relationship among academic and non-academic variables, academic resiliency, and clinical judgment on NCLEX-RN first-time pass rates. Using Knowles' adult learning theory, the TCJM, and the NCSBN's clinical judgment measurement model, this study hoped to provide nurse educators with evidence supporting a predictive relationship of academic resiliency and clinical judgment for early identification and intervention of students at-risk for academic struggle or of failing the NCLEX-RN. Additionally, the researcher hoped the disciplinary knowledge gained from this study would help nurse educators implement exam remediation as a method to improve academic resiliency, enhance clinical judgment, increase student outcomes, and improve first-time Next Generation NCLEX-RN pass rates.

Research Question

The following research question was explored in this study:

Q1 Is there a relationship among exam remediation, academic resiliency, academic performance variables, NCLEX-RN pass rates, and/or student clinical judgment?

Definition of Terms

Academic Resiliency. Resiliency, in the broader context, is the process of adapting and overcoming challenges and threats to successfully completing a goal or task (Martin & Marsh, 2006). Academic resiliency specifically refers to a student's ability to remain dedicated to achieving one's educational aspirations regardless of external or internal

stressors (Martin & Marsh, 2006). Academic resiliency involves persevering and improving while faced with adversity, engaging protective factors, and rebounding from academic setbacks or failure (Chow et al., 2018).

Bachelor of Science in Nursing. A Bachelor of Science in Nursing (BSN) typically consists of a four-year degree including clinical practice knowledge and emphases on leadership, translating research, and population health. The BSN is encouraged by professional organizations to be the minimum preparation for entry into the nursing profession (Institute of Medicine, 2009).

Clinical Judgment. Tanner (2006) stated that clinical judgment is "an interpretation or conclusion about a patient's needs, concerns, or health problems, and/or the decision to take action or not, use or modify standard approaches, or improvise new ones as deemed appropriate by the patient's response" (p. 204). Tanner suggested that clinical judgment is unique from critical thinking and clinical reasoning as clinical judgment extends beyond the cognitive realm and includes psychomotor processes that influence patient and environmental outcomes. The development of clinical judgment might be evaluated through self-reflection and/or observation of nursing behaviors (Tanner, 2006).

Clinical Reasoning. The concept of clinical reasoning is the use of critical thinking strategies within specific practice-based scenarios (Victor-Chmil, 2013). Clinical reasoning combines cognition, metacognition, and disciplinary knowledge to analyze and weigh the potential outcomes of various decisions (Simmons, 2010). Clinical reasoning is not a physical action; instead, it is the use of critical thinking to evaluate options and determine which context-based, discipline-specific action an individual will take (Victor-Chmil, 2013).

Critical Thinking. Critical thinking is a foundational component of clinical judgment and is an empirically-based, cognitive process that is not bound to a specific situation or discipline (Victor-Chmil, 2013). The common definition of the term has been accepted as the "judgment of intentional self-regulation which results in the interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based" (Facione, 1990, p. 3).

Graduate Nurse. An individual who has successfully completed graduation requirements and is eligible to register and complete the NCLEX-RN examination. While graduate nurses are unable to practice in most states, these individuals typically remain in transition between graduation and practice for up to three to four months prior to taking their first testing attempt of the NCLEX-RN.

Remediation. Culleiton (2009) conducted a concept analysis of remediation and concluded that remediation is "the process of identifying the need to take action to remedy a situation that, if left unresolved, will result in unfavorable outcomes, whereas implementing intervention strategies will successfully address the situation" (p. 26). Of note, the original definition has been updated to address education-specific environments; however, the definitions remained limited as some students might need remediation in non-academic areas of life. Custer (2018) conducted another concept analysis that further clarified remediation to mean "the timely, supplemental, individualized instruction provided after identification of a deficit, academic, or otherwise, which benefits the student in some way" (p. 148). This definition was used within this study.

Summary

The nursing profession is foundational to the successful implementation of patient care delivery within the U.S. healthcare system. Factors such as more complex healthcare delivery systems, higher patient acuity, and nursing incivility are resulting in an increased demand for more emotionally and academically prepared graduate nurses. Even though the NCLEX-RN keeps below-competent nurses from entering practice, thousands of clinically-ready graduate nurses annually struggle to exhibit clinical judgment competence on their first licensure exam attempt and begin their career (Horton, 2015; Kasprovich & VandeVusse, 2018; Noble, 2015; Tumbarello, 2011). No professional literature could be located that identified a relationship among resiliency, clinical judgment, exam remediation, and academic outcomes. Through a better understanding of the relationship among these variables, nurse educators might be able to enhance teaching methods and improve student outcomes, clinical judgment, first-time Next Generation NCLEX-RN pass rates, and future patient outcomes.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this exploratory study was to evaluate the following: (a) the relationship between academic resiliency and clinical judgment, (b) the impact of exam remediation on academic resiliency and clinical judgment, and (c) the relationship among academic and non-academic variables, academic resiliency, and clinical judgment on National Council Licensure Examination-Registered Nurse (NCLEX-RN) first-time pass rates. According to Garrard (2011), the purpose of a literature review is "to own the literature" (p. 7). Ownership of literature is aimed at becoming an expert on published research relevant to a particular phenomenon through processes of analysis, dissection, and synthesis (Garrard, 2011). The databases used for the literature review included the Cumulative Index to Nursing and Allied Health Literature, Education Resource Information Center, MEDLINE, and ProQuest Dissertation database. The first phase of this literature review identifies current methods of NCLEX-RN prediction, preparation, and remediation. Through this analysis, conceptual components of resiliency and clinical judgment began to emerge from the literature. The second phase discusses lived experiences of nursing students while preparing for the NCLEX-RN exam. The third phase is a review of resiliency literature. The fourth phase is a review of clinical judgment literature. The fifth phase provides an overview of potential literature gaps. The sixth phase defines the study's frameworks.

Phase One: Predicting Performance on the Nursing Licensure Exam

Initially, "NCLEX-RN" was the primary search term used with the intent of segregating literature out between licensure examinations for registered nurses and for licensed practical nurses. This search resulted in over 26,000 articles and dissertations. Through the use of Boolean command operations, the literature search narrowed the results by simultaneously including additional terms related to nursing students, predictors, preparation, readiness, study, review, plan, and/or remediation. This search identified over 22,000 results. The search terms were further narrowed to abstracts and post-1994 as the NCLEX-RN changed from a multiple-day, paper-pencil exam to a single-day, computer-based exam. Following the removal of duplicate entries, the search resulted in 203 peer-reviewed articles and 352 dissertations. Each of the 555 titles and abstracts were reviewed for relevance based on the following key inclusion criteria: English language, graduates of prelicensure, RN nursing programs, and participants were preparing for the computer-based exam version of the NCLEX-RN. The manual review of abstracts limited findings to 152 potential articles. Each article was reviewed manually for the above inclusion criteria that resulted in 41 articles initially being incorporated into the following comprehensive literature review.

Nursing researchers have studied numerous predictive variables correlated with nursing students' successful completion of a nursing program and preparation for the NCLEX-RN exam. Current literature commonly categorizes predictive variables into academic and non-academic components. The seven academic variables identified included (a) cumulative grade point average (GPA), (b) nursing coursework, (c) standardized content exams, (d) exit exams, (e) participation in an NCLEX-RN review course, (f) critical thinking, (g) use of remediation. Four

non-academic variables included (a) racial/ethnic minority status, (b) age, (c) gender, (d) and time lag between graduation and attempting the NCLEX-RN exam (see Appendix A).

Academic Variables

Cumulative Grade Point Average

Undergraduate cumulative GPA included the final course grades for a student's entire academic history and was identified as a common NCLEX-RN predictor variable (Daley et al., 2003; De Lima et al., 2011; Englert, 2009; Olbrych, 2018; Wood, 2002). While cumulative GPA was only one of numerous variables within each of the studies, *t*-tests, Pearson correlations, Spearman correlations, and logistical regressions found cumulative GPA remained a statistically significant variable in identifying NCLEX-RN success (Giddens & Gloeckner, 2005; Havrilla et al., 2018; Humphreys, 2008; Monroe & Dunemn, 2020; Singh, 2017). Higher GPA was found to increase NCLEX-RN success by 167 times over students with lower GPAs (Havrilla et al., 2018). Even though a few studies did not identify GPA as a factor related to NCLEX-RN failure, all of the identified literature found cumulative GPA was an important factor in predicting NCLEX-RN success (Barnwell-Sanders, 2015; Fortier, 2010; Gilmore, 2006; Vandenhouten, 2008).

Nursing Coursework

Nursing Course Grade Point Average and Nursing Course Grades. Nursing course GPA, which disaggregates prerequisite courses from the cumulative GPA, might provide insight as a predictor variable for first-time NCLEX-RN outcomes (Tipton et al., 2008). Alameida et al. (2011) found a relationship between nursing GPA and NCLEX-RN outcomes ($t = –12.65$, $df = 587$, $p < .001$); however, nursing GPA did not remain a statistically significant predictor when included in the logistic regression model. Some researchers might feel that nursing course GPA

and nursing course grades are immutably related to each other; however, individual course outcomes might have more predictive validity in identifying students at increased risk of struggling academically. Englert (2009) reviewed 120 BSN graduates and found that 11 of 14 nursing courses had a statistically significant relationship with first-time NCLEX-RN success; the psychiatric course (r_{pb} = .469, p < .01, n = 120) and the NCLEX-RN Preparation course (r_{pb} = .466, p < .01, n =120) had the highest correlation. Rogers (2019) reviewed 2,214 accelerated BSN and traditional BSN student records and found that Pharmacology (p < .001), Foundations (p < .05), and the Critical Care course (p < .001) were significantly correlated with failure on the first-time NCLEX-RN attempt.

Nursing Course Failures. While individual course grades have been merited as a predictive variable, failing a nursing course might offer more specific insight into a student's potential academic outcomes. Even though Briscoe and Anema (1999) did not identify a relationship between course failures and NCLEX-RN outcomes, more recent studies by Matos (2007), Moniyung (2015), and Olbrych (2018) found that increased numbers of course failures were correlated with decreased success on first-attempts of the NCLEX-RN. As each nursing program implements a unique curriculum plan, the lack of similarity in course designs and grading scales across programs might be linked to the inconsistency of using nursing course grades, GPA, and course failures as variables to identify NCLEX-RN success or failure (Alameida et al., 2011; Daley et al., 2003; Olbrych, 2018; Popescu, 2011; Rogers, 2019).

Standardized Content Exams

Nursing programs often use third-party, standardized exams to evaluate the knowledge development of students across the curriculum, identify areas needing remediation, and to potentially identify students at-risk for failure on their first attempt (Monroe & Dunemn, 2020;

Ukpabi, 2008; Vandenhouten, 2008). De Lima et al. (2011) reviewed three standardized content exams and all three were correlated with first-time NCLEX-RN pass rates. Even though the sample only contained 38 Associate Degree of Nursing (ADN) graduate nurses, the National League for Nursing (NLN) Fundamentals (54.84 - pass vs 35.82 - fail; $p = 0.01$), Parent-Child (53.10 - pass vs 31.47 - fail; $p = .00$), and Mental Health exams (56.83 - pass vs. 28.42 - fail; $p = .00$) were found to have a statistically significant relationship with successful completion of the NCLEX-RN. Yeom (2013) found that with the exception of Assessment Technologies Institute (ATI) Fundamentals and ATI Care of Children exams, standardized exams were more predictive of success than failure (−2 Log likelihood = 111.713, X2(2) = 46.854, $p < .0001$). The model had a 93.2% accuracy rate of identifying first-attempt success compared to only a 33.3% accuracy rate for identifying first-attempt NCLEX-RN failure (Yeom, 2013). The uniqueness of each program's implementation of curriculum might diminish the ability of researchers to interpret and generalize findings pertaining to standardized content-specific exams.

Standardized, Comprehensive Exit Exams

As nursing programs must cover all necessary content by the end of a program, use of standardized comprehensive exit exams might afford better predictive validity in comparison to individual, standardized content exams. Of the 51 identified articles, 26 (51%) included standardized exit exams as one of the investigated variables. Some of the reviewed literature identified correlations between exit exams and NCLEX-RN outcomes while other studies supported varying levels of predictive strength for NCLEX-RN outcomes from exit exam performance (Briscoe & Anema, 1999; Daley et al., 2003; Englert, 2009; Humphreys, 2008; Matos, 2007; Monroe & Dunemn, 2020; Santiago, 2013; Sullivan, 2011). De Lima et al. (2011), Flowers et al. (2022), and Paraszczuk (2011) found a statistically significant relationship

between the mean exit exam scores and NCLEX-RN outcomes. Studies by Higgins (2005), Morris and Hancock (2008), and Romeo (2013) supported a positive correlation between exit exams and NCLEX-RN performance (r = .518; r =.283; r = .513, respectively). Using an exit exam benchmark score of 65%, they were able to correctly predict 94.8% of the students who were successful on their first attempt (Salvucci, 2015). Morahan (2011) found that students who failed the ATI Comprehensive Predictor were 5.8 times more likely to fail the NCLEX-RN on their first attempt with 75% specificity and sensitivity.

End-of-Curriculum Review Course

A few identified studies investigated the relationship between NCLEX-RN performance and participation in an end-of-curriculum review course, (i.e., NCLEX-RN review course). Englert (2009) evaluated student attendance in a variety of curricular courses within one program where students were not equally enrolled in identical courses, and the study found a statistically significant relationship between students' participation in an NCLEX-RN licensure review course and first-attempt success (r_{pb} = .466, p < .01, n = 120). Between 2009 and 2010, 116 BSN graduates participated in a pre-post test study design to evaluate increased knowledge due to an NCLEX-RN review course (Paraszczuk, 2011). Participants took an ATI Comprehensive Predictor exit exam before and after the intervention course and the results supported a statistically significant relationship between completing a review course and knowledge development in preparation for the NCLEX-RN (t (108) = 8.054, p = .000 (two-tailed; Paraszczuk, 2011).

Critical Thinking

While critical thinking is closely related to clinical judgment, few studies have attempted to identify the relationship between critical thinking and NCLEX-RN performance (Giddens &

Gloeckner, 2005; Harrison, 2018; Ukpabi, 2008). Giddens and Gloeckner (2005) was the earliest study found that evaluated critical thinking and successful first-attempts of the NCLEX-RN exam. In this study, BSN graduates between 1998 and 2001 completed two critical thinking entrance and exit exams: the California Critical Thinking Skills Test and the California Critical Thinking Disposition Inventory. While the California Critical Thinking Skills Test found that exit and entrance scores were higher among graduates who had first-attempt success, an independent *t*-test for California Critical Thinking Skills Test and California Critical Thinking Disposition Inventory showed that change in critical thinking over time was not related to NCLEX-RN performance (Giddens & Gloeckner, 2005). Similarly, Kaddoura et al. (2017) and Romeo (2013) found that higher entrance and exit critical thinking assessments were predictive of NCLEX-RN performance; however, these studies did not investigate the impact of critical thinking changes over time.

Remediation Activities

The concept of remediation is fluid and has been interpreted and implemented differently by faculty, students, institutions, and support services. Possible remediation strategies extend from individualized study plans to comprehensive curricular interventions (see Appendix B). While one of the most common methods of individualized student remediation originates from standardized assessment results, there is an overall lack of consistency in the actual remediation methods within a program of study and following graduation (Bonis et al., 2007; Horton et al., 2012; Myles, 2018).

Pre-Graduation Strategies. As a process, each nursing program might implement a variety of individual remediation methods such as additional assignments or monitoring completion of online study modules (Horton et al., 2012; Maas, 2017; Mondeik, 2014; Popescu,

2011; Singh, 2017). Other programs were found to have implemented comprehensive remediation processes that included multiple elements such as tutoring, exam review, and NCLEX-RN review courses (Corrigan-Magaldi et al., 2014; Horton et al., 2012; Myles, 2018). Bonis et al. (2007) suggested that simply implementing a final semester remediation plan increased first-time pass rates from 85% to 94%, whereas other studies supported the inclusion of faculty tutoring within the remediation process. Using data from 87 Pennsylvania-based nursing programs, Hedderick (2009) found that mandatory remediation for high-risk students was the primary, statistically significant finding in the study related to predicting NCLEX-RN performance (x^2 =f 7.721, *df*= 2, *p* = .001). In addition to investigating specific methods of remediation, studies have focused on the relationship between the number of remediation modules completed, the amount of time spent remediating, and the overall assessment results. For instance, Monroe and Dunemn (2020) found that students who completed more preparatory activities had higher exit exam scores (Spearman correlation coefficient; *p* = .213; *p* = .001) and first-attempt pass rates (Spearman correlation coefficient; *p* = .581; *p* = .000).

Still, not all studies found remediation beneficial. In one of the larger study samplings, 3,686 ADN and BSN graduates from over 40 U.S. nursing programs responded to a survey pertaining to NCLEX-RN remediation (Shah et al., 2022). The study identified that nearly 80% of nursing programs required some form of remediation and programs that combined the HESI exit exam with specific exit exam test preparation and remediation strategies did result in statistically higher student NCLEX-RN success rates (Shah et al., 2022). Even though the uniqueness of each programs' expectations might further limit the generalizability of each study's findings, the majority of literature identified remediation as a potentially valuable factor for improving student success and NCLEX-RN readiness.

Post-Graduation Strategies. Developing and implementing post-graduation remediation might be more difficult for nursing programs due to the lack of regular student contact or ability to hold students accountable when in the academic environment. Still, some programs perceived that providing post-graduation assistance is valuable for graduate nurse and programmatic success. For instance, Czekanski et al. (2018) provided a detailed description of the implementation of a post-graduate coaching program to improve NCLEX-RN success. The coaching involved individualized and group sessions that offered guidance for study planning, anxiety management, and content review (Czekanski et al., 2018). Over the course of the coaching intervention and subsequent study, NCLEX-RN pass rates improved from 65% to 88% in 2016 and to 94% in 2017 (Czekanski et al., 2018). Other studies suggested the potential improvement in student success based on post-graduate remediation, but many studies have not included detailed data analyses to support the use of this strategy (McDowell, 2008; Rigsby-Robinson & Glisson, 2019; Stuckey & Wright, 2020; Wray et al., 2006).

Non-Academic Variables

Race and Ethnicity

Studies investigating the influence of race and ethnicity upon first-time NCLEX-RN success rates have had varying results over the past few decades. In one early study of ADN graduates, Briscoe and Anema (1999) found that international students of African descent performed poorer than other students (.471; $p = .05$), but researchers suspected that language barriers, and not specifically race, might have been the influencing variable. Daley et al. (2003) reviewed data from 224 BSN, domestic nursing students and found a similar relationship in that 33% of non-White graduates compared to 4% of White graduates were unsuccessful on their first attempt. On the other hand, some studies supported that ethnicity might not be statistically

significant in its relationship with a successful first attempt of the NCLEX-RN (Higgins, 2005; Humphreys, 2008). While evidence related to ethnicity appears to support an inverse relationship to first-attempt success, more research is needed pertaining to this variable (Moniyung, 2015; Wood, 2002).

Age and Gender

Age and gender are two additional demographic variables that appear in literature, but few studies identified statistical support that age might be correlated with first-attempt pass rates (Daley et al., 2003). Briscoe and Anema (1999) studied 38 ADN students and the Pearson correlation coefficient (.373; $p = .05$) supported that older age might increase the likelihood of first-time NCLEX-RN success. Humphreys (2008) found that older students had greater success on exit exams which correlated with higher first-attempt success rates (age: 22.9 versus 20.4, $p < .001$). As for gender, only one study was located that supported gender as having a statistically significant relationship with first-time pass rates ($\varphi = .882$, $p < .001$; Rogers, 2019). Remaining studies lacked evidence in support of the correlation between age or gender and first-time pass rates (Alameida et al., 2011; Englert, 2009; Fortier, 2010; Giddens & Gloeckner, 2005; Higgins, 2005; Maas, 2017; Moniyung, 2015).

Time Lag to Examination Attempt

The time between graduation and the first attempt on the NCLEX-RN is one additional, non-academic variable identified within literature (Olbrych, 2018; Wood, 2002). Eddy and Epeneter (2002) stated that individuals who passed the exam took the NCLEX-RN a little more than three weeks after graduation compared to those who failed who took the exam more than five weeks after graduation; however, the results were not statistically significant ($t = -1.46$, $p = .16$; Eddy & Epeneter, 2002). On the other hand, more recent studies with larger sample sizes

consistently support the inverse relationship between time lag to first-time NCLEX-RN attempt and first-time success. With 2,214 BSN graduates, Rogers (2019) found a longer wait time prior to an NCLEX-RN attempt was correlated with decreased success ($\varphi = .386$, $p < .018$). Between 2006 and 2008, Woo et al. (2009) reviewed 176,539 first-time NCLEX-RN attempts and the data supported that increased time lag was related to increased likelihood of NCLEX-RN failure (RN: $b = .013$, $p < .0001$).

Phase Two: Lived Experiences Regarding the Nursing Licensure Exam

Qualitative phenomenological studies offer participants an opportunity to share their lived experiences and personal perspectives. The purpose of such studies is not to create generalizable principles; instead, they are aimed at gaining insight pertaining to a specific phenomenon within a unique population. Nursing student experiences varied depending on dedication to preparation, mentality regarding current degree of knowledge, ability to overcome failure, life stresses, and personality traits (see Appendix C). Studies were evaluated and organized based on four themes: (a) accepting responsibility, (b) fear and self-doubt, (c) anxiety, and (d) mindset on future success.

Accepting Responsibility

Potentially considered a landmark study related to effective curricular design for increasing first attempt success, Wood (2002) conducted a mixed methods study involving 590 ADN graduates from a community college in California where 93% passed the NCLEX-RN on the first attempt. Students who experienced first-attempt failure mentioned they did not take the first attempt seriously and did not prepare with the available resources (Wood, 2002). In a study by Bonis et al. (2007), participants supported that differences between successful and unsuccessful attempts on the NCLEX-RN were related to accepting the responsibility of

preparing for the licensure exam through adhering to a defined study plan, participating in review courses, and managing life's stressors and distractions. Similar studies found that unsuccessful students exhibited feelings of being surprised by the difficulty of the NCLEX-RN exam, blaming oneself for not effectively prioritizing exam preparation, inadequate study habits, and lack of knowledge about preparation (Eddy & Epeneter, 2002; Griffiths et al., 2004; Horton, 2015; Kasprovich & VandeVusse, 2018; Pulito, 2017).

Fear and Self-Doubt

Poorman and Webb (2000) used a hermeneutic phenomenology design where participants completed a daily log about their experiences and feelings pertaining to failing the NCLEX-RN and preparation strategies for a retake of the exam. One identified theme was defined as "living the failure," which included subthemes of "losing identity" and "doubting abilities" (Poorman & Webb, 2000, pp. 5-9). Graduates have described feelings of devastation, isolation, insecurity, and fear of failing on subsequent attempts of the NCLEX-RN (McFarquhar, 2014; Poorman & Webb, 2000). Similarly, Griffiths et al. (2004) studied graduate nurses' perceived factors following a failed attempt and the changes participants made to improve likelihood of future success. The interviews revealed significant emotional factors such as decreased self-confidence and self-perception along with increased fear and self-doubt (Griffiths et al., 2004).

Anxiety

In multiple studies, nursing students and graduate nurses preparing for the NCLEX-RN stated the importance of managing anxiety by learning to read questions slowly, using prioritization strategies, and implementing positive self-talk (Eddy & Epeneter, 2002; Horton, 2015; Tumbarello, 2011). Following one or more failed attempts, graduate nurses discussed pressures such as work, life, family, and social media that increase anxiety while preparing for

subsequent attempts (Noble, 2015). Also, graduate nurses mentioned the debilitating anxiety from the stigma of failure that expressed itself as wanting to keep quiet, not seeking assistance, fear of future failure, and the burden of being judged by others (Kasprovich & VandeVusse, 2018).

Mindset of Future Success

Graduate nurses who are able to accept responsibility, move beyond fear and self-doubt, and manage anxiety might find more psychological well-being through "living the future," "daring to hope," and "seeing success" (Poorman & Webb, 2000, pp. 5-9). Even though graduate nurses initially described feelings of devastation, isolation, and insecurity following failure of the NCLEX-RN, they were able to build self-confidence in future success as they focused on positive thinking and gaining knowledge, which led to higher first-attempt success (McFarquhar, 2014; Poorman & Webb, 2000). Building a mindset of future success has resulted in graduate nurses expressing feelings of ultimate triumph after passing the NCLEX-RN. Nurses expressed excitement, a desire to help others succeed after failure, and to encourage students to have the mindset of life beyond the NCLEX-RN (Kasprovich & VandeVusse, 2018). Moreover, individuals stated they did not regret the process of multiple attempts because it helped them become a stronger person and nurse (Kasprovich & VandeVusse, 2018).

Phase Three: Evidence Related to Resiliency

Resiliency is viewed as the ability for an individual to overcome difficulties and challenges in life (Chisholm-Burns et al., 2019). These difficulties can occur in personal and professional environments. As previously mentioned, the complexity of healthcare, elevated patient acuity, nursing incivility, nursing shortage, and modifications to the licensure exam are increasing the academic, mental, social, and emotional challenges facing nursing students and

graduate nurses prior to entering practice. To be successful, the presence and development of resiliency might have a role in mitigating academic and professional failure and burnout (Jafari et al., 2022; Low et al., 2019; Wei et al., 2021). Even though the concept of resiliency initially related to childhood trauma and early negative environmental factors, more recent studies have begun to increase knowledge revolving around this concept and its potential influence within nursing academe and the nursing profession (Carroll, 2011; Glass, 2009; Reyes et al., 2015).

A literature review was conducted to learn more about the concept of resiliency in academic environments. The initial data search included terms related to "resiliency" and "nursing students," which resulted in 6,215 results. Additional limiters added to the search included terms related to "nursing education" and limited results to abstract use of main search terms, full text, peer-reviewed journals, which lowered the findings to 393 articles. Forty-eight articles were selected for manual review based on the inclusion criteria of prelicensure, undergraduate nursing programs, which resulted in 35 research articles included in this initial literature review.

The importance of academic resiliency was identified by the ability for nurse educators and students to persist through challenges. Specifically, resiliency was correlated with increased perseverance, retention of students, assertiveness, hope, optimism, and professional outcomes (Carroll, 2011; Glass, 2009). Second, current literature added support that resiliency might be considered both a trait and a process (Fullerton et al., 2021; Reyes et al., 2015). As a trait, resiliency provided the ability for students to cope and adapt to stressors (Drach et al., 2022). As a process, resiliency was referred to as an ability to struggle through or bounce back from adversity (Low et al., 2019). Understanding resiliency as a process, Stephens (2013), through a concept clarification article, proposed that resiliency is a fluid phenomenon that can be taught

and enhanced within individuals. Stephens also found support that protective factors such as hope, self-efficacy, critical thinking, and supportive relationships play a role in the growth and development of resiliency. Thirdly, resiliency was correlated with multiple protective factors such as mindfulness, self-efficacy, and emotional intelligence (Chamberlain et al., 2016; Hurley et al., 2020; Walsh et al., 2020). As a negative outcome, burnout was correlated with lower levels of resiliency (Ching et al., 2020).

Stoffel and Cain (2018) conducted a literature review of resiliency and grit in healthcare fields and found 27 articles related to resiliency (40% nursing) and four related to grit (50% nursing). Some studies within the review found that academic performance might have a weak correlation to resiliency or changes in resiliency, but other studies did not identify any statistically significant relationship between student outcomes and resiliency (Chow et al., 2018; Fowler et al., 2020). Numerous studies found correlations between higher satisfaction in life, increased coping, decreased anxiety, and protective factors with higher resiliency levels among students in healthcare fields (Grande et al., 2021; Ozsaban et al., 2019; Stephens, 2013; Stoffel & Cain, 2018). The only intervention study, identified by Stoffel and Cain, was conducted by Pines et al. (2014), and it did not support an overall improved resiliency. However, a subscale within the Stress Resiliency Profile did show improvement of a mindset of commitment. Related to the educational environment, Eley and Stallman (2014) found that the presence of consumerism and entitlement limited one's ability to develop resiliency.

Commonly Correlated Concepts

Mindfulness

Chamberlain et al. (2016) attempted to identify predictors of resiliency in Australian nursing students in their junior year. The researchers used individual tools to measure resiliency,

mindfulness, and professional quality of life (Connor–Davidson Resiliency Scale, Cognitive and Affective Mindfulness Scale Revised, The Professional Quality of Life Scale version 5, respectively). Resiliency positively correlated with dispositional mindfulness ($r = 0.644$, $p < .001$) and compassion satisfaction ($r = .494$, $p < .001$); however, resiliency negatively correlated with compassion fatigue ($r = .472$, $p < .001$; Chamberlain et al., 2016). The data collected supported that 57% of resiliency was predicted by mindfulness and professional quality of life.

Hughes et al. (2021) found numerous studies that suggested a positive relationship among mindfulness, mindfulness training, and resiliency. For instance, mindfulness practices in nursing students assisted in improving overall well-being through decreasing stress, anxiety, and burnout (Beddoe et al., 2013; Lopez et al., 2018; van der Riet et al., 2018). While not all studies found statistically significant results, guided meditation and mindfulness activities integrated into courses enhanced faculty-student relationship, student self-awareness, clinical communication, and student retention (Chase-Cantarini & Christiaens, 2019; Snyder, 2020).

Salsabila and Widyasari (2021) specifically evaluated mindfulness, self-compassion, and resiliency among underprivileged college students in Indonesia. While college students have unique experiences, challenges, and struggles, underprivileged students are at greater risk of burnout and lower retention (Salsabila & Widyasari, 2021). Through the Mindfulness Attention Awareness Scale, the Self-Compassion Scale, and the Academic Resilience Scale, self-compassion was correlated with improved mindfulness and increased academic resiliency. Moreover, increased self-compassion improved the effectiveness of mindfulness on academic resiliency ($F(1.130) = 7.515$, $p < .01$, $R^2 = .231$; Salsabila & Widyasari, 2021). Understanding more about mindfulness and its influence on academic resiliency might allow educators to assist

students in coping and managing the combination of work, school, and life challenges during higher education (Salsabila & Widyasari, 2021).

Emotional Intelligence

Emotional intelligence includes five domains: self-awareness, emotional management, ability to motivate others, empathy, and social connection (Goleman, 1998). As a precursor to resiliency, emotional intelligence assists students in identifying, coping, and managing emotions from life's challenges (Diffley & Duddle, 2022; Foster et al., 2015). Training students in emotional intelligence through guided reflection was found to improve resiliency, communication with patients, levels of empathy, and patient care (Hurley et al., 2020).

Cleary et al. (2018) identified 14 articles for a literature review involving studies pertaining to academic performance, resiliency, and emotional intelligence. Resiliency was identified as an important variable in helping students emotionally reconcile the reality of clinical learning experiences compared to the theoretical focus of didactic environments (Zhao et al., 2016). Some studies, such as Fernandez et al. (2012), found that emotional intelligence was a predictor of academic success. Other studies found no statistically or practically significant relationship between emotional intelligence and academic performance (Beauvais et al., 2014; Nwabuebo, 2013). Among male nursing students, Cuadra and Famadico (2013) found statistically significant positive relationships between emotional intelligence and caring behavior ($r = .390$, $p < .01$), emotional intelligence and resiliency ($r = .365$, $p < .01$) and caring behavior and resiliency ($r = .568$, $p < .01$).

Self-Efficacy

Self-efficacy, a significant characteristic of resiliency, is the belief that people are capable of successfully completing a task or producing a positive outcome (Bandura, 1991; Walsh et al.,

2020). Martin and Marsh (2006) conducted a study to identify psychological correlations with academic resiliency. From 402 Australian high school students, five factors loaded to components of academic resiliency: self-efficacy, control, planning, low anxiety, and persistence. The researchers translated these predictors into the 5-C resilience model of confidence, control, coordination, composure, and commitment (Martin & Marsh, 2006).

Warshawski (2022) found correlations between self-efficacy and academic resiliency as students shifted to online learning during the COVID-19 pandemic. The results showed statistically significant positive correlations between self-efficacy and resiliency ($r = .44$, $p < .01$), self-efficacy and social support ($r = .36$, $p < .01$), and resiliency and social support ($r = .31$, $p < .01$; Warshawski, 2022). Students with a lower self-efficacy and lower resiliency perceived their academic studies to be more difficult. Another study related to academic environments was conducted by Taylor and Reyes (2012) who sought to evaluate the relationship among resiliency, self-efficacy, and exam performance. One hundred thirty-six U.S. nursing students participated in the quasi-experimental study that found no significant relationship among changes in resiliency ($t_{(131)} = -0.024$, $p = .981$), self-efficacy ($t_{(131)} = -1.942$, $p = .054$) and exam scores (Taylor & Reyes, 2012).

Burnout

Ching et al. (2020) conducted a mixed-methods study in which the qualitative focus was on different methods of coping with clinical placement stressors between Chinese nursing students with high and low levels of resiliency and burnout. Focused groups broke up students into two groupings: (a) high resiliency and low burnout scores (HRLB) and (b) low resiliency and high burnout (LRHB) scores. Some of the stressors identified by both the LRHB and the HRLB groups included keeping up with work demands, striving for learning opportunities, and

discovering social rules (Ching et al., 2020). While the stressors were similar, the coping strategies between the two groupings were different. The LRHB group attempted to focus on external demands and problems, which resulted in self-blame and avoidance behaviors that led to professional disconnection, loss of confidence, and exhaustion (Ching et al., 2020). On the other hand, the HRLB groups focused on coping and self-direction, which led to high levels of professional satisfaction and improved self-awareness (Ching et al., 2020).

In addition to previously discussed findings, Chamberlain et al. (2016) found a positive correlation among factors of compassion fatigue with burnout ($r = .529$, $p < .001$), which accounted for a statistically significant variance in resiliency scores ($R^2 = 0.56$, $F(1, 239) = 56.1$, $p < .0001$). Jafari et al. (2022) aimed to evaluate the correlation between resiliency and academic burnout among Iranian nursing students. Through the use of the Connor-Davidson Resilience Scale and the Maslach Burnout Inventory, the study found that resiliency was negatively correlated with academic burnout among nursing and midwifery students ($r = −0.04$, $p < .001$; $r = −.39$, $p < .001$; Jafari et al., 2022). The high-burnout students also had lower levels of attendance, academic engagement, and motivation. Overall, students with higher degrees of burnout were found to exhibit lower self-esteem, self-efficacy, and self-value (Wei et al., 2021).

Strategies to Promote Resiliency in Academic Settings

Low et al. (2019) conducted a literature review of resiliency training programs and organized 25 articles into six main interventions: (a) reflection, (b) storytelling, (c) peer support/mentoring, (d) professional support/mentoring, (e) mindfulness/meditation, and (f) enhancement of self-knowledge. The evidence identified the necessity of resiliency education within healthcare students in preparation for academic and professional challenges (Low et al., 2019). Reflection and storytelling provide the opportunity for students and professionals to build

a sense of meaning and purpose to strengthen resiliency (Meyer et al., 2009). Peer and professional support or mentorship assist individuals in developing a professional identity, strengthening personal resiliency, and were also strong protective factors during periods of adversity (Beddoe et al., 2013; McDermid et al., 2016; McDonald et al., 2013). Understanding the use of mindfulness and enhancement of self-knowledge were found to be integral components of developing resiliency (Chamberlain et al., 2016; Salsabila & Widyasari, 2021; Walsh et al., 2020).

Walsh et al. (2020) conducted an integrated literature review pertaining to educational modalities to enhance resiliency along with the foundational concepts of self-efficacy, ability to reflect, and self-confidence. Among the studies included, McAllister and McKinnon (2009) strongly advocated for integration of resiliency training into the curriculum that would allow for students to regularly reflect on academic ability, adaptability, positive identity, and social support structures to find meaning within the challenging experiences throughout one's academic journey. Specifically, students might be able to improve their academic and professional resiliency through developing peer support, participating in clinical reflections, conducting literature searches, completing case studies, and engaging in simulation (Walsh et al., 2020). Other researchers also supported the proposal of problem-based learning, self-care strategies, creating an academic environment that embraces growth from failure, development of coping mechanisms, and identification of protective factors related to resiliency (Chen, 2011; Dyrbye & Shanafelt, 2012; Plowe, 2020). While there appears to be some positive correlation between interventions and resiliency, limited statistical change has been reported following educational interventions (Chow et al., 2018; Pines et al., 2014; Stephens, 2013).

Measuring Academic Resiliency

Within the literature search related to resiliency, a few tools became evident. The two predominant instruments currently used to evaluate resiliency are the 10-item and the 25-item Connor-Davidson Resiliency Scale (CD-RISC) and the Academic Resilience Scale (ARS-30; Fullerton et al., 2021; Stoffel & Cain, 2018). More prevalent in literature, the CD-RISC, a 5-point Likert scale instrument, was developed in 2003 to evaluate patient's perception of their ability to overcome life challenges in areas including mental illness, depression, aging, and academic environments (Connor & Davidson, 2003). Additionally, a comprehensive resource manual and user guide was developed to provide information related to psychometrics, implementation, and evaluation (Davidson, 2018). While the CD-RISC was not specifically designed for use among university students, it has been utilized in numerous academic settings, including nursing students in the United States (Hartley, 2012; Otto et al., 2010; Stephens, 2013).

Phase Four: Evidence Related to Clinical Judgment

A literature review was conducted pertaining to clinical judgment within nursing education to learn more about the concept and measurements used for evaluation in academic environments. The initial data search included terms related to "clinical judgment" and "nursing students," which resulted in over 132,000 studies. Additional limiters focused on abstract and title terms related to "education," full-text articles, and peer-reviewed journals. After reviewing the titles and abstracts, 54 articles were selected for manual review based on the inclusion criteria of undergraduate nursing programs, resulting in 24 research articles included in the literature review pertaining to clinical judgment and the concept's measurement tools.

The term clinical judgment, along with critical thinking and clinical reasoning, might be used synonymously in literature but understanding their differences might help nursing identify

and evaluate the uniqueness of each concept. Critical thinking is a general concept that involves one's cognitive processes used to analyze knowledge (Victor-Chmil, 2013). Clinical reasoning relates to the cognitive processes useful for clinical decision making (Benner & Smith, 1985; Wong & Kowitlawakul, 2020). Clinical judgment goes beyond the cognitive processes to include the psychomotor and affective actions nurses engage in while managing clinical environments (Victor-Chmil, 2013). In 2006, Tanner's clinical judgment model (TCJM) proposed to show the nuances of decision making with nursing that extends beyond knowledge and has been used in literature (Ashley & Stamp, 2014; Kaddoura et al., 2017; Lasater, 2007; Victor-Chmil, 2013; Yang, 2021; Zamaripa, 2021). While critical thinking and clinical reasoning are foundational aspects of clinical judgment, the NCSBN's (n.d.) use of the TCJM in the implementation of the NCSBN clinical judgment measurement model (NCJMM) has elevated clinical judgment as the core factor of determining a graduate nurse's readiness to enter practice.

Fisher-Cunningham (2021) interviewed 12 prelicensure BSN students to gain an understanding of students' self-perceptions of clinical judgment. Main themes identified included processes of fixing a patient's health, the value of nursing, understanding personal bias, treating clinical judgment as a sport, and the importance of developing clinical judgment through a nursing program (Fisher-Cunningham, 2021). Student-lived experiences suggested that classroom, clinical, and simulation learning should include reflection, case scenarios, and games (Fisher-Cunningham, 2021). Other researchers supported the use of high-level thought activities such as debriefing, questions, concept-based learning, and reflection (Gonzalez et al., 2021; Martin, 2021; Martin et al., 2020).

Hamilton (2022) conducted a qualitative study to understand faculty perspectives of the Next Generation NCLEX-RN and its increased focus on graduate nurses' clinical judgment. Participants were asked about their perceptions related to defining clinical judgment, adapting teaching strategies for the Next Generation NCLEX-RN, and methods of evaluating clinical judgment. The main themes included awareness, uncertainty, constant change, and preparation for the Next Generation NCLEX-RN (Hamilton, 2022). Faculty spoke of resistance to change in light of numerous adjustments to the NCLEX-RN test plan and release dates. Also, faculty shared concerns for the impact on first-attempt pass rates, lack of resources to prepare students, and the overall effectiveness of the Next Generation NCLEX-RN (Hamilton, 2022).

Measuring Clinical Judgment

Brentnall et al. (2022) conducted a systematic review of tools used in healthcare-based clinical or simulation environments between 2000-2018 for evaluating concepts related to clinical reasoning and clinical judgment. Of the 61 included studies, 28 were related to medicine and 25 were related to nursing. While various constructs related to clinical reasoning were evaluated when reviewing clinical judgment, only versions of the Lasater Clinical Judgment Rubric (LCJR) were identified (n=13) regarding clinical judgment. The remaining tools pertained to clinical reasoning or critical thinking and were tools that had not been replicated (Brentnall et al., 2022). Little cross-referencing of tools was found, and most of the tools remaining were discipline specific. Within nursing, the LCJR was the dominant instrument used for concepts related to clinical judgment, clinical reasoning, and critical thinking (Brentnall et al., 2022).

Shortly after Tanner's (2006) original work, Lasater (2007) used the TCJM to develop the LCJR, which has been used in literature to identify, describe, and evaluate nursing student

clinical judgment. To develop the LCJR, Lasater evaluated BSN nursing students four times within a simulated environment. During each simulation, nursing instructors used a draft of an LCJR to observe and take notes on each student's performance. Following each simulation, Lasater used the feedback from the observations to improve the specificity of the rubric. Lasater also convened student focus groups for understanding the student experiences throughout the simulation process and use of the LCJR for evaluation. Multiple themes were deduced, but two themes directly influenced the development of the LCJR: (a) desire for more feedback and (b) students' connection with others. Students expressed a strong desire for more definitive feedback following the simulation learning environment such as how correct or incorrect decisions would have manifested in patient outcomes. Also, students expressed the need for peer group debriefings as a method of developing knowledge through personal and peer reflection (Lasater, 2007). The final version of the LCJR includes 11 dimensions related to the four phases of TCJM (see Table 2.1; Lasater, 2007). Lasater suggested the rubric might be useful for faculty to provide guidance toward student clinical judgment strengths and weaknesses, but the researcher also proposed that the rubric might be effective for means of student self-evaluation.

Table 2.1

Comparison of Tanner's Clinical Judgment Model Phases and Lasater's Clinical Judgment Rubric's Dimensions

TCJM Phases	LCJR Dimensions
Noticing	Effective noticing involves: • Focused observation • Recognizing deviations from expected patterns • Information seeking
Interpreting	Effective interpreting involves: • Prioritizing data • Making sense of data
Responding	Effective responding involves: • Calm, confident manner • Clear communication • Well-planned intervention / flexibility • Being skillful
Reflecting	Effective reflecting involves: • Evaluation / self-analysis • Commitment to improvement

Lasater Clinical Judgment Rubric in Simulation

The primary location for use of the LCJR has been within the simulation environment (Lo, 2018; McCormick, 2014; Strickland, 2013). Call (2017) compared the use of the LCJR between high-fidelity patient simulation (HFPS) and objective structured clinical examination (OSCE). Using 23 senior nursing students in a crossover, two-group design, each participant was evaluated by the LCJR while engaging in HFPS and OSCE. The 11 dimensions of the LCJR were tallied and found to support that the OSCE environment might be comparable to, if not better than, the HFPS in developing and evaluating clinical judgment (Call, 2017).

McDowell (2013) and Brown (2021) conducted similar studies that used the TCJM as a theoretical framework and the LCJR to evaluate the use of questioning as a problem-based teaching strategy in developing clinical reasoning. McDowell compared two groups of students' responses to questioning during a simulation versus questioning during the post-simulation debriefing, whereas Brown used a pre-post format where students completed a simulation, self-

scored the LCJR, were asked a series of questions to deepen understanding, repeated the simulation, and then repeated the self-scored LCJR. Statistically significant different LCJR scores occurred between pre- and post-intervention (M = 26.27; M = 31.00; p< .05; Brown, 2021). McDowell found no statistical significance between the questioning methods except students with prior experience had higher LCJR scores.

Similar to McDowell (2013) and Brown (2021), Hines (2015) used a simulation environment to evaluate the implementation of a scripted clinical debriefing, which was a series of reflective questions, in clinical post-conference. Improvement to student clinical judgment occurred by student and faculty ratings on the LCJR following a simulation. Hines found statistically significant improvement on the LCJR in areas of noticing, interpreting, and reflecting (t = 5.109, df = 52, p = .000; t = 5.463, df = 52, p = .000; t = 6.058, df = 52, p = .000, respectively) but found significant decrease in responding (t = 15.044, df = 52, p =.000). Overall, student perceptions about use of the clinical debriefing script were positive toward improving clinical judgment abilities (Hines, 2015).

The hope of evaluating clinical judgment is that students would effectively complete the desired skills in practice. Fedko (2016) used the LCJR as the tool for faculty to determine if there was a correlation between student clinical judgment and desired task completion. Throughout a variety of simulation experiences, students were observed and researchers found a weak, non-statistically significant correlation between clinical judgment and task completion (Fedko, 2016). Fedko suggested that due to the subjectivity of the tool, increased rater-training might improve the reliability of results on the LCJR. Also, Halliday (2022) found training sessions had a weak, non-statistical significance at improving the interrater reliability of the LCJR.

While other studies have only used a single simulation scenario, Pierce (2011) evaluated clinical judgment and self-efficacy changes across three separate simulation experiences. Self-reported LCJR and self-efficacy scores statistically significantly improved between the first and second, and between the first and third simulations ($p = .041$; $p = .003$, respectively; Pierce, 2011). Similarly, Mueller (2017) attempted to evaluate clinical judgment and self-efficacy through self-scored LCJR pertaining to learning physical assessment skills on standardized patients or on a class peer. However, the study did not result in statistically significant group differences in clinical judgment, skills, or self-efficacy (Mueller, 2017).

Lasater Clinical Judgment Rubric in Clinical

In addition to the simulated environment, the LCJR has been used to evaluate clinical judgment and teaching strategies within the clinical setting. As in a few other studies, Huffstetler (2022) implemented a series of questions to guide clinical student reflection among 37 accelerated and traditional BSN students. Using a pre- and post-LCJR, the clinical instructors evaluated the development of clinical judgment from the beginning of the semester to the end of the semester. Clinical instructors were trained in the use of the scripted reflective activities and the LCJR. Students exhibited statistically significant improvements in overall clinical judgment from the inclusion of the scripted clinical reflection activity ($t(20) = 6.885$, $p = .000$; Huffstetler, 2022). Unlike Hines (2015), Huffstetler found each of the four subareas of TCJM also had statistically significant improvements between the pre- and post-LCJR assessment.

As previous studies had focused on clinical judgment in either clinical or simulation environments, Reid (2016) conducted a study of 62 Midwest BSN nursing students to evaluate if either simulation or clinical was more effective at improving student clinical judgment abilities. While no statistically significant differences in clinical judgment were noted between the two

groups (t= -1.056, p = .295), differences were found among demographic variables (Reid, 2016). White, non-Hispanic participants scored higher than African Americans and other ethnicities (t = -4.539, p < .001, t = -2.449, p = .018; Reid, 2016). Also, employed participants scored lower than unemployed participants (t = -2.044, p = 0.046; Reid, 2016).

Lasater Clinical Judgment Rubric in Professional Practice

Fenske et al. (2013) used the LCJR to evaluate the post-licensure, professional nursing setting. Similar to Fedko (2016), the researchers compared how well the LCJR matched job performance (Fenske et al., 2013). Participants completed a written self-reflection of clinical judgment abilities and then participated in a simulation where the investigators used the LCJR to evaluate clinical judgment. Fenske et al. (2013) found numerous statistically significant discrepancies between nurses' self-perceptions of clinical judgment and demonstrated skills, specifically that younger nurses and those with less than one year of experience exhibited overconfidence and over-competence in clinical judgment compared to observed performance. While the majority of studies using the LCJR involved academic settings, the LCJR has been found to be effective in evaluating and enhancing clinical judgment among practicing nurses (Miraglia & Asselin, 2015).

Phase Five: Identification of Literature Gaps

Identified evidence related to first-attempt preparation and readiness supported that numerous academic and non-academic variables might be correlated to first-attempt success. Of the variables, cumulative GPA, use of standardized exit exams, presence of remediation, ethnicity, and time lag appeared to be most often correlated or predictive of first-attempt success and, in some cases, first-attempt NCLEX-RN failure. Student experiences commonly included the need to increase the amount of time spent preparing and remediating for an NCLEX-RN

attempt. Also, students shared that consistently following a study plan, completing practice questions, and reviewing content were also beneficial toward NCLEX-RN success. Remediation was a common term used within the literature, but few studies provided details that would afford replication in future studies using the same process for remediation.

Some qualitative studies offered insight into individual student NCLEX-RN preparation activities and experiences related to success and failure. Conceptual factors related to resiliency and clinical judgment were mentioned by participants such as positive self-talk, accepting personal responsibility, identifying areas of weakness, engaging in more effective study habits, seeking assistance from faculty, and completing practice questions over more difficult concepts to prepare for exams and the NCLEX-RN (Bonis et al., 2007; McGann & Thompson, 2008; Rogers, 2010; Tumbarello, 2011). Also, some participants, especially graduate nurses who had failed previous NCLEX-RN attempts, shared how resiliency guided their motivation, perseverance, and study plans toward becoming successful on future attempts at the NCLEX-RN (Horton, 2015; Kasprovich & VandeVusse, 2018; McFarquhar, 2014).

As the Next Generation NCLEX-RN was just released in April 2023 and was based on the NCJMM, multiple gaps in literature were identified. Currently, no studies have been identified that discussed a relationship or correlation between the academic and non-academic variables and the outcomes of the Next Generation NCLEX-RN. Also, no research was found that evaluated the influence of remediation and preparation strategies on the development of clinical judgment skills related to the previous or the current version of the computer-based NCLEX-RN. Even studies pertaining to critical thinking, a foundational component of clinical judgment, have only had limited studies attempting to understand the influence upon NCLEX-RN performance. Overall, no research was identified that evaluated the correlation among

graduate students' Next Generation NCLEX-RN remediation strategies, changes in resiliency, and enhancement of clinical judgment.

Phase Six: Study Frameworks

A variety of theories have been utilized in the process of identifying and explaining phenomena encompassing NCLEX-RN readiness, preparation, and remediation. While numerous gaps in literature were identified, the focus of this research was to explore and understand the relationship among academic variables, non-academic variables, academic resiliency, clinical judgment, and Next Generation NCLEX-RN performance. To guide the theoretical and conceptual framework of this study, the researcher employed Knowles' adult learning theory, TCJM, and the NCJMM.

Knowles' Adult Learning Theory

Whereas pedagogy relates to education of children, andragogy refers to the adult learning process. Even though the concept differences between pedagogy and andragogy have been present in literature for over 100 years, Knowles' (1973) adult learning theory popularized the theoretical foundations of adult education (Billings & Halstead, 2012). Pedagogy focuses on content provided by the teacher; andragogy is self-directed, problem-centered, and knowledge must appear relevant in order for adults to engage in the learning process (Iwasiw et al., 2020). Knowles (1980) specifically defined andragogy as "the art and science of helping adults learn" (p. 43). Originally, Knowles (1973) identified four assumptions of Knowles' adult learning theory, which was later expanded to five assumptions and four principles of andragogy (Knowles, 1984). The five assumptions included the following: (a) changes in self-concept, (b) role of experience, (c) readiness to learn, (d) orientation to learning, and (e) motivation to learn (Knowles, 1973, 1984). The four principles included the following elements. First, adults need

to be engaged in the process of planning and evaluating their learning. Second, prior experiences, both positive and negative, provide the foundation for new learning. Third, topical relevance is necessary to keep adults interested in learning. Fourth, adults remain attentive when learning is problem-centric versus content-centric (Knowles, 1984). Under andragogy, the learning environment is a mutual exchange among participants. Once adults leave the learning environment, the assumptions and principles continue to drive life-long learning.

Tanner's Clinical Judgment Model

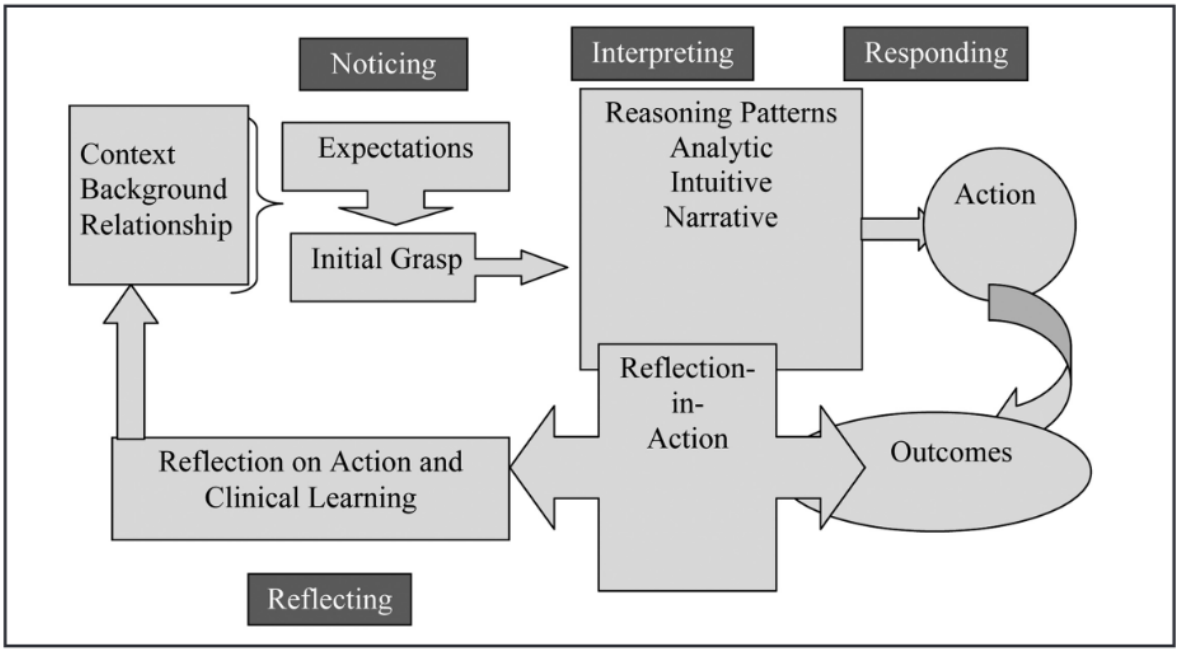
Tanner (2006) suggested five conclusions about clinical judgment over the nursing process. First, mere assessment data might not be sufficient to make proper clinical judgment decisions. In addition to patient data, nurses increasingly draw from a combination of scientific and theoretical knowledge, personal experience and intuition, and shared human understanding (Benner et al., 2009; Peden-McAlpine & Clark, 2002). Second, nurses must develop a tacit knowledge of the patient from interpersonal interactions with them and their family by understanding the patient's perspectives of their illness and supporting their responses (Tanner, 2006; Tanner et al., 1993). Third, cultural and social contexts provide an additional layer of knowledge necessary to make sound clinical judgment (Ebright et al., 2003; Tanner et al., 1993). For instance, awareness of interprofessional power dynamics, political beliefs, and socioeconomic biases are now seen as a contributing factor in patient treatment and patient outcomes (Barr, 2014).

Fourth, various reasoning occurs throughout clinical judgment such as analytical processes, intuition, and narrative thinking (Tanner, 2006). Analytical reasoning involves systematic evaluation of potential treatments and likely outcomes. Driven by past experiences in similar situations, intuition is viewed as an immediate apprehension or awareness of a pattern

related to an impending negative outcome (Benner & Tanner, 1987; Green, 2012; Melin-Johansson et al., 2017). Narrative thinking, or storytelling, is different from analytical or intuitive knowledge. Narrative thinking brings meaning to human experiences through deeply understanding the patient on an individual level, and this form of reasoning is supported as a necessary component of reflection, understanding, and contextual decision-making (Benner et al., 2009; Tanner, 2006). Related to narrative reasoning, Tanner's (2006) fifth conclusion is that reflection upon practice stems from a breakdown in clinical judgment and is necessary to improve one's judgment and reasoning abilities. While the act of reflection has been well-studied and is supported by evidence, there is growing support for the use of reflection in strengthening critical thinking, clinical reasoning, and clinical judgment. Therefore, Tanner developed the TCJM (see Figure 2.1) including the steps of noticing, interpreting, responding, and reflecting.

Figure 2.1

Clinical Judgment Model



Note. Reprinted with the permission from SLACK Incorporated (see Appendix D). Tanner, C. A. (2006). Thinking like a nurse: A research-based model of clinical judgment in nursing. *Journal of Nursing Education, 45*(6), 204-211.

Noticing

Noticing is more than gathering an assessment; it incorporates the nurse's various components of knowledge and understanding of the patient's patterns (Tanner, 2006). As a result, the nurse is capable of identifying expectations of the situation and potential variances that might occur.

Interpreting

The various components of noticing will transition the nurse into a phase of reasoning through the environmental and interpersonal contexts. The reasoning might involve a combination of assessment and planning interventions based on the degree of experience and knowledge of the particular situation (Tanner, 2006). Depending on the complexity of patterns

and the nurse's knowledge, the nurse will continue to gather assessment prior to determining a course of action.

Responding

Based on situational elements noticed and interpreted, responding is the process of deciding to implement a particular course of action. Responding can include gathering more assessment, providing treatments, or determining no course of action is needed (Tanner, 2006).

Reflecting

The process of reflection is broken into two components: reflecting-in-action and reflecting-on-action. Reflecting-in-action is a fluid process between responding and evaluating the patient's response in order to determine the necessity of adjustments or additional patient measures. Reflecting-on-action involves a nurse's ability to evaluate their growth and development of clinical judgment (Tanner, 2006). Whether the outcome was perceived as positive or negative, nurses have a responsibility to evaluate current practices and responses in their journey toward stronger clinical reasoning and clinical judgment (Tanner, 2006).

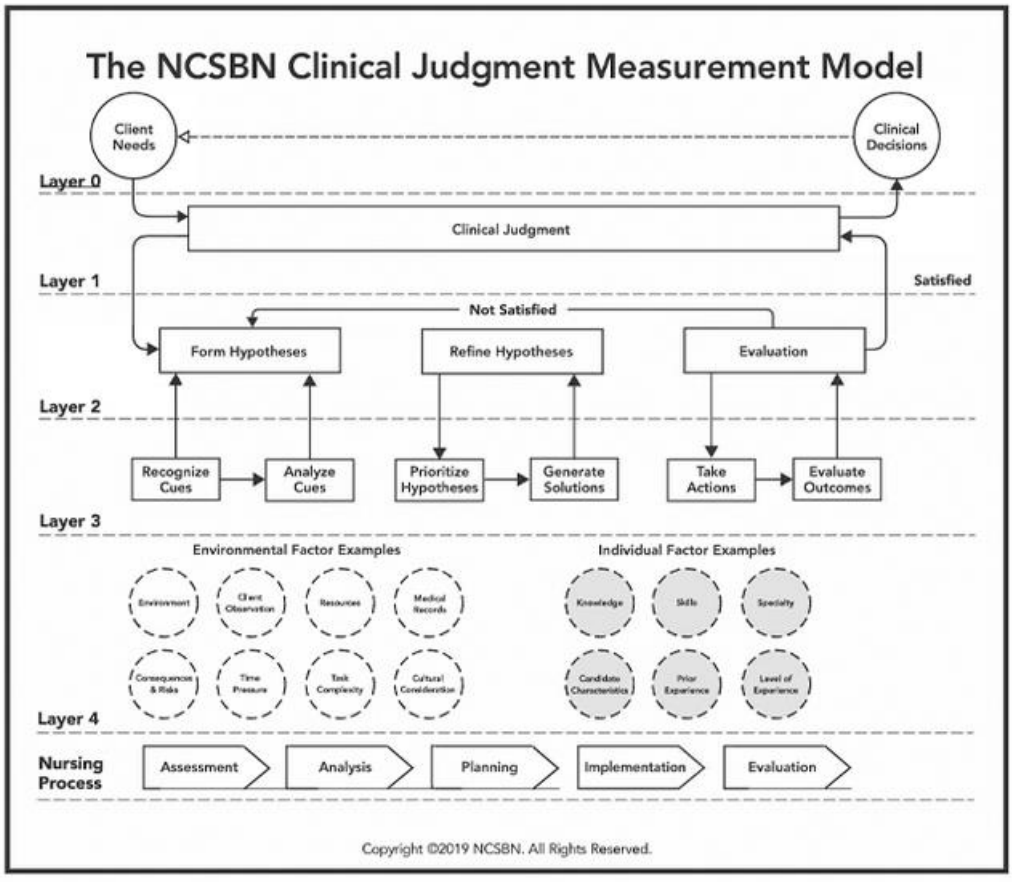
National Council of State Boards of Nursing Clinical Judgment Measurement Model

Through the lens of TCJM and following years of research and psychometric testing, the NCSBN (2019) developed the NCJMM. The NCSBN has developed more complex scenario-based questions to increase the effectiveness of evaluating higher levels of clinical reasoning and clinical judgment such as analysis, evaluation, and creation. The NCJMM (see Figure 2.2) resulted in the ability to more accurately measure each entry-level applicant's critical thinking, clinical reasoning, and clinical judgment skills (NCSBN, 2019). Table 2.2 shows the correlation between the nursing process, the TCJM, and the NCJMM. As the full implementation of the Next Generation NCLEX-RN format was released in April of 2023, nursing programs have been

encouraged to enhance student preparation through increasing the quantity and quality of problem-based learning and content focused on developing clinical judgment skills in entry-level nurses. While the Next Generation NCLEX-RN is expected to improve nursing practice, this change has resulted in increased stress, strain, and anxiety on nursing programs, nursing faculty, and nursing students.

Figure 2.2

T*he National Council of State Boards of Nursing's Clinical Judgment Measurement Model*



Note. Reprinted with the permission (see Appendix D). National Council of State Boards of Nursing. (2019). *Next generation NCLEX (NGN) frequently asked questions*. https://www.nclex.com/clinical-judgment-measurement-model.page

Table 2.2

Comparison of the Nursing Process with Tanner's Clinical Judgment Model and the National Council of State Boards of Nursing's Clinical Judgment Measurement Model

Nursing Process (ADPIE/AAPIE)	Tanner's CJ Model	NCJMM
Assessment	Noticing	Recognize Cues
Diagnosis/Analysis	Interpreting	Analyze Cues
Diagnosis/Analysis	Interpreting	Prioritize Hypotheses
Planning	Responding	Generate Solutions
Implementation	Responding	Take Action
Evaluation	Reflecting	Evaluate Outcomes

Note. Reprinted with the permission (see Appendix D) from Evolve-Elsevier. Ignatavicius, D. D., & Silvestri, L. (n.d.) *Getting ready for the Next-Generation NCLEX (NGN): How to shift from the nursing process to clinical judgment in nursing.* https://evolve.elsevier.com/education/expertise/ next-generation-nclex/ngn-transitioning-from-the-nursing-process-to-clinical-judgment/

Summary

Identified literature surrounding the NCLEX-RN continues to be valued by nursing programs as a method of identifying and evaluating strengths and weaknesses in student preparation for the exam and for entering practice. While multiple phenomena need continued study, the primary purpose of this study was to explore the relationship among resiliency, clinical judgment, exam remediation, and academic performance. Using Knowles' Adult Learning Theory, TCJM, and the NCJMM to guide the foundational components of the research questions, this study aimed to provide new knowledge to students, faculty, and nursing program administrators on the interrelationship of these variables and potential methods of enhancing student and programmatic outcomes.

CHAPTER III

METHODOLOGY

The purpose of this exploratory study was to evaluate the following: (a) the relationship between academic resiliency and clinical judgment, (b) the impact of exam remediation on academic resiliency and clinical judgment, and (c) the relationship among academic and non-academic variables, academic resiliency, and clinical judgment on National Council Licensure Examination-Registered Nurse (NCLEX-RN) first-time pass rates. This chapter covers the specific components of the study's methodology including the design, setting, sample, procedure, instruments, analysis, ethical considerations, and risks and benefits.

Design

The design of this research was a non-experimental, exploratory field study. The retrospective post-then-pre survey process limited the potential contamination of data from response-shift bias (Drennan & Hyde, 2008; Rohs, 1999). Exploratory studies attempt to identify phenomenon or relationships among study variables absent of manipulation or control (Gray, 2021). This exploratory study used primarily quantitative measures to describe potential relationships among non-academic variables, academic variables, exam remediation, academic resiliency, clinical judgment, and NCLEX-RN performance. The following quantitative variables were included in the study (see Figure 3.1):

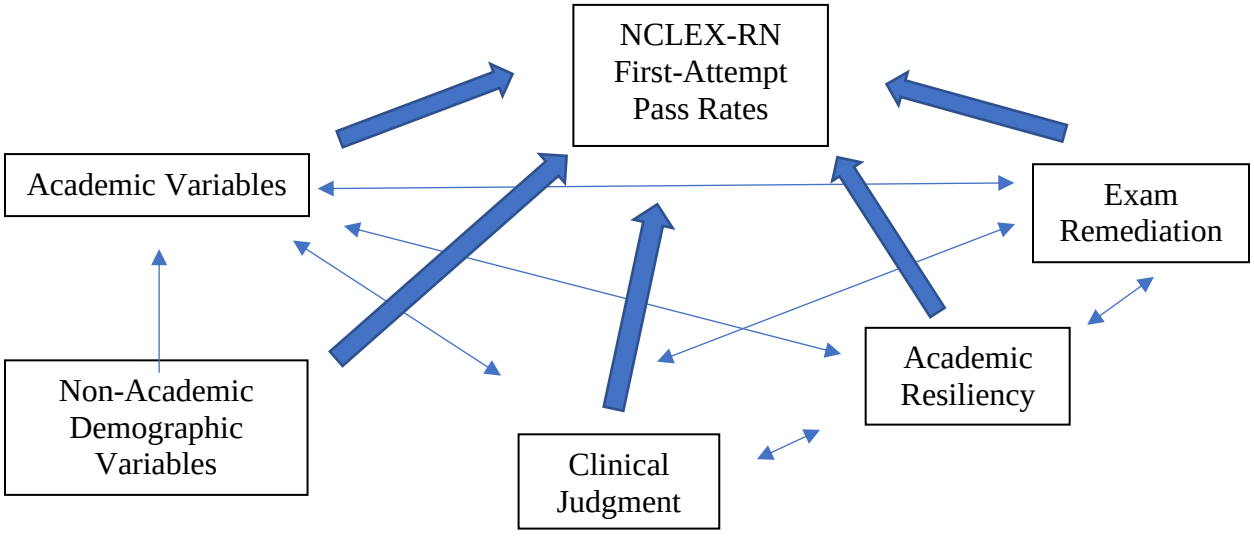
- Non-Academic Demographic Variables
    - Gender
    - Age

- Race
- Ethnicity
- English as first learned language

- Academic Variables
  - Cumulative grade point average (GPA)
  - Number of course failures
  - Three pairs of course exam scores
- Academic Resiliency (Connor-Davidson Resiliency Scale-10 [CD-RISC-10])
- Clinical Judgment (Lasater Clinical Judgment Rubric [LCJR])
- NCLEX-RN First-Time Performance

Figure 3.1

Study Variables



Setting

The setting of this study was a nursing program at a midsize, midwestern U.S. public university. The college of nursing is one of 12 colleges within the university and has multiple curricular options such as BSN (Bachelor of Science in Nursing), Registered Nurse-BSN (RN-BSN), Master of Science in Nursing (MSN), and Doctor of Nursing Practice (DNP) programs. The focus of this study's setting was within the NCLEX-RN Preparation course, which occurs during the final semester of the curriculum. Students in this course developed individualized study plans, implemented various test-taking strategies, worked through case studies, participated in a two-day NurseThink NCLEX-RN ReView program, and discussed potential challenges within the first few years of professional practice. As part of the course requirements, students in the course completed two nationally-standardized exit exams, entitled NurseThink NCLEX-RN Readiness Assessments, and corresponding exam remediation activities.

Sample

The target population was a convenience sample of the prelicensure BSN nursing students. This prelicensure program admits applicants in the fall, spring, and summer semesters, and each cohort traditionally averages around 100 students. The rationale for use of this sample was because the principal investigator's academic responsibility had concluded prior to the implementation of this study's data collection. Inclusion criteria for the sample consisted of the following elements: (a) a current nursing student who would graduate at the conclusion of the current semester, (b) at least 18 years of age, and (c) planning to take the NCLEX-RN within three months of graduation. This specific cohort included 114 students.

Data Collection Procedures

The researcher attended the two-day NurseThink ReView program scheduled following final exams of the Spring term of 2023 and read the Participant Recruitment Form (see Appendix E). Each potential participant was provided a folder that included the consent form and all pre and post surveys (Appendices F-I). The principal investigator provided an overview of the research study and offered an opportunity for each individual to complete the consent form. Using a retrospective post-then-pre survey method, the principal investigator instructed participants to complete all of the surveys in the following order: (a) academic and non-academic variables survey (see Appendix F), (b) academic outcomes form (see Appendix G,) (c) post-test and pre-test LCJR survey (see Appendix H), and (d) post-test and pre-test CD-RISC-10 survey (see Appendix I). After approximately 15 minutes, all folders and surveys were collected. Table 3.1 identifies the chronological order of data collection.

Table 3.1

Measurement Timeframe

Measurement / Timeframe	First ~ April 26th	Second ~ April 26th	Third ~ April 26th	Fourth ~ May 1st	Fifth ~ May- Sept.
Consent	x				
Demographics	x				
LCJR		x (post-test)	x (pre-test)		
CD-RISC-10		x (post-test)	x (pre-test)		
Confirmed Completion of Remediation	x				
NurseThink NCLEX-RN Readiness Assessment Scores				x	
NCLEX-RN Results					x
Personal Research Journal				x	x

Measurements

Academic and Non-Academic Variables Survey

This brief survey consisted of age, gender, race/ethnicity, English as a first language, cumulative GPA, and number of course failures.

Completed Remediation

As students were required to submit the remediation for course credit, the exam remediation assignment was evaluated on a satisfactory/unsatisfactory scale and was evaluated based on the required amount of remediation. The required amount of remediation was determined by the two NurseThink NCLEX-RN Readiness Assessment scores. The researcher

verified that all participants had completed the two NurseThink NCLEX-RN Readiness Assessment remediation assignments.

Standardized Exam Remediation Assignment

To increase consistency of remediation for all students, the prelicensure faculty at the researcher's institution developed a standardized exam remediation assignment in 2022 (see Appendix J). Following the NCLEX-RN Readiness Assessment exit exam developed by NurseThink, a third-party NCLEX-RN preparation company, participants completed the remediation assignment that consisted of five core elements: (a) student self-reflection of the exit exam performance and preparation, (b) identification of the strengths and opportunities, (c) selection of the four weakest performing concepts, (d) completing virtual simulations and related questions, and (f) reviewing the weakest conceptual areas. Students were also encouraged to discuss the remediation assignment with the course instructor.

Academic Outcomes Performance on National Council Licensure Examination-Registered Nurse First-Time Pass Rate

To correlate participant data with the NCLEX-RN pass rates, the researcher connected each participant's NCLEX-RN test data with the other measurements in the study. The only data pulled from the online license search were pass or fail results of the first-attempt and date of testing.

Three Pairs of Course Exam Scores

Participant scores on the two NurseThink NCLEX-RN Readiness Assessments, two identical pre/post Evolve-Elsevier assessments, and two faculty-created course exams were collected as a percentage from the course instructor. Along with the individual exam results, the

difference between the two exam results was used as an additional data point to evaluate participant growth.

Principal Investigator Personal Journal

A personal journal was kept throughout the data collection phase. This allowed the researcher to record other observations and reflect on any challenges or issues encountered throughout the duration of the data collection phase of the study. No participant identifiers were included within the journal. The journal was kept on a password protected device inside the researcher's locked office.

Self-Reporting Instrumentation

Student clinical judgment and academic resiliency were evaluated by the LCJR surveys (Appendix H) and CD-RISC-10 (Appendix I), respectively. As these are self-reporting instruments, the researcher acknowledged a potential for bias. One form of bias that affects the reliability of self-reporting instruments is response-shift bias (Drennan & Hyde, 2008; Rohs, 1999). Response-shift bias might occur when a participant's understanding of the measured construct changes over time (Drennan & Hyde, 2008). To control for response-shift bias, the principal investigator used a retrospective post-then-pre survey collection process that allowed for participants to complete both pre- and post-surveys following the intervention (Drennan & Hyde, 2008; Rohs, 1999).

Lasater Clinical Judgment Rubric

The LCJR is a 11-item, 4-point Likert scale survey including the scoring indicators of 1—*beginning*, 2—*developing*, 3—*accomplished*, and 4—*exemplary*, which can be used by faculty to evaluate students or by students for personal reflection (Lasater, 2005, 2007). As the LCJR has been used in a multitude of studies, researchers are finding support for the strength of

the instrument's psychometrics. Lasater (2007) acknowledged the continuous adjustment to the LCJR during development might have negatively influenced validity, but additional research found the final version to have construct and content validity (Victor-Chmil, 2013; Yang, 2021). Using Cronbach's alpha, the internal consistency has ranged between 0.82 and 0.97 which is above the acceptable level of 0.8 (Adamson et al., 2012; Cazzell & Anderson, 2016; Gubrud-Howe, 2008). The LCJR also was found to have interrater reliability where multiple raters consistently evaluated the demonstration of clinical judgment above the acceptable level of 0.9 (Gubrud-Howe, 2008). Adamson et al. (2012) found an interrater reliability of 0.889, which was close to the acceptable level.

Connor-Davidson Resiliency Scale-10

The CD-RISC-10 is an ordinal, 10-item scale used to evaluate general resiliency (Connor & Davidson, 2003; Davidson, 2018). The 10-item tool is a 5-point Likert scale (0-4) instrument with potential scoring indicators of 0-not true at all, 1—*rarely true*, 2—*sometimes true*, 3—*often true*, and 4—*true nearly all the time*. The scoring range is 0-40 and the authors do not recommend adapting partial scoring from factor analyses, changing the range, or developing subscales (Campbell-Sills & Stein, 2007; Davidson, 2018). From identified studies, the mean score among the general population and students was 30.8 and 28.2, respectively (Davidson, 2018). The CD-RISC-10 has been used with the specific population of nursing students to evaluate academic resiliency (Hartley, 2012; Otto et al., 2010; Stephens, 2013). Additionally, the mean score among studies involving nursing students was 27.25 (Davidson, 2018).

The original CD-RISC-25 was found to have internal consistency, convergent validity, divergent validity, and test-retest reliability (Connor & Davidson, 2003). Additionally, the replication of the CD-RISC-25 was found to consistently result in strong validity and reliability

(Davidson, 2018). The CD-RISC-10 was adapted from the CD-RISC-25 based on multiple exploratory and confirmatory factor analyses (Campbell-Sills & Stein, 2007). In the first sample (n=511), an exploratory factor analysis was completed and found the 4-, 5-, and 6-factor solutions had goodness of fit. Thus, the 4-factor outcome was selected as each factor was determined by more than one item ($\chi 2$ (206) = 424.09, $p < .001$; RMSEA = .046, 90%; CI = .039–.052, CFit = .88, Eigenvalues >1; Campbell-Sills & Stein, 2007). Using a second sample (n=512), a second exploratory factor analysis was completed and similarly found the 4-factor solution provided the best overall fit ($\chi 2$ (206) = 453.36, $p < .001$; RMSEA = .048, 90% CI = .042–.054, CFit = .66. Eigenvalues >1; Campbell-Sills & Stein, 2007).

Following exploratory factor analysis of the CD-RISC-25, Campbell-Sills and Stein (2007) recommended dropping 15 items, completed a confirmatory factor analysis, and determined that a 10-item, single-factor resiliency scale had a goodness of fit to the third sample (n=537) ($\chi 2$ (35) = 93.77, $p < .001$; RMSEA = .056; 90% CI = .042–.069, CFit = 0.23; SRMR = .034; CFI = .96) and was replicated with the full sample (n=1622) (2 (35) = 176.10, $p < .001$, RMSEA = .050, 90% CI = .043–.057, CFit = 0.50, SRMR = .028, CFI = .97, determinacy = .93; Campbell-Sills & Stein, 2007). The final single-factor CD-RISC-10 indicated good reliability with a Cronbach's alpha of 0.85 (Campbell-Sills & Stein, 2007). Similar results found with the CD-RISC-10 were confirmed, and the adapted scale was validated and accepted by Connor and Davidson as an approved short-version of the CD-RISC-25 (Davidson, 2018).

Expert Validation of Self-Reporting Instruments

As previously discussed, the LCJR and the CD-RISC-10 have been utilized and been found to be valid and reliable among the similar populations; however, some of the studies located were not recent. Therefore, the current study had each tool revalidated through an expert panel of nursing faculty and researchers in the related areas of resiliency, clinical judgment, and

instrument design. The instrument was shared with an odd-numbered, small group of colleagues who individually had at least seven years of experience educating prelicensure nursing students. It was anticipated that the instrument might need to be reviewed twice prior to use in this study. The experts used a template (see Appendix K) designed to evaluate the content validity index (CVI) of instruments (Said et al., 2022; Wynd et al., 2003). In addition to receiving the self-reporting CVI, each expert received the LCJR (see Appendix H) and the CD-RISC-10 (see Appendix I). Each item in the respective scale was evaluated using a 4-point Likert scale to evaluate interrater, expert agreement about the validity of the self-reporting instruments. Experts were asked to complete and return their content validity assessment within one week of receiving materials. Responses were tallied and evaluated by either item and scale CVI or through the use of a coefficient kappa (*k*) to evaluate interrater agreement (Wynd et al., 2003).

Analysis

Procedures and Assumptions

Data were cleaned, loaded, and analyzed using Statical Packages for the Social Sciences (SPSS) software version 26. The following analysis procedures were implemented to investigate the potential relationship among the study's variables. The first step was an analysis of demographic data using descriptive statistics. The demographic data were described using mean values, standard deviations, frequency distributions, and percentages based on the formatting scale of variables. Each variable was evaluated for a specific level of measurement (i.e., nominal, ordinal, interval, or ratio). Statistical analyses included the Spearman correlation coefficient, Pearson correlation coefficient, independent and paired *t*-tests, the chi-square, and the Mann Whitney U-test. The assumptions for using the paired *t*-test included two paired measurements (i.e., pre-post test) of at least ordinal data and the two were normally distributed or

included at least 30 pairs that were not too badly skewed (Kellar & Kelvin, 2013). The assumptions for the chi-square test included two independent nominal or ordinal values (Kellar & Kelvin, 2013). As there would likely be fewer than five expected cases in a cell, the Fisher's exact test was used. The assumptions for the Spearman correlation coefficient included two independent, monotonic variables of at least ordinal measures, while the Pearson correlation coefficient required normally distributed variables of at least interval variables (Kellar & Kelvin, 2013). The assumptions for the Mann-Whitney U-test included a dichotomous grouping variable—an independent measure of at least the ordinal level and more than eight samples (Kellar & Kelvin, 2013). The assumptions for the independent *t*-test included a dichotomous grouping variable and an independent, continuous, normally distributed measuring variable (Kellar & Kelvin, 2013).

Management of Attrition and Missing Data

As is expected in an exploratory study, all data collected were included in the analyses and no participants were excluded from the statistical procedures. In the event of missing data, the entry remained blank and the *n*-value was adjusted for that particular analysis. Due to the nature of a retrospective post-then-pre survey design, it was expected that missing data would be minimal.

Calculation of Change in Scores

The study included repeat measures of the CD-RISC-10 and the LCJR survey. The instrument designers encouraged use of the total score for each survey. The surveys were not to be broken down into multiple factors. Therefore, this study calculated the total score of each survey and subtracted the pre-test results from the post-test results.

Duration of Study

Participant retrospective post-then-pre survey data were collected in April 2023. Participant NCLEX-RN performance results were collected between May 2023 and September 2023. The overall duration of the study was from April 2023 to September 2023.

Ethical Considerations

This study was submitted to the Institutional Review Board at the University of Toledo, the primary sampling site, and to the University of Northern Colorado (see Appendix L for approvals). All information collected from participants was located on a password-protected device kept in the principal investigator's locked office. All data were only viewed by the principal investigator and this dissertation's research chair. Even though anonymity was not afforded, strict precautions and safeguards were taken to protect the confidentiality of participants throughout the entire research and data analysis process. Only aggregate findings were reported to uphold the ethical principle of confidentiality. Once the data analysis was complete, all research files, consent documentation, survey results, and participant contact information will be retained for a period of at least three years within an encrypted file and folder on the principal investigator's computer. A backup of the documents will be stored on an encrypted flash drive and locked in the Office of Research at the principal institution's site.

Risks, Discomforts, and Benefits

Risks were expected to be minimal throughout the study. Participants were asked to self-evaluate levels of academic resiliency and clinical judgment. Participants might exhibit some degree of anxiety during the process of self-evaluation, but the magnitude and probability of discomfort were not expected to extend beyond the survey environment or be greater than the expected nature of completing remediation activities or self-assessments. The voluntary study

design allowed participants to mitigate discomforts by withdrawing from the study. Another potential risk was the loss of confidentiality. To decrease risk of loss of confidentiality, participants were identified by a predetermined research code on each of the research documents. A separate Excel document housed the code and participant name to collate the various data components. The benefits might include enhanced professional pride due to participating in disciplinary research. Also, all participants were awarded a $5 Amazon gift card for participating in the study along with entry into a drawing for three $50 Amazon gift cards. Emails were collected on a separate document pertaining to participant compensation. Once compensation had been distributed, the list of participant emails was destroyed.

Summary

This chapter discussed the specific components of the study's methodology including the design, setting, sample, procedure, instruments, analysis, ethical considerations, risks, and benefits. The research design followed a retrospective post-then-pre survey, non-experimental, exploratory approach. Throughout the study interventions and data collection process, procedures adhered to human subject standards for protection of all participants. All necessary precautions were taken to maintain confidentiality of data collection. Results of data were deidentified, aggregated, and disseminated in methods that did not allow for the linking of outcomes to individual participants. The findings were reported through descriptive and inferential statistics.

CHAPTER IV

RESULTS

This research study had the opportunity to review data pertaining to the first use of the newest version of the National Council Licensure Exam for Registered Nurses (NCLEX-RN), which was released in April 2023. The updated version is called the Next Generation NCLEX-RN and was redesigned to more effectively evaluate student clinical judgment skills. As such, this study employed a non-experimental, exploratory design to investigate potential relationships among student clinical judgment, academic resiliency, exam remediation, demographic variables, academic performance variables, and Next Generation NCLEX-RN first attempt pass rates. The exploratory nature was appropriate due to the limited evidence identified in the literature evaluating the relationships among these specific variables. As depicted in Chapter III, Figure 3.1 provided a path for reviewing and investigating the study variables. In this chapter, the data analysis is divided into the following sections: (a) descriptive statistics of non-academic and academic variables, (b) validity and reliability of the Lasater Clinical Judgment Rubric (LCJR) and the Connor-Davidson Resiliency Scale (CD-RISC-10) with the study's participants, and (c) exploration of the data collected.

Descriptive Statistics

Demographics of Participants

Non-Academic Variables

The convenience sample pool included 114 Bachelor of Science in Nursing (BSN) students who were recruited for this exploratory study from a public, Midwestern university.

One hundred six participants (92.9%) responded and completed at least a portion of the requested data collection and surveys. Ninety-five participants (89.6%) completed all survey components of the study; however, as an exploratory study, all data from the 106 participants were retained and examined. Of the 106 participants, 12.3% (*n*=13) identified as male, 85.8% (*n*=91) identified as female, and 1.9% (*n*=2) did not answer. This was commensurate with the national average of male nurses at 13.3% (U.S. Department of Labor: Bureau of Labor Statistics, 2022). The racial diversity reported by participants included 88.7% (*n*=94) White, 4.7% (*n*=5) Black/African-American, 3.8% (*n*=4) Asian, 1.9% (*n*=2) Multi-Race, and 0.9% (*n*=1) identifying as Other Race. According to the National Nursing Workforce Study (Smiley et al., 2023), about 20% of practicing nurses were non-Caucasian; yet, this study's participants only consisted of 11.3% (*n*=12) identifying as minority status. The ethnic diversity of the study participants consisted of 4.7% (*n*=5) identifying as Hispanic/Latino, 89.6% (*n*=95) identifying as non-Hispanic/non-Latino, and 5.7% (*n*=6) did not answer. Of note, 6.9% of current registered nurses self-identified as Hispanic (Smiley et al., 2023). As the sample consisted of traditional BSN prelicensure nursing students, 99.1% (*n* = 105) of the participants were between 19 and 24 years of age (*n* = 41 for 19-21; *n* = 64 for 22-24). One participant identified as older than 33 (0.9%). One additional non-academic variable was whether participants selected the English language as a first language. Ninety-eight (92.5%) participants used English as a first language while four (3.8%) stated English was not their first language. Four (3.8%) participants did not respond to the question.

Academic Variables

For the participants of this study, the academic variables investigated included current cumulative GPA prior to the completion of the final semester of coursework, overall number of

course failures, and number of nursing program course failures. The current cumulative GPA was collected through ordinal categories with 69 (65.1%) participants rating above a 3.5 GPA prior to the inclusion of the final semester of coursework. For overall course failures, 83 (78.3%) participants passed all courses on the first-attempt, nine (8.5%) failed one course, five (4.7%) failed two courses, five (4.7%) failed three courses, three (2.8%) failed four courses, and one (0.9%) failed more than four courses. Course failures specifically within nursing major included 86 (81.1%) participants passing all courses on the first attempt, seven (6.6%) failing one course, six (5.7%) failing two courses, six (5.7%) failing three courses, and one (0.9%) failing four courses. All 106 (100%) participants completed the required course exam remediation.

Course Grades

For this study, the course-related grades identified and evaluated as variables included the following: two course exams; two standardized, non-identical NurseThink NCLEX-RN Readiness Assessment exit exams; two identical pre/post Evolve-Elsevier assessments, and the curriculum's NCLEX-RN Preparation overall course grade. The first course exam, which occurred prior to the completion of any course exam remediation activities, had a mean and median of 61.85% and 62.14%, respectively, with a range of 30.1% (min=45.63%; max=75.73%). The second course exam occurred toward the end of the semester following remediation and had a mean and median of 68.52% and 69.32%, respectively. The range of the second course exam was 33.17% (min=49.27%; max=82.43%). Concurrently with the course exams, two nationally standardized NurseThink NCLEX-RN Readiness Assessment exit exams were offered to participants. The first NCLEX-RN Readiness Assessment results included a mean of 67.13%, a median of 66.81%, and range of 31.17% (min=50.52%; max=81.69%). The

second NCLEX-RN Readiness Assessment was given following exam remediation exercises related to each individual participant's results on the first NCLEX-RN Readiness Assessment. The mean was 61.74%, the median was 62.07%, and the range was 32.8% (min=44.03%; max=76.83%). The first of two identical pre/post Evolve-Elsevier assessments was administered as homework prior to any exam remediation. The results included a mean of 58.73%, median of 58.00%, and a range of 38.00% (min=40.00%; max=78.00%) for the first assessment. The second Evolve-Elsevier assessment was administered as homework following two course exams and both remediations for the NCLEX-RN Readiness Assessments. The results included a mean of 60.65%, a median of 60%, and a range of 41% (min=42%; max=83%). The overall course grade was retained as an additional academic variable. The mean overall grade was an 89.99%, the median was 89.92%, and the range was 19.84% (min=78.21%; max=98.05%).

National Council Licensure Exam for Registered Nurses First-Time Attempt Results and Time Lag

As of July 2023, the following 86 results were retrieved from data posted to the Ohio State Board of Nursing public domain website. Of the 86 available results, 82 (95.3%) participants passed and four (4.7%) participants failed the NCLEX-RN on their first attempt. In addition to each participant's NCLEX-RN first attempt results, time lag was determined as the number of days between graduation and each individual's first NCLEX-RN attempt. Of the 86 individuals who completed their first attempt of the NCLEX-RN, the time lag mean was 58.94 days, time lag median was 57 days, and time lag range was 57 days. The shortest time lag to testing was 34 days, and the longest time lag was 91 days.

Validity and Reliability of Survey Instruments

Expert Review of Survey Instruments

In previous studies, the LCJR and the CD-RISC-10 were determined to be valid and reliable among similar populations. Still, the following section discusses the demographics of the expert panel and the results of the validity and reliability testing that occurred during the current study. Ten content experts were approached to complete an expert review of the CD-RISC-10 and LCJR. Five experts agreed to participate and complete the content validity index (CVI) instrument. The five experts had either attained or were currently working to complete their Ph.D. The expert nurse educators were selected because of their diversity in employment expertise including medical-surgical, mental health, hospice, neurovascular, perioperative, intensive care, emergency department, and managerial environments. Additionally, they were selected due to their extensive experience as faculty of undergraduate, traditional prelicensure BSN nursing students. The expert reviewers reported an average age of being 53 years old with an average of 29.6 years of experience as a registered nurse. The five reviewers had a mean of 14.4 years in nursing education. Three experts identified as female and two identified as male.

Connor-Davidson Resiliency Scale-10

The CD-RISC-10 is an ordinal, 10-item scale used to evaluate general resiliency (Connor & Davidson, 2003; Davidson, 2018). The CD-RISC-10 is a 5-point Likert scale instrument that was created to evaluate patient's perception of their ability to overcome life challenges in areas including mental illness, depression, aging, and academic environments (Connor & Davidson, 2003). This version of the instrument has been used with samples of U.S. nursing students (Hartley, 2012; Otto et al., 2010; Stephens, 2013). Permission to use the CD-RISC-10 in this study was received (see Appendix I). While previous analysis of the CD-RISC-10 supported its

validity and reliability, the content validity and reliability were assessed for the current study's sample (Campbell-Sills & Stein, 2007).

Content Validity of the Connor-Davidson Resiliency Scale-10

The CVI instrument consisted of two Likert-scale ratings of each survey item (see Appendix K). The expert reviewers were asked to evaluate each item's construct relevance and clarity. An item CVI (I-CVI) above 0.78, scale CVI (S-CVI) average of above 0.90, and a S-CVI universal agreement above 0.80 were desired to support excellent content validity (Polit & Beck, 2006). For the clarity and relevance of the CD-RISC-10, the I-CVI was above 0.8 on all 10 items and the S-CVI average was 0.94 and 0.98, respectively. The S-CVI universal agreement was 0.7 for clarity and 0.9 for relevance of the CD-RISC-10. The combined clarity and relevance S-CVI average and universal agreement was 0.98 and 0.9, respectively. The results of the CVI did not suggest alteration to individual items of the CD-RISC-10.

Reliability of Connor-Davidson Resiliency Scale-10

The CD-RISC-10 was evaluated for content reliability using the Cronbach's alpha. The Cronbach's alpha ranges from 0 to 1 with higher scores representing greater internal consistency of the scale items (Grove, 2021b). A score above 0.8 is desirable, but a score above 0.7 is acceptable for Cronbach's alpha (Grove, 2021b). The Cronbach's alpha for the pre-CD-RISC-10 was 0.856. For the pre-CD-RISC-10, the inter-item correlations ranged from 0.168 to 0.584, and the corrected item-total correlation values ranged between 0.366 to 0.688. The Cronbach's alpha if-item-deleted scores ranged between 0.831 and 0.865. The Cronbach's alpha for the post-CD-RISC-10 was 0.796. For the post-CD-RISC-10, the inter-item correlations ranged from -0.076 to 0.515, and the corrected item-total correlation values ranged between 0.275 to 0.593. The Cronbach's alpha if-item-deleted scores ranged between 0.763 and 0.810. Per the results, if item

3 was removed from the pre- and post-CDRISC-10, the updated results would have shown a Cronbach's alpha of 0.865 and 0.810, respectively. Even though removing item 3 would have slightly improved the overall statistical reliability, the practical difference would not have resulted in a significant enough improvement to justify the modification. These results indicated that the CD-RISC-10 survey had support for being a reliable instrument among the current sample even prior to potential adjustments (see Table 4.1 for complete analysis). While permission to use the CD-RISC-10 was granted, modifications were prohibited and all 10 items were retained for the analysis.

Table 4.1

Reliability of Connor-Davidson Resiliency Scale-10

Item	Mean Item Score	Item-Total Correlation (all 10 items)	Cronbach's Alpha If Item Deleted (all 10 items)	Cronbach's Alpha If Item Deleted (if item-3 removed)
Pre-1	2.78	0.576	0.842	0.865
Post-1	3.25	0.501	0.777	0.792
Pre-2	2.70	0.634	0.837	0.847
Post-2	3.09	0.543	0.770	0.785
Pre-3	2.55	0.366	0.865 (slightly higher)	REMOVED
Post-3	2.88	0.275	0.810 (slightly higher)	REMOVED
Pre-4	2.58	0.514	0.846	0.858
Post-4	3.12	0.498	0.775	0.795
Pre-5	2.88	0.577	0.842	0.852
Post-5	3.32	0.516	0.775	0.794
Pre-6	2.91	0.587	0.840	0.849
Post-6	3.52	0.477	0.778	0.786
Pre-7	2.35	0.593	0.839	0.849
Post-7	2.82	0.370	0.789	0.804
Pre-8	1.99	0.576	0.841	0.856
Post-8	2.35	0.450	0.782	0.807
Pre-9	2.87	0.688	0.831	0.839
Post-9	3.33	0.593	0.764	0.776
Pre-10	2.50	0.601	0.839	0.850
Post-10	2.98	0.593	0.763	0.781
Pre-Survey Cronbach's			0.856	0.865
Post-Survey Cronbach's			0.796	0.810

Lasater Clinical Judgment Rubric

The current version of the LCJR included 11 dimensions related to the four phases of Tanner's (2006) clinical judgment model (TCJM). Lasater suggested the rubric might be useful to faculty, students, and practicing nurses in the process of evaluating clinical judgment. The LCJR has been used within student simulations, clinical learning environments, and professional practice; however, no literature was identified that used the LCJR in student self-evaluation of clinical judgment related to an examination environment (Brown, 2021; Call, 2017; Fedko, 2016; Huffstetler, 2022). While the nationally recognized LCJR instrument has support for being a valid and reliable instrument, the current study investigated the instrument's content validity and reliability among this study's participants (Adamson et al., 2012; Cazzell & Anderson, 2016; Gubrud-Howe, 2008; Victor-Chmil, 2013; Yang, 2021).

Content Validity of the Lasater Clinical Judgment Rubric

The CVI instrument was the same design for both the CD-RISC-10 and the LCJR. The instrument consists of two Likert-scale ratings of relevance and clarity for each survey item (see Appendix K). For the LCJR, all 11 items achieved above a 0.8 I-CVI with 9 of the 11 items having an I-CVI of 1.00 for both clarity and relevance. Items 10 and 11 had an I-CVI of 0.8 as one reviewer did not find the item relevant or clearly communicated. The S-CVI averages for the relevance, clarity, and total score of the LCJR were all 0.964. The S-CVI universal agreement for the relevance, clarity, and total score of the LCJR was 0.818. The results of the CVI did not support further adjustment of the individual items of the LCJR (Polit & Beck, 2006).

Reliability of the Lasater Clinical Judgment Rubric

The LCJR was evaluated for content reliability through use of the Cronbach's alpha. The Cronbach's alpha for the pre-LCJR was 0.886. For the pre-LCJR, the inter-item correlations

ranged from 0.219 to 0.594 and the corrected item-total correlation values ranged between 0.507 to 0.667. For the pre-LCJR, the Cronbach's alpha if-item-deleted scores ranged between 0.872 and 0.882. The Cronbach's alpha for the post-LCJR was 0.762. For the post-LCJR, the inter-item correlations ranged from 0.022 to 0.556 and the corrected item-total correlation values ranged between 0.333 to 0.466. The Cronbach's alpha if-item-deleted scores ranged between 0.737 and 0.753 (see Table 4.2 for detailed analysis). According to Grove (2021b), the analysis indicated the LCJR survey had support for being a reliable instrument among the current sample.

Table 4.2

Reliability of Lasater Clinical Judgment Rubric

Item	*M* Item Score	Item-Total Correlation	Cronbach's Alpha If Item Deleted
Pre-1	2.35	0.592	0.877
Post-1	3.17	0.464	0.737
Pre-2	2.38	0.616	0.875
Post-2	3.27	0.408	0.744
Pre-3	2.52	0.604	0.876
Post-3	3.26	0.439	0.741
Pre-4	2.30	0.507	0.882
Post-4	3.12	0.353	0.752
Pre-5	2.32	0.579	0.878
Post-5	3.06	0.386	0.747
Pre-6	2.75	0.639	0.874
Post-6	3.46	0.442	0.740
Pre-7	2.85	0.663	0.872
Post-7	3.52	0.466	0.737
Pre-8	2.41	0.616	0.875
Post-8	3.15	0.455	0.738
Pre-9	2.45	0.667	0.872
Post-9	3.17	0.333	0.753
Pre-10	2.47	0.643	0.874
Post-10	3.15	0.377	0.748
Pre-11	2.85	0.524	0.882
Post-11	3.47	0.392	0.746

Analysis of Research Questions

The exploratory nature of this study resulted in a foundational research question aimed at investigating potential relationships among exam remediation, academic resiliency, non-academic variables, academic performance variables, NCLEX-RN pass rates, and/or student clinical judgment. After reviewing the collected data, the researcher further investigated the following questions in this exploratory study analysis with an alpha of 0.05 (α=0.05).

Research Question 1

Q1 Did the completion of exam remediation have a relationship with changes in LCJR, CD-RISC-10, course exam scores, pre/post Evolve-Elsevier assessment, and/or standardized NurseThink NCLEX-RN Readiness Assessment scores?

The data collected related to this question were at the scale-level or ordinal-level from multi-item Likert scale surveys. While ordinal data tend to use nonparametric analysis, literature supported the use of the *t*-test even when the populations are not normally distributed (de Winter & Dodou, 2010; Kellar & Kelvin, 2013; Vieira, 2016). Therefore, the paired *t*-test was used as the statistical test to determine whether a relationship existed among completion of exam remediation and the LCJR, CD-RISC-10, course exams, pre/post assessment, and/or standardized NurseThink NCLEX-RN Readiness Assessments.

Lasater Clinical Judgment Rubric

One hundred one participants completed both pre and post LCJR surveys. The mean score of the pre LCJR was 27.64 (*SD* = 5.151) and the post LCJR was 35.98 (*SD* = 3.361). The results showed a significant difference between the pre and post LCJR surveys with a mean gain in score of 8.337 points ($t(100) = 19.029$, $p < .001$). The 95% confidence interval (CI; 7.467 to 9.206) indicated a difference between the means and supported the existence of a relationship between exam remediation and increased self-perceived clinical judgment.

Connor-Davidson Resiliency Scale-10

One hundred six participants completed the pre and post CD-RISC-10 surveys. The pre and post CD-RISC-10 mean scores were 26.15 (*SD* = 5.727) and 30.73 (*SD* = 4.448), respectively. With a *p*-value of < .001, participants gained an average of 4.58 points (95% interval, 3.860, 5.291; *t*(105) = 12.677). The results found a statistically significant, positive correlation between exam remediation activities and the CD-RISC-10. In this study, participants demonstrated higher academic resiliency after completing exam remediation.

Course Exam Scores

The means of the course exams collected for this study were 61.85% (*SD* = 6.196) and 68.52% (*SD* = 6.65), respectively. The 95% CI of the difference between means ranged from 5.56 to 7.77 and indicated a positive, statistically significant relationship between exam remediation and course exam scores (*t*(105) = 11.945, *p* < .001). This supported the conclusion that participants earned higher exam scores following pervious exam remediation activities.

Standardized NurseThink National Council Licensure Exam for Registered Nurses Readiness Assessments

The first standardized NurseThink NCLEX-RN Readiness Assessment taken by the study participants had a national mean of 68.61% while the second exam had a national mean of 63.46%. To standardize and appropriately analyze this data, each participant's raw individual exam scores were converted to a related variable based on their comparison with the national mean score of each NurseThink NCLEX-RN Readiness Assessment exit exam. The mean comparison for the first exit exam was -1.719 (*SD* = 6.87). The mean comparison for the second NCLEX-RN Readiness Assessment was -1.483 (*SD* = 5.979). The results did not find a statistically significant difference between the NCLEX-RN Readiness Assessment scores before

and after exam remediation ($t(105) = -0.419$, $p = .676$). Therefore, the results did not identify a significant relationship between exam remediation and the nationally standardized NurseThink NCLEX-RN Readiness Assessments.

Pre and Post Evolve-Elsevier Assessments

The pre/post Evolve-Elsevier assessments were identical exams. The pre-assessment was given early in the semester prior to any exam remediation and the post-assessment was given following the two course exam remediation activities. Remediation was not identified as being related to the pre/post assessment results (95% CI [0.081-3.615], $t(104) = 2.074$, $p = .24$).

Research Question 2

Q2 Did academic and/or non-academic variables relate to clinical judgment and/or academic resiliency?

Bivariate analysis including Pearson correlation and Spearman correlation were used to investigate the relationships between academic resiliency and clinical judgment with academic/non-academic variables.

Academic Variables

Spearman correlation was used to investigate the following ordinal-level data (Kellar & Kelvin, 2013). Current cumulative GPA ($r = .243$, $p = .012$, $n = 106$), overall course failures ($r = -.263$, $p = .006$, $n = 106$), and nursing course failures ($r = -.244$, $p = .012$, $n = 106$) showed a statistically significant relationship with the post LCJR survey; however, no relationship was identified between these academic variables and the degree of change in clinical judgment. As participants had higher GPAs and fewer course failures, they had higher post-clinical judgment scores. Regarding academic resiliency, overall course failures ([pre-survey] $r = -0.226$, $p = .020$, $n = 106$; [post-survey] $r = -.256$, $p = .008$, $n = 106$) and nursing course failures ([pre-survey] $r = -0.231$, $p = .017$, $n = 106$; [post-survey] $r = -.228$, $p = .019$, $n = 106$) identified that

participants with higher numbers of course failures had lower pre/post academic resiliency scores. The Spearman correlation suggested that participants with fewer course failures had higher academic resiliency.

Non-Academic Variables

Using Spearman correlation for age, which was collected as ordinal-level data, did not identify a relationship with either academic resiliency or clinical judgment. Mann-Whitney *U* was used to investigate the relationship among the dichotomous grouping variables of gender, ethnicity, race, and English as a first language. While no relationship was found among gender, race, or English as a first language, a relationship between ethnicity and clinical judgment and academic resiliency was identified. Individuals identifying as Hispanic ($n = 5$) had a greater degree of change in academic resiliency (Hispanic mean rank=83.6; non-Hispanic mean rank=48.76, $p = .009$) than non-Hispanic participants ($n = 95$). Also, non-Hispanic individuals had higher pre-clinical judgment scores (non-Hispanic mean rank=50.09; Hispanic mean rank=19.5).

Using Pearson correlation, time lag was identified as having a statistically significant relationship with change in CD-RISC-10 ($r = -.248$, $p = .021$, $n = 86$), change in LCJR ($r = -.221$, $p = .043$, $n = 86$), and post LCJR ($r = -.236$, $p = .28$, $n = 86$). These results suggested that participants who had stated greater changes in clinical judgment, greater changes in academic resiliency, and who had higher post-remediation LCJR scores appeared to attempt the NCLEX-RN sooner.

Research Question 3

Q3 Did academic and/or non-academic variables relate to NCLEX-RN first-time pass rates?

Academic Variables

The independent samples *t*-test was used to investigate the relationship between time lag and NCLEX-RN first time pass rate. The results indicated no statistically significant correlation was identified. The overall NCLEX-RN Preparation course grade used the independent *t*-test and found that participants who passed the NCLEX-RN on the first attempt had a mean grade of 91.31% (*SD* = 1.27) and participants who failed the NCLEX-RN on the first attempt had a mean grade of 86.62% (*SD* = 3.18). Participants passing the NCLEX-RN on the first attempt had a course grade 4.69% higher than those who failed the NCLEX-RN on the first attempt (95% CI=1.49%–7.88%; $p = .004$).

Due to the ordinal nature of the data, the Mann-Whitney U (a nonparametric test) was used to evaluate the potential relationship of GPA and course failures with NCLEX-RN first time pass rates. Both variables were found to have a statistically significant relationship with NCLEX-RN pass rates. The current cumulative GPA mean rank of participants who failed the NCLEX-RN was 5.38 and the mean rank of those who passed the NCLEX-RN was 45.36 ($p < .001$). The mean category-based GPA was between 2.75 and 3.24 of those who failed and the mean category-based GPA was between 3.50 and 3.99 of the participants who passed the NCLEX-RN on their first attempt. Participants with higher GPA had higher NCLEX-RN pass rates than those who failed. For overall course failures, individuals who passed the NCLEX-RN on the first attempt (NCLEX-RN pass rate mean rank=42.11, *M*=0.13 failures) was statistically significant ($p < 0.001$) compared to individuals who failed on the first attempt (NCLEX-RN pass rate mean rank=72.00, *M* =2 failures). Regarding nursing course failures, individuals who passed the NCLEX-RN on the first attempt (NCLEX-RN pass rate mean rank=42.07, *M* = .07 failures) were statistically, significantly different ($p < .001$) compared to individuals who failed

on the first attempt (NCLEX-RN pass rate mean rank=72.75, *M* = 1.50 failures). Participants with fewer course failures appeared to have a greater propensity toward passing the NCLEX-RN on their first attempt.

Non-Academic Variables

As the grouping variable was dichotomous, phi, chi-square, or Fisher's exact test were used to evaluate the potential relationship with the variable of interest. Gender, age, ethnicity, and English as a first language were not found to be statistically significant in their relationship with NCLEX-RN first time pass rates. Due to the limited diversity within the sample, race was recoded to be dichotomous between non-Caucasian and Caucasian. After this recoding, the Fisher's exact test (p=0.042) was used due to chi-square cells having a count less than 5. Of the total sample (n = 86), 4.7% failed and 95.3% passed the NCLEX-RN on the first attempt. Seventy-five percent of non-Caucasian and 97.4% of Caucasian participants passed on the first attempt. The odds of passing the NCLEX-RN on the first attempt were 12.67 times higher among Caucasian individuals than non-Caucasian individuals.

Research Question 4

Q4 Did individual pre or post results or changes in LCJR, CD-RISC-10, course exam, identical pre/post Evolve-Elsevier assessment, and/or standardized NurseThink NCLEX-RN Readiness Assessment scores relate to NCLEX-RN first-time pass rates?

The independent *t*-test was best suited to analyze data consisting of a dichotomous grouping variable and continuous-level variables of interest. The change between pre and post tests of the LCJR or CD-RISC-10 was not found to be statistically related to the NCLEX-RN first attempt pass rate. In this analysis, it was concluded that course exam 1, course exam 2, post-Evolve-Elsevier assessment, and the second NurseThink NCLEX-RN Readiness Assessment were found to have statistically significant correlations with NCLEX-RN first

attempt pass rates. For course exam 1, the overall mean score was a 61.85% (*SD* = 6.198). The mean score for participants who failed the NCLEX-RN on the first attempt was 57.28% (*SD* = 6.191) compared to 63.52% (*SD* = 5.477) for participants who passed (95% CI=0.64%–11.84%, $t(84) = 2.21$, $p = .030$). For course exam 2, the exam's mean was 68.52%. Those participants who failed the NCLEX-RN on the first attempt had a mean of 63.47% (*SD* = 5.616) while those who passed had a mean of 70.29% *(SD* = 5.567). At the 95% CI, the researcher concluded that the true difference between passing and failing the NCLEX-RN was between 1.16% and 12.5% ($t(84) = 2.92$, $p = .019$). The post-Evolve-Elsevier assessment had an overall mean score of 60.65%. Participants who passed the NCLEX-RN on the first attempt had a mean of 61.52% (*SD* = 8.681) while those who failed the NCLEX-RN had a mean of 52.5% (*SD* = 9.678). It could be concluded ($t(84) = 2.02$, $p = .046$) with 95% confidence that the true score difference between participants who passed and failed the NCLEX-RN on the first attempt was 0.146% and 17.9%, respectively. The second NurseThink NCLEX-RN Readiness Assessment had a mean of 61.74% with a mean difference between participants who passed and failed of 6.97% (passed mean=63.53% [*SD* = 6.079]; failed mean=56.56% [*SD* = 4.60]). At the 95% CI, the true difference was between 0.83% and 13.11% when comparing individuals who passed and failed the NCLEX-RN on the first attempt ($t(84) = 2.26$, $p = .027$).

Summary

This chapter provided a detailed analysis of the collected data in this study. Each participant in the analysis completed exam remediation activities after the two NurseThink NCLEX-RN Readiness Assessments. One hundred six prelicensure students answered self-reported surveys covering academic and non-academic variables, clinical judgment, and academic resiliency. The researcher identified and correlated 86 participants' survey responses

with their NCLEX-RN first attempt results. While numerous statistically significant relationships were identified among the study variables, a more robust data analysis was negatively influenced due to the discrepancy between the group sizes of participants who passed and those who failed the NCLEX-RN on the first attempt. All participants completed the exam remediation activities. Discussion about the study's findings and implications is presented in Chapter V.

CHAPTER V

DISCUSSION AND CONCLUSIONS

This non-experimental, exploratory study was designed and conducted to investigate the relationship of exam remediation with non-academic demographic variables, academic variables, academic resiliency, student clinical judgment, and NCLEX-RN performance. Data collected from multiple self-reporting surveys including a demographic survey, the Connor-Davidson Resiliency Scale-10 (CD-RISC-10), and the Lasater Clinical Judgment Rubric (LCJR) provided insight into potential relationships among the variables in the study. The results of the study supported that some previously identified correlations among the variables might exist and identified new correlations among the study variables. Still, additional research and replication of this study is encouraged to build further evidence. This first portion of the chapter provides a brief summary of the study's background, research questions, and methodology. The remainder of the chapter focuses on the discussion of the results, findings, limitations, implications for nursing education, and recommendations for future research.

Background

Nursing students and new graduate nurses must continue to develop critical thinking, clinical reasoning, and clinical judgment abilities as they prepare for entry into the nursing profession (Muntean, 2012; NCSBN, 2019). These cognitive and practical functions are necessary for nurses to practice in increasingly stressful nursing environments due to various employment factors such as increased patient acuity, the growing nursing shortage, and uncivil peer relationships (Mefoh et al., 2019; U.S. Department of Labor: Bureau of Labor Statistics,

2022; Wexler et al., 2014). Prior to officially entering the nursing profession, new graduates must pass the NCLEX-RN exam, which has recently undergone a significant, structural alteration (NCSBN, 2019). This new evidence-based format, titled the Next Generation NCLEX-RN, is based on Tanner's clinical judgment model (TCJM) and was designed to improve the validity and reliability of evaluating new graduate nurse's critical thinking, clinical reasoning, and clinical judgment capabilities (NCSBN, 2019).

In addition to the future stresses within the work environment and preparation for the Next Generation NCLEX-RN exam, nursing students must manage the rigor, intensity, and stresses of successfully progressing through a nursing program (Diffley & Duddle, 2022; Stephens et al., 2017). To persist under academic and professional strain, individuals must develop and utilize protective mechanisms. One concept that has become the focus of recent study is resiliency. Resiliency as a fluid characteristic is capable of being developed and improved as a personal trait (Chisholm-Burns et al., 2019). Students and professionals who exhibit resilient behaviors might be able to weaken the negative influence of personal and professional stressors and remain focused on becoming a nurse and working long-term within the nursing profession (Brown, 2018; Hodges et al., 2008; Reyes et al., 2015; Sauer, 2018).

As a method useful for improving nursing knowledge, remediation activities, a broadly used term used to describe methods to improve upon academic deficits, might assist nursing students to remain positive, bounce back from failures, and increase the likelihood of passing the licensing exams (Ching et al., 2020; Custer, 2018; Stuckey & Wright, 2020). Nursing students might benefit from completing various learning activities, typically following a test or assessment, to identify areas of weakness and improve knowledge (Hedderick, 2009; Lutter et al., 2017; Shah et al., 2022). The complex and constantly changing milieu of nursing academe

and nursing practice requires enhanced knowledge pertaining to methods of how nursing students and new graduates could have long-term success in the profession. Currently, no evidence was identified that demonstrated a relationship among clinical judgment, academic resiliency, and NCLEX-RN first attempt pass rates. While research was found discussing the development of clinical judgment within simulation or clinical environments, no research was located that discussed the influence of exam remediation on academic outcomes, resiliency, or clinical judgment.

Research Questions

The initial foundational, non-experimental, exploratory research question (see Chapter I) was

Q1 Is there a relationship among exam remediation, academic resiliency, academic performance variables, NCLEX-RN pass rates, and/or student clinical judgment?

Following the review of collected data, the initial research question was adapted into the following four specifically defined research questions.

Q1 Did the completion of exam remediation have a relationship with changes in LCJR, CD-RISC-10, course exam scores, pre/post Evolve-Elsevier assessment, and/or standardized NurseThink NCLEX-RN Readiness Assessment scores?

Q2 Did academic and/or non-academic variables relate to clinical judgment and/or academic resiliency?

Q3 Did academic and/or non-academic variables relate to NCLEX-RN first-time pass rates?

Q4 Did individual pre or post results or changes in LCJR, CD-RISC-10, course exam, identical pre/post Evolve-Elsevier assessment, and/or standardized NurseThink NCLEX-RN Readiness Assessment scores relate to NCLEX-RN first-time pass rates?

Methodology, Setting, and Sample

This non-experimental, exploratory field study used a retrospective post-then-pre survey process. Prelicensure nursing students from a midsize, public, Midwest university voluntarily completed three self-reporting surveys: a demographic survey, the LCJR, and the CD-RISC-10. These surveys provided data pertaining to non-academic variables, academic variables, academic resiliency, and clinical judgment abilities. The initial sample pool consisted of 114 BSN nursing students with a response rate of nearly 93% (n = 106). Of these responses, 89.6% (n = 95) completed all data collection components of the surveys and 81.1% (n = 86) completed their first attempt of the NCLEX-RN by the conclusion of the data collection phase of this study.

Discussion of Results and Major Findings

Validity and Reliability of the Connor-Davidson Resiliency Scale-10

The CD-RISC-10 had previous support for being a valid and reliable instrument among samples of U.S. nursing students (Hartley, 2012; Otto et al., 2010; Stephens, 2013). The content validity and reliability of the CD-RISC-10 was further evaluated among the current study's sample. The results of the content validity index (CVI) did not support the need for further adjustment of the individual items of the CD-RISC-10. In addition, the Cronbach's alpha for the pre- and post-survey of the CD-RISC-10 were both above the acceptable level of 0.7 (Grove, 2021b). Item 3 had statistical support for potential deletion to improve reliability as well as some experts suggested it be reevaluated to improve validity. Due to the permission granted for the use of the instrument in this study and limited practical value for alteration, no items were modified or deleted. Still of note, the CD-RISC-10 exhibited statistical strength for being a reliable and valid instrument to evaluate academic resiliency among nursing students. Nursing

programs and educators could utilize the CD-RISC-10 within academic assessment environments to evaluate changes in student academic resiliency.

Validity and Reliability of the Lasater Clinical Judgment Rubric

The 11-item LCJR, based on TCJM, has been used to evaluate clinical judgment within various nursing environments such as simulations, clinical, and professional practice, however, no literature identified use of the LCJR within the examination environment (Brown, 2021; Call, 2017; Fedko, 2016; Huffstetler, 2022). The analysis of the CVI and Cronbach's alpha did not support deletions or adjustments of the individual items of the LCJR (Polit & Beck, 2006). As with other studies, the LCJR found support in the current study as a valid and reliable instrument for evaluating nursing student clinical judgment within academic environments. As the Next Generation NCLEX-RN emphasizes the importance of clinical judgment among new graduate nurses, the current and previous studies supported that nursing programs and nursing students could implement the LCJR as an evaluation instrument throughout the curriculum (Call, 2017; Huffstetler, 2022; Lo, 2018; McCormick, 2014; Reid, 2016; Strickland, 2013). As Lasater (2007) suggested, use of the LCJR as a tool could help students and faculty maintain mindfulness of clinical judgment and the value of seeking methods to continue to improve this cognitive skill throughout the transition from education into professional practice (Fedko, 2016; Miraglia & Asselin, 2015).

Academic Assessments Associated With Exam Remediation

Three pairs of course assessments were analyzed before and after exam remediation activities. The course exams had statistically significant improvement from the exam remediation. The external, third-party, standardized NurseThink NCLEX-RN Readiness

Assessment exit exam and the identical pre/post Evolve-Elsevier assessments were not statistically related to exam remediation. The standardized NurseThink NCLEX-RN Readiness Assessment scores nationally decreased from the first to the second attempt, which might have influenced the predictive validity and reliability of that particular assessment. As these findings suggested a weak relationship between completion of exam remediation and improved test scores within the nursing program, further research is needed (Corrigan-Magaldi et al., 2014; Horton et al., 2012; Myles, 2018; Shah et al., 2022). While nursing programs may consider using this information to develop and assign exam remediation to all students throughout a nursing program, the limited strength of the statistical results suggested that nursing programs and faculty would be wise to cautiously approach comprehensive exam remediation policies prior to additional research. Still, this study's findings could inform nursing students of the potential value and importance of completing exam remediation activities assigned for coursework as well as continuing the process of completing remediation activities while preparing for the NCLEX-RN (Czekanski et al., 2018; Hedderick, 2009).

Variables Associated With Academic Resiliency

Variables related to academic resiliency included completing exam remediation, overall course failures, nursing course failures, being a minority, and time lag between graduation and taking the first attempt of the NCLEX-RN. These findings supported that completing exam remediation was correlated with achieving higher post-survey academic resiliency. Academically, the higher number of course failures was associated with lower pre- and post-survey resiliency scores. Self-identifying as Hispanic ($n = 5$) had a greater perceived change in academic resiliency than non-Hispanic participants. The findings further supported the

relationship between higher levels of academic resiliency and completing the first attempt of the NCLEX-RN sooner than individuals with lower levels of academic resiliency.

These findings strengthened the value of exam remediation. Nursing programs might use this information to educate students about the benefit of exam remediation upon improved academic resiliency. As higher academic resiliency was correlated with fewer course failures, nursing programs might use this information as support for researching and developing learning initiatives aimed at improving academic resiliency (Walsh et al., 2020). Nursing faculty might reinforce the increased importance of exam remediation among students of ethnically diverse backgrounds. Increased time lag was found to correlate with lower pass rates on the NCLEX-RN, so nursing programs might invest resources to improve academic resiliency as it was found in this study to correlate with early test attempts on the NCLEX-RN (Rogers, 2019; Woo et al., 2009).

Variables Associated With Clinical Judgment

As the Next Generation NCLEX-RN has increased emphasis on identifying and evaluating each applicant's clinical judgment, these findings provided insight into correlated variables. Completion of student-led exam remediation activities such as reviewing areas of weaker knowledge, creating additional practice quizzes, reviewing rationale for incorrectly answered exam items, and discussing testing strategies with course faculty was related to improved clinical judgment. Students with higher GPAs and fewer course failures exhibited higher post-survey clinical judgment abilities, although no findings were identified between these academic variables and the degree of change in clinical judgment between the pre- and the post-survey. These findings were consistent with prior research of critical thinking, a related concept to clinical judgment (Giddens & Gloeckner, 2005; Kaddoura et al., 2017; Romeo, 2013).

Similar to academic resiliency, the findings supported those students with higher post-survey clinical judgment and who had greater amounts of change in clinical judgment from exam remediation took the NCLEX-RN sooner than other students. The results beg for future research to investigate possible correlations of enhanced student confidence in the clinical environment with changes in academic resiliency, clinical judgment, and remediation activities.

From these findings, nursing faculty could further reinforce the importance of exam remediation. Faculty could develop and implement remediation activities with the intent of improving clinical judgment abilities that would hopefully translate to improved performance on the clinical judgment components of the NCLEX-RN exam (Fisher-Cunningham, 2021; Hamilton, 2022).

Variables Associated with National Council Licensure Exam for Registered Nurses Pass Rates

In this exploratory study, numerous variables were found to have statistically significant relationships with NCLEX-RN first attempt pass rates. Of the academic variables, this study found that lower numbers of course failures, higher GPA, and higher course grades in the NCLEX-RN Preparation course were related to higher NCLEX-RN pass rates than those who failed. Similar to current evidence, this study found higher course exam grades and higher exit exam grades had a relationship with passing the NCLEX-RN on the first attempt (Havrilla et al., 2018; Moniyung, 2015; Monroe & Dunemn, 2020; Olbrych, 2018; Tipton et al., 2008). As for non-academic variables in this study, time lag was not related to NCLEX-RN first attempt pass rates, which differed from other studies (Rogers, 2019; Woo et al., 2009). Additionally, gender, age, ethnicity, and English as a first language were not related to NCLEX-RN first time pass rates. The only non-academic variable found to be related to NCLEX-RN pass rates was race. Building on the evidence from past studies, Caucasian applicants were nearly 13 times more

likely to pass the NCLEX-RN on the first attempt (Briscoe & Anema, 1999; Daley et al., 2003; Moniyung, 2015).

These findings offered insight into which variables nursing faculty could bring to the attention of nursing students. Faculty could educate students about the importance of exam remediation upon academic outcomes that correlated with NCLEX-RN success. Students could be informed that higher course grades, higher GPA, and higher exam scores, especially those exams at the end of the NCLEX-RN Preparation course, are related to better first attempt performance on the NCLEX-RN exam (Alameida et al., 2011; Barnwell-Sanders, 2015; Englert, 2009; Salvucci, 2015). Also, racial minorities should be informed they might have a disadvantage in their NCLEX-RN attempt (Moniyung, 2015). Providing students who are nearing graduation knowledge of the variables that correlate with NCLEX-RN outcomes might empower and encourage them to accept responsibility, seek assistance, and improve their study methods to increase their likelihood of succeeding on the first attempt of the NCLEX-RN exam (Kasprovich & VandeVusse, 2018; McFarquhar, 2014; Pulito, 2017).

Limitations of Study

Limitations are an inevitable aspect of any research study. While the current study was limited by its design, the exploratory nature provided foundations for future research. The post-then-pre design, while focusing on reducing response-shift bias, might have allowed other extraneous variables to influence the results. Another limitation was the study's 95 participants were drawn from a non-randomized, convenience sampling at a single, Midwestern nursing program. The lack of randomization or presence of control groups restricted the generalizability of the study (Grove, 2021a). While the program was located at an urban university, there was a lack of diversity in the participant's demographics and academic program of study. Another

limitation was most of the study's variables were collected through self-reporting instruments with participants known by the researcher. This type of convenience sampling could present multiple biases such as volunteer bias, sample selection bias, and coverage bias to the data collection (Remlar & Ryzin, 2015).

Sample selection bias was potentially present as the pool of potential participants was selected due to their below average historical performance on the licensure exam. The national average for NCLEX-RN first attempt pass rates in the past few years has been around 85%, and the nursing program selected has had a NCLEX-RN pass rate over the past two years of around 70%. The intentional selection of this cohort of nursing students was in the hope there would be a more equitable number of participants who passed the licensure exam to compare with those participants who failed licensure exam. While fortunate for the students and the program, this particular sample's NCLEX-RN first attempt pass rate was 95.3%, which limited the researcher's ability to statistically compare variables among those who passed and failed the NCLEX-RN on their first attempt.

Volunteer bias is when the sample differs from the general population being studied based on who is willing to participate. In this study, students with a better relationship with the researcher could have been more inclined to participate, but this did not appear to weigh on participants as most of the pool of students participated in the study. However, this response level would likely be difficult to replicate. Coverage bias is the potential distortion due to inadequate coverage of the population. As the researcher only conducted the study among a familiar population from a single cohort, it is likely some degree of coverage bias was present in the results.

The length of time to secure IRB approval was a limitation. While the participants were collected from one institution, the research required IRB approval from the sample's institution and from the researcher's academic institution. The slow IRB approval prolonged the data collection phase by more than 30 days. This delay potentially resulted in participants incorporating more academic changes into the self-reflection of clinical judgment and academic resiliency as it correlated with exam remediation. The combination of all these factors limited the ability to generalize the findings in this study beyond similar cohorts of nursing students or beyond the selected nursing program.

Recommendations for Future Research

The results supported the presence of relationships among numerous academic and non-academic variables, exam remediation, clinical judgment, and academic resiliency. Still, future replication studies with larger, more diverse samples from randomly selected nursing programs across the United States are encouraged and might provide for improved generalizability of the findings. The inclusion of control groups would afford the ability to use experimental methods and to analyze data from different treatment groups. This would increase the level and strength of the results within future studies. While self-reporting instruments might be useful in exploratory studies, the implementation of external data collectors, such as faculty or peer observers, would offer researchers the opportunity to correlate objective data with self-reported, subjective data. Also, more research is needed to investigate the effectiveness of differing formats of exam remediation, pedagogical methods, and faculty guidance. Regarding NCLEX-RN licensure performance, future studies could aim to improve generalizability by continuing the data collection phase until the first attempt pass rate mimics the national average. While some course-related academic assessments were correlated with the NCLEX-RN pass rate, the

third-party standardized NurseThink NCLEX-RN Readiness Assessments were not found to be practically significant in the relationship with other variables. Also, the national scoring average on the second NCLEX-RN Readiness Assessment was lower than the first NCLEX-RN Readiness Assessment. A study on the validity and reliability of these third-party NCLEX-RN Readiness Assessments would be valuable in determining the predictive accuracy of these particular assessments toward first attempt NCLEX-RN pass or failure rates.

Implications for Nursing

As new graduates cannot be employed until after passing the licensure exam, NCLEX-RN first attempt pass rates are one of the primary factors used to evaluate new nursing graduates and nursing programs. Accrediting bodies often use one of two metrics: (a) a program must achieve an NCLEX first attempt pass rate of 80% or (b) a program must achieve an NCLEX first attempt pass rate above 95% of the national average (Commission on Collegiate Nursing Education, 2013; Ohio Board of Nursing, 2022). If a program drops below one of these metrics, then the program might be at risk of losing accreditation or approval to operate by the state board of nursing (Commission on Collegiate Nursing Education, 2013; Ohio Board of Nursing, 2022). Extended periods of poor NCLEX-RN pass rates add to the nursing shortage. Additionally, nursing programs are at risk of lower funding, lower enrollment, losing accreditation, and/or losing state approval as a program if their first attempt NCLEX-RN pass rates remain below one of these two thresholds for multiple years. Therefore, all nursing programs and nursing students should remain mindful of variables that might correlate with NCLEX-RN outcomes or new nursing graduate preparation for the clinical practice. After review of the data and findings, the following implications were identified.

First, this exploratory study provided a foundation for future research to further investigate the subjective value and objective academic changes related to exam remediation. Nursing programs should develop well-structured, routine exam remediation throughout the program to offer students the opportunity to regularly review tested material (Corrigan-Magaldi et al., 2014; Horton et al., 2012; Myles, 2018). Additionally, nursing students would be well advised to continue the process of assessment remediation following graduation while they are studying for the first attempt of the NCLEX-RN exam (Czekanski et al., 2018).

Second, nursing programs and nursing students interested in evaluating academic resiliency and clinical judgment should consider using the CD-RISC-10 and LCJR as evaluation instruments. As these instruments continue to remain valid and reliable in a variety of nursing environments including didactic, course exam environments, faculty and students could routinely implement these evaluations as part of self-guided student feedback (Brentnall et al., 2022; Fullerton et al., 2021; Lasater, 2007; Stoffel & Cain, 2018). For instance, students could complete the surveys at midterm and finals of each semester to remain focused on the importance of persevering through difficult periods of time and on the need of clinical judgment as part of safe nursing practice.

Third, a successful first attempt on the NCLEX-RN exam is communicated to all nursing students as the end goal prior to entering the nursing profession. Students should be regularly informed of a variety of variables that correlate with increased likelihood of passing the NCLEX-RN on the first attempt. Specifically, students should be informed that higher course grades, course exam scores, and GPA are needed to increase the likelihood of performing well on the first attempt of the NCLEX-RN exam (Olbrych, 2018; Popescu, 2011; Rogers, 2019). Unfortunately, this exploratory study was unable to investigate the relationship between exam

remediation and NCLEX-RN first attempt pass rates. While interrelated variables suggested a connection among resiliency, clinical judgment, exam remediation, and NCLEX-RN exam performance, future studies are needed before making additional recommendations to nursing academe.

Summary

The purpose of this non-experimental, exploratory study was to investigate the relationship among academic variables, non-academic variables, exam remediation, clinical judgment, academic resiliency, and NCLEX-RN first attempt pass rates among prelicensure nursing students. One hundred six nursing students in their final semester of nursing classes provided valuable objective and subjective data necessary to explore correlations among the study variables. As every participant completed the exam remediation assignment, the analysis was unable to investigate the nature of the relationship between remediation and NCLEX-RN first attempt pass rates. Future research studies might alter this study's design to investigate the presence of a relationship between these two variables. However, numerous other relationships were identified through the data analysis. Exam remediation had a significant relationship with achieving higher self-perceived clinical judgment, academic resiliency, and course exam scores. Higher academic resiliency and clinical judgment had a significant relationship with taking the NCLEX-RN exam sooner, higher GPA, and fewer course failures. Passing the NCLEX-RN exam on the first attempt was correlated with higher GPAs, fewer course failures, and with being Caucasian. In this study, Caucasians were nearly 13 times more likely than non-Caucasians to pass the NCLEX-RN on the first attempt. This study provided insight into the potential benefits of exam remediation, clinical judgment, and academic resiliency on improved student outcomes and NCLEX-RN first attempt pass rates.

This study built upon evidence supporting the use of the reliable and valid CD-RISC-10 and the LCJR as the self-evaluative instruments among nursing students (Campbell-Sills & Stein, 2007; Victor-Chmil, 2013; Yang, 2021). Further research studies are needed to continue investigating the relationship among each of the identified variables. The limited number of NCLEX-RN failures, full participation of the exam remediation assignment, and a convenience sample from one nursing program decreased the generalizability of the current study's results. Expanding the sample size, drawing participants from multiple nursing programs beyond the Midwestern states, and increasing the diversity of the participant pool might enhance the data available for analysis and the generalizability of findings from future studies. From this study, nursing programs are encouraged to implement exam remediation and opportunities for students to potentially enhance their clinical judgment and academic resiliency along their journey toward NCLEX-RN first attempt success and officially entering employment in the nursing profession.

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APPENDIX A

PREDICTIVE VARIABLES OF NATIONAL COUNCIL LICENSURE EXAMINATION [FOR] REGISTERED NURSES PERFORMANCE

Table A1

Predictive Variables of National Council Licensure Examination [For] Registered Nurses Performance

Author	Program & Year of Study	GPA	Nursing Courses	Course Failures	Standard Progress Exams	Exit Exam	NCLEX Review Course	*CT*	General Remediating	Minority Status (Race/Eth)	*Age*	Sex	Time Lag	1st Gen	ACT / SAT	Pre-Adm.
Alameida et al. (2011)	BSN, MBSN 2005-2009	+	+			+				+	-	-				
Barnwell-Sanders (2015)	ADN 2008-2013	+			-											
Briscoe & Anema (1999)	ADN 1997			-		+				+	+					-
Daley et al. (2003)	BSN 1999-2000	+	+			+				+	+				+	+
De Lima et al. (2011)	ADN pre-2011	-	+/-		+/-	+										+/-
Eddy & Epeneter (2002)	BSN 1998												-			
Englert (2009)	BSN, ABSN 2005-2008	+	+		+	+	+			+	-	-				
Flowers et al. (2022)	BSN 2018					+										+
Fortier (2010)	BSN 2004-2009	+	+								-	-				-
Giddens & Gloeckner (2005)	BSN 1998-2001	+						+/-			-	-				
Gilmore (2008)	ADN 2001-2003	+													-	-
Harrison (2018)	ADN 2012-2014					+		+								
Havrilla et al. (2018)	BSN, ABSN 2015-2017	+				+										
Hedderick (2009)	All RN 2003-2007								+							
Higgins (2005)	ADN 1999-2001					+				-	-	-				+/-
Horton et al. (2012)	ADN 2005-2006		+/-						+							-
Humphreys (2008)	ADN, ABSN 2006-2007	+				+				-	+				+	+/-
Kaddoura et al. (2017)	ABSN 2007-2009							+								
Maas (2017)	ADN 2012-2014								-	-	-					-

Table A1 Continued

Author	Program & Year of Study	GPA	Nursing Courses	Course Failures	Standard Progress Exams	Exit Exam	NCLEX Review Course	*CT*	Remediating	Minority Status (Race/Eth)	*Age*	Sex	Time Lag	1st Gen	ACT / SAT	Pre-Adm.
Matos (2007)	BSN 2002-2005	+	+	+		+										
Mondeik (2014)	ADN 2012								-							
Moniyung (2015)	ADN 2006-2014		+	+						+	-				+	-
Monroe & Dunemn (2020)	BSN 2016-2018	+			+	+			+							
Morahan (2011)	BSN 2005-2011				+/-	+										
Morris & Hancock (2008)	BSN pre-2008					+										
Olbrych (2018)	ADN 2015	+	+	+									+			+
Paraszczuk (2011)	BSN 2009-2010					+	+									
Popescu (2011)	ADN 2005-2006		-				+		+/-							-
Rogers (2019)	ABSN 2013-2017	-	+							+		+	+			+
Romeo (2013)	ADN 2005-2007	+				+		+							-	
Salvucci (2015)	ADN 2010-2011					+										
Santiago (2013)	BSN, MBSN pre-2013					+/-										+/-
Shah et al. (2022)	ADN, BSN 2018-2019					+			+							
Singh (2017)	N/I 2014-2015	+							+/-	+						
Sullivan (2011)	BSN 2011					+										
Tipton (2008)	ADN 2001-2004								-							-
Ukpabi (2008)	ADN 2006				+/-			+								+
Vandenhouten (2008)	BSN 2002-2007	+/-			+/-	+/-										+/-
Woo et al. (2009)	All RN 2006-2008												+			
Wood (2002)	ADN 1994-2000	+								+			+			
Yeom (2013)	BSN 2010-2011				+/-											

Note: "+" = statistically significant findings; "-" no statistically significant findings ; "N/I" = not identified

APPENDIX B

STUDIES REVIEWING REMEDIATION STRATEGIES

Table B1

Studies Reviewing Remediation Strategies

Author	Program & Year of Participation	Completing Practice Questions / Tests	Review Content Based on Practice Questions / Tests	Content Review / Modules	Peer Mentoring / Tutoring	Faculty Mentoring / Tutoring	Study Plan	Review Course	Progression / Exit Exam Policy	Study Skills	Test-Taking Skills	FTNPR Outcomes
Bonis et al. (2007)	N/I 2001-2004	✓									✓	+
Corrigan-Magaldi et al. (2014)	N/I pre-2014	✓				✓						+
Czekanski et al. (2018)	BSN 2016-2017	✓	✓	✓	✓	✓	✓	✓		✓	✓	+
Hedderrick (2009)	All RN 2003-2007								✓			+/-
Horton et al. (2012)	ADN 2005-2006	✓	✓	✓								+
Lutter et al. (2017)	N/I	✓	✓			✓					✓	N/I
Maas (2017)	ADN 2012-2014	✓	✓	✓				✓	✓			-
Meehan & Baker (2021)	BSN, MBSN 2016-2018	✓	✓			✓						+
McDowell (2008)	N/I	✓	✓	✓			✓				✓	+
Mondeik (2014)	ADN 2012					✓						-
Morahan (2011)	BSN 2005-2011	✓	✓	✓					✓	✓	✓	+
Myles (2018)	N/I 2015-2017		✓	✓				✓				+
Paraszczuk (2011)	BSN 2009-2010							✓				+
Popescu (2011)	ADN 2005-2006	✓	✓					✓	✓			+/-
Reinhardt et al. (2012)	BSN 2008-2009	✓	✓	✓		✓	✓	✓	✓	✓	✓	+
Rigsby-Robinson & Glisson (2019)	N/I 2016-2018	✓	✓	✓		✓	✓	✓			✓	+
Shah et al. (2022)	ADN, BSN 2018-2019	✓	✓	✓					✓			+
Sifford & McDaniel (2007)	N/I 2004-2005	✓	✓	✓				✓		✓	✓	+ (inverse)
Stuckey & Wright (2021)	BSN 2017-2018	✓	✓			✓	✓				✓	+
Wray et al. (2006)	All RN 2005	✓	✓	✓		✓	✓					+

Note: "+" = statistically significant findings; "-" no statistically significant findings ; "N/I" = not identified

APPENDIX C

EXPERIENCES OF NURSING STUDENTS WHILE PREPARING NATIONAL COUNCIL LICENSURE EXAMINATION [FOR] REGISTERED NURSES

Table C1

Experiences of Nursing Students While Preparing National Council Licensure Examination [For] Registered Nurses

Author	Program & Year of Participation	Practice Questions / Tests	Review Course	Use / Want More Resources	Need / Want Faculty Support	Study Plan / Habits	Stress / Anxiety Coping	Test-Taking Skills	Other Findings
Bonis et al. (2007)	N/I 2001-2004			✓		✓	✓		• Weaknesses in maternal-newborn, pediatrics, and pharmacology • Graduates must take individual responsibility for NCLEX-RN preparation
Eddy & Epeneter (2002)	BSN 1998			✓			✓		• Graduates surprised by difficulty of NCLEX-RN exam questions
Griffiths et al. (2004)	All RN pre-2004				✓	✓	✓	✓	• Faculty coaching would have been helpful • Work-life balance is hard to manage when preparing for the NCLEX-RN
Higgins (2005)	ADN 1999-2001	✓	✓	✓		✓		✓	• Increased review of course exams and use of remediation was helpful to prepare for NCLEX
Horton (2015)	ADN 2005-2006			✓			✓		• NCLEX-RN preparation must be priority
Kasprovich & VandeVusse (2018)	BSN 2013-2016	✓	✓	✓	✓		✓	✓	• Need faculty support after graduation until pass NCLEX-RN • Desire to help others success after personal success
McFarquhar (2014)	ADN 2005			✓				✓	• Disappointment, depression, and avoidance behaviors follow NCLEX-RN failure
McGann & Thompson (2008)	BSN, ABSN pre-2008						✓	✓	• Important to identify and remediate weaknesses • Limit procrastination, maintain self-care, and decrease work hours when studying for NCLEX-RN
Noble (2015)	BSN pre-2015			✓	✓		✓		• Must believe that success is achievable after failure
Poorman & Webb (2000)	ADN, BSN, D pre-2000						✓		• Failure bring loss of identify, doubt, and loneliness • Must believe that success is achievable after failure
Pulito (2017)	ADN pre-2018	✓	✓	✓	✓		✓	✓	• Study findings resulted in development of faculty seminar to improve teaching skills
Rogers (2010)	ADN 2008-2010	✓	✓	✓	✓	✓		✓	• Student-faculty collaboration and strong curriculum lead to NCLEX-RN success
Tumbarello (2011)	ADN, BSN, ABSN 2010	✓	✓	✓			✓	✓	• NCLEX-RN applicants need to read questions slower and take breaks during the exam
Wood (2002)	ADN 1994-2000	✓	✓	✓	✓			✓	• Improving course design to increase active learning may be helpful for developing critical thinking and with NCLEX-RN success • Commitment to studying and promptly taking NCLEX-RN may help success

Note: "N/I" = not identified

APPENDIX D

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The figure will be used within my dissertation that focuses on the potential relationship among multiple variables and clinical judgment. My dissertation uses the Tanner’s Clinical Judgment Model as one of the study’s frameworks, and the identified figure (located below) concisely identifies the model. I wish to place the identified figure into the literature review (Chapter 2) of my dissertation.

I appreciate your assistance in this manner. Please let me know if you have any questions pertaining to this request.

Sincerely,
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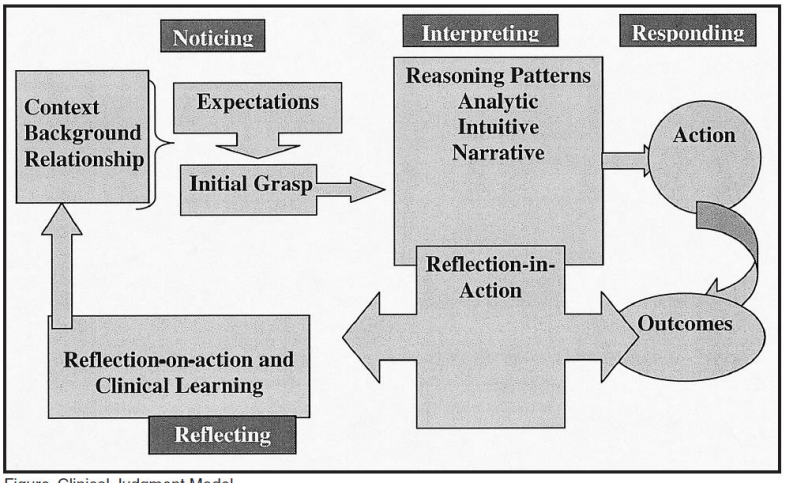

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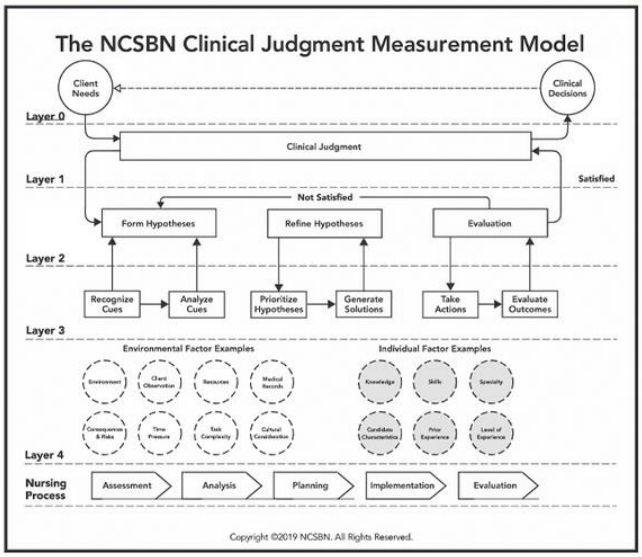
I am writing to request permission to copy the figure entitled "The NCSBN Clinical Judgment Measurement Model (NCJMM)" located on https://www.ncsbn.org/exams/next-generation-nclex/NGN+Resources/clinical-judgment-measurement-model.page for use in my dissertation. My dissertation uses the NCJMM as one of the study's frameworks, and the identified figure (located below) concisely identifies the NCJMM. I wish to place the identified figure into the literature review (Chapter 2) of my dissertation.

I appreciate your assistance in this manner. Please let me know if you have any questions pertaining to this request.

Sincerely,
James Oberlander, MSN, RN

Instructor: University of Toledo - College of Nursing - http://www.utoledo.edu/nursing
Email: james.oberlander2@utoledo.edu
Cell Phone: 419-631-0317



** DOCUMENTATION OF PERMISSION ON FOLLOWING PAGE **

Permission Granted for use of Copyrighted Material – NCJMM Figure

From: Dawn Kappel (NCSBN)

Oct 30, 2023, 13:55 CDT

Dear James:

You are hereby granted permission to utilize the NCSBN Clinical Judgment Measurement Model (NCJMM) in your dissertation as part of your doctoral program.

It is required that proper citation or attribution is provided in the materials. Please note should you desire to use these materials in any other fashion, you must seek additional permission.

If you have any additional questions, please do not hesitate to contact me.

Best of luck with your dissertation,
Regards,
Dawn M. Kappel

National Council of State Boards of Nursing (NCSBN) | 111 E. Wacker Drive, Suite 2900
Chicago, IL 60601-4277
NCSBN Help Center | 312.525.3600 (P) | 312.279.1032 (F) | www.ncsbn.org

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NCSBN empowers and supports nursing regulators in their mandate to protect the public.

Letter Requesting Use of Copyrighted Material - Elsevier

To Whom It May Concern:

I am writing to request permission to copy the table entitled "Comparison of the Nursing Process with Tanner's Clinical Judgment Model and the NCSBN Clinical Judgment Measurement Model (NCJMM)" located on https://evolve.elsevier.com/education/expertise/ next-generation-nclex/ngn-transitioning-from-the-nursing-process-to-clinical-judgment/ for use in my dissertation. My dissertation uses Tanner's Clinical Judgment Model and the NCJMM as study frameworks, and the identified table (located below) concisely compares these two frameworks. I wish to place the identified table into the literature review (Chapter 2) of my dissertation.

I appreciate your assistance in this manner. Please let me know if you have any questions pertaining to this request.

Sincerely,
James Oberlander, MSN, RN

Instructor: University of Toledo - College of Nursing - http://www.utoledo.edu/nursing
Email: james.oberlander2@utoledo.edu
Cell Phone: 419-631-0317

Comparison of the Nursing Process with Tanner's Clinical Judgment Model and the NCSBN Clinical Judgment Measurement Model (NCJMM)

Nursing Process (ADPIE/AAPIE)	Tanner's CJ Model	NCJMM
Assessment	Noticing	Recognize Cues
Diagnosis/Analysis	Interpreting	Analyze Cues
Diagnosis/Analysis	Interpreting	Prioritize Hypotheses
Planning	Responding	Generate Solutions
Implementation	Responding	Take Action
Evaluation	Reflecting	Evaluate Outcomes

** DOCUMENTATION OF PERMISSION ON FOLLOWING PAGE **
Permission Granted to Copy the Table Entitled "Comparison of the Nursing Process with Tanner's Clinical Judgment Model and the NCSBN Clinical Judgment Measurement Model (NCJMM)"

Dear James Oberlander

We hereby grant you permission to reprint the material below at no charge in your thesis subject to the following conditions:

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Kind regards,

Roopa Lingayath
Senior Copyrights Specialist
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APPENDIX E

PARTICIPANT RECRUITMENT MATERIALS

Participant Recruitment Form

The following will be read to senior BSN nursing students at the completion of a class period.

Hello students. I am here to briefly discuss with you an opportunity to participate in a unique nursing education research study. As with any study, it is ethically necessary to discuss with you details of the study prior to seeking your consent for participation.

The purpose of this study is to contribute to the body of knowledge related to the development of clinical judgment, academic resiliency, and self-efficacy during the process of standardized exam remediation and preparation for the Next Generation NCLEX-RN exam that will begin in April 2023.

While all students in this course will be completing the regularly assigned exam remediation during the semester, participants in this study will be asked to provide some demographic information and complete two short pre-/post- surveys. The total time will be approximately 20 minutes.

You are invited to participate because the nursing faculty member(s) teaching this course is utilizing a standard exam remediation process and is curious about the relationship and influence on the development of self-efficacy, academic resiliency, clinical judgment being as the Next Generation NCLEX-RN exam will be evaluating applicant's clinical judgment abilities.

There is limited expected risks, but as with any study, there is the potential of loss of confidentiality. The benefits include assisting in the development of disciplinary knowledge and guidance on remediation activities useful in preparing for the NCLEX-RN exam. As a form of compensation for the time spent completing the surveys, each participant that completes the surveys will receive a $10.00 Amazon gift card and will be entered into a drawing for two (2) $40.00 Amazon gift cards.

Please feel free to ask the researcher(s) any questions you may have before proceeding with participation in this study. If you do have questions, you are welcome to contact James Oberlander at 419.631.0317 (cell).

Thank you for your time and attention. I will return at a later time to discuss the informed consent process and to complete the survey-based research study.

Adult, Family, and Population Health Nursing
3000 Arlington Avenue
Toledo, Ohio 43614
Phone 419.383.5857

ADULT RESEARCH SUBJECT - INFORMED CONSENT FORM

Exploring the relationship among clinical judgment, academic resiliency, student predictors, and exam remediation in prelicensure nursing students preparing for Next Generation NCLEX-RN exam

Key Information:

- You are being invited to participate in a research study
- The purpose of the study is to explore clinical judgment and academic resiliency.
- This research will take place during a class period, will consist of completing surveys, and will take approximately 20 minutes.
- There are potential risks, including loss of confidentiality.
- You may benefit from your participation in this research by gaining increased professional pride and receiving an Amazon gift card for your participation.
- Your participation in this research is voluntary.

Principal Investigator James Oberlander, PhDc, MSN, RN – 419.631.0317 (cell)

Other Investigators Dr. Kathleen Dunemn PhD, RN, Dissertation Chair – 803.409.8391 (cell)

Purpose: You are invited to participate in the research project entitled Exploring the relationship among clinical judgment, academic resiliency, student predictors, and exam remediation in prelicensure nursing students preparing for Next Generation NCLEX-RN exam which is being conducted at the University of Toledo under the direction of James F. Oberlander and Dr. Kathleen Dunemn. The purpose of this study is to explore the relationship among levels of student academic resiliency, clinical judgment, exam remediation, and academic performance.

Description of Procedures: This non-experimental, exploratory research field study will take place in during a prelicensure, graduate-entry masters single class period and will consist of a total participation time of approximately 20 minutes. You will be asked to complete two pre- and post-surveys pertaining to clinical judgment and academic resiliency along with a demographic variables survey.

Potential Risks: Risks are expected to be minimal throughout the study. Participants may exhibit some degree of anxiety during the process of self-evaluation, but the magnitude and probability of discomfort are not expected to extend beyond the survey environment or be greater than the expected nature of completing remediation activities or self-assessments. Another potential is the loss of confidentiality. To decrease risk of loss of confidentiality, participants will be identified by a predetermined research code on each of the research documents. A separate excel document will house the code and student name to collate the various data components. All documents will be kept in a locked office and located in either a password-protected laptop or in a locked cabinet.

Potential Benefits: The only direct benefit to you if you participate in this research may be that you will learn about how surveys are run and you may learn more about academic resiliency and clinical judgment. The field of nursing may benefit from this research by better understanding the relationship among clinical judgment, academic resiliency, exam remediation, and academic/non-academic predictor variables. Others may benefit by learning about the results of this research. Also, all participants will be awarded a $5.00 Amazon gift card for participating in the study along with entry into a drawing for three (3) $50.00 Amazon gift cards. Emails will be collected to provide the compensation to participants. The emails will be destroyed once compensation has been provided.

Confidentiality: To decrease risk of loss of confidentiality, participants will be identified by a predetermined research code on each of the research documents. A separate excel document will house the code and student name to collate the various data components. All documents will be kept in a locked office and located in either a password-protected laptop or in a locked cabinet. The data and documents will only be accessible to the PI and the Research Chair (listed above). At the closure of the study, the signed consents and research data will be retained in the UToledo College of Nursing research office (passcode entry to room and locked cabinets) for at least three years. All data collected will be reported in an aggregate format. Again, all participant data will be coded through a separate Excel document. This will allow collating of academic variables, NCLEX-RN pass rates, and survey instruments over time. The information that is collected from your participation in this research will not be used or distributed for future research. The signed consent forms will be stored in a separate file location from the research data.

Voluntary Participation: Your refusal to participate in this study will involve no penalty or loss of benefits to which you are otherwise entitled and will not affect your relationship with The University of Toledo or any of your classes. You may skip any questions that you may be uncomfortable answering. In addition, you may discontinue participation at any time without any penalty or loss of benefits.

Contact Information: If you have any questions at any time before, during or after your participation or experience any physical or psychological distress as a result of this research you should contact a member of the research team – James F. Oberlander (419.631.0317) or Dr. Kathleen Dunemn (803.409.8391).

If you have questions beyond those answered by the research team or your rights as a research subject or research-related injuries, the Chairperson of the SBE Institutional Review Board may be contacted through the Human Research Protection Program on the main campus at (419) 530-6167.

SIGNATURE SECTION – Please read carefully

You are making a decision whether or not to participate in this research study. Your signature indicates that you have read the information provided above, you have had all your questions answered, and you have decided to take part in this research. You may take as much time as necessary to think it over.

By participating in this research, you confirm that you are at least 18 years old.

Name of Subject (please print)	Signature	Date
Name of Person Obtaining Consent	Signature	Date

APPENDIX F

ACADEMIC AND NON-ACADEMIC VARIABLES SURVEY

ACADEMIC AND NON-ACADEMIC VARIABLES SURVEY

ID CODE : _____

INSTRUCTIONS: Please answer EACH questions by circling the appropriate item.

1. Gender: Male Female Transgender Non-Binary Prefer Not to Answer

2. Age: < 19 19 20 21 22 23 24 > 24 Prefer Not to Answer

3. Race: White Black or African-American American Indian or Alaska Native Native Hawaiian or Other Pacific Islander Asian Multi-Race Other Race Prefer Not to Answer

4. Ethnicity: Hispanic/Latino Non-Hispanic/Latino

5. Was English your first learned language? Yes No

6. Current Cumulative GPA < 2.00 2.00-2.24 2.25-2.49 2.50-2.74 2.75-2.99 3.00-3.24 3.25-3.49 3.50-3.74 3.75-3.99 4.00

7. Number of Course Failures (entire degree) 0 1 2 3 4 More than 4

8. Number of Nursing Course Failures (only nursing) 0 1 2 3 4 More than 4

APPENDIX G

ACADEMIC OUTCOMES FORM

ACADEMIC OUTCOMES FORM

ALL DATA COLLECTED WILL REMAIN CONFIDENTIAL AND WILL BE COLLATED BY RESEARCHER OTHER THAN INSTRUCTOR TO MAINTAIN CONFIDENTIALITY WITH STUDENTS

By providing your name and personal identification number, you are consenting to allow a non-faculty professional to gather, collate, and deidentify student academic outcomes such as final GPA, outcome of Next Generation NCLEX-RN, completed remediation, and Standardized Benchmark I and II results.

Name: _____

Signature: _____

Personal Identification (to allow collating of data): _____

APPENDIX H

ORIGINAL LASATER CLINICAL JUDGMENT RUBRIC AND AUTHOR'S PERMISSION TO USE AND MODIFY LASATER CLINICAL JUDGMENT RUBRIC

Lasater Clinical Judgment in Simulation Rubric
Noticing and Interpreting

Clinical Judgment Component:	4: Accomplished	3: Competent	2: Progressing Novice	1: Novice
Effective NOTICING involves: Focused Observation	• Focuses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any useful information	• Regularly observes/monitors a variety of data, including both subjective and objective; most useful information is noticed, may miss the most subtle signs	• Attempts to monitor a variety of subjective and objective data, but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information	• Confused by the clinical situation and the amount/type of data; observation is not organized and important data is missed, and/or assessment errors are made
Recognizing Deviations from Expected Patterns Information Seeking	• Recognizes subtle patterns and deviations from expected patterns in data and uses these to guide the assessment	• Recognizes most obvious patterns and deviations in data and uses these to continually assess	• Identifies obvious patterns and deviations from expectations, missing some important information; unsure how to continue the assessment	• Focuses on one thing at a time and misses most patterns/ deviations from expectations; misses opportunities to refine the assessment
	• Aggressively seeks information to plan intervention: carefully collects useful subjective data from observing the client and from interacting with the client and family	• Actively seeks subjective information about the client's situation from the client and family to support planning interventions; occasionally does not pursue important leads	• Makes limited efforts to seek additional information from the client/family; often seems not to know what information to seek and/or pursues unrelated information	• Is ineffective in seeking information; relies mostly on objective data; has difficulty interacting with the client and family and fails to collect important subjective data
Effective INTERPRETING Involves: Prioritizing Data Making Sense of Data	• Focuses on the most relevant and important data useful for explaining the client's condition • Even when facing complex, conflicting or confusing data, is able to (1) note and make sense of patterns in the client's data, (2) compare these with known patterns (from the nursing knowledge base, research, personal experience and intuition), and (3) develop plans for intervention(s) that can be justified in terms of their likelihood of success	• Generally focuses well on the most important data, and seeks further relevant information, but also tries to attend to less pertinent data • In most situations, interprets the client's data patterns and compares with known patterns to develop an intervention plan and accompanying rationale; the exceptions are rare or complicated cases where it is appropriate to seek the guidance of a specialist or more experienced nurse	• Makes an effort to prioritize data and focus on the most important, but also attends to less relevant/useful data • In simple or common/familiar situations, is able to compare the client's data patterns with those known and to develop/ explain intervention plans; has difficulty, however, with even moderately difficult data/ situations that are within the expectations for students, inappropriately requires advice or assistance	• Has difficulty focusing and appears not to know which data is most important to the diagnosis; attempts to attend to all available data • Even in simple or familiar/ common situations has difficulty interpreting or making sense of data; has trouble distinguishing among competing explanations and appropriate interventions, requiring assistance both in diagnosing the problem and in developing an intervention

© Developed by Kathie Lasater, EdD (C.) & Michael Katims, PhD. Based on Tanner's Model of Clinical Judgment.

Lasater Clinical Judgment in Simulation Rubric
Responding and Evaluating

Clinical Judgment Component:	4: Accomplished	3: Competent	2: Progressing Novice	1: Novice
Effective RESPONDING involves: Calm, Confident Manner Clear Communication Well-Planned Intervention/ Flexibility Being Skillful	• Assumes responsibility: delegates team assignments, assesses the client and reassures them and their families • Communicates effectively: explains interventions; calms/ reassures *clients and families; directs and* involves team members, explaining and giving directions; checks for understanding • Interventions are tailored for the individual client; monitors client progress closely and is able to adjust treatment as indicated by the client response • Show mastery of necessary nursing skills	• Generally displays leadership and confidence, and is able to control/calm most situations; may show stress in particularly difficult or complex situations • Generally communicates well: explains carefully to clients, gives clear directions to team; could be more effective in establishing rapport • Develops interventions based on relevant patient data; monitors progress regularly but does not expect to have to change treatments • Displays proficiency in the use of most nursing skills; could improve speed or accuracy	• Is tentative in the leader's role; reassures clients/families in routine and relatively simple situations, but becomes stressed and disorganized easily • Shows some communication ability (e.g., giving directions); communication with clients/ families/team members is only partly successful; displays caring but not competence • Develops interventions based on the most obvious data; monitors progress, but is unable to make adjustments based on the patient response • Is hesitant or ineffective in utilizing nursing skills	• Except in simple and routine situations, is stressed and disorganized, lacks control, making clients and families anxious/less able to cooperate • Has difficulty communicating; explanations are confusing, directions are unclear or contradictory, and clients/ families are made confused/ anxious, not reassured • Focuses on developing a single intervention addressing a likely solution, but it may be vague, confusing, and/or incomplete; some monitoring may occur • Is unable to select and/or perform the nursing skills
Effective EVALUATING Involves: Reflection/ Self-Analysis Commitment to Improvement	• Independently reflects on/ analyzes personal clinical performance, noting decision points, elaborating alternatives and accurately evaluating choices against alternatives • Demonstrates commitment to ongoing improvement: reflects on and critically evaluates nursing experiences; accurately identifies strengths/weaknesses and develops specific plans to eliminate weaknesses	• Reflects on/analyzes personal clinical performance with minimal prompting, primarily major events/decisions; key decision points are identified and alternatives are considered • Demonstrates a desire to improve nursing performance: reflects on and evaluates experiences; identifies strengths/weaknesses; could be more systematic in evaluating weaknesses	• Even when prompted, briefly verbalizes the most obvious reflections; has difficulty imagining alternative choices; is self-protective in evaluating personal choices • Demonstrates awareness of the need for ongoing improvement and makes some effort to learn from experience and to improve performance but tends to state the obvious, and needs external evaluation	• Even prompted reflections are brief, cursory, and not used to improve performance; justifies personal decisions/choices without evaluating them • Appears uninterested in improving performance or unable to do so; rarely reflects; is uncritical of him/herself, or overly critical (given level of development); is unable to see flaws or need for improvement

© Developed by Kathie Lasater, EdD (C.) and Michael Katims, PhD. Based on Tanner's Model of Clinical Judgment

Lasater Clinical Judgment in Simulation Rubric

Student Name: Observation Date/Time: Scenario #:

Clinical Judgment Components		Observation Notes
Noticing:		
• Focused Observation:	4 3 2 1	
• Recognizing Deviations from Expected Patterns:	4 3 2 1	
• Information Seeking:	4 3 2 1	
Interpreting:		
• Prioritizing Data:	4 3 2 1	
• Making Sense of Data:	4 3 2 1	
Responding:		
• Calm, Confident Manner:	4 3 2 1	
• Clear Communication:	4 3 2 1	
• Well-Planned Intervention/Flexibility:	4 3 2 1	
• Being Skillful:	4 3 2 1	
Evaluating:		
• Reflection/Self-Analysis:	4 3 2 1	
• Commitment to Improvement:	4 3 2 1	
Summary Comments:		

© Developed by Kathie Lasater, EdD(C.) and Michael Katims, Ph.D. Based on Tanner's Model of Clinical Judgment.

From: Oberlander, James <ober7684@bears.unco.edu>
Sent: Tuesday, November 1, 2022 7:46:42 AM
To: Kathie Lasater
Subject: [EXTERNAL] Request to use Lasater Clinical Judgment Rubric in my PhD Dissertation

Hello Dr. Lasater,

My name is Jim Oberlander, and I am currently working towards completing my PhD in Nursing Education at the University of Northern Colorado. My dissertation involves an exploration of changes in student self-perceived clinical judgment, self-efficacy, and resiliency before and after exam remediation while preparing the NCLEX-RN. Throughout my literature search, I found that the majority of the studies utilized the Lasater Clinical Judgment Rubric (LCJR) in clinical and simulation scenarios. As the NCLEX-RN is transitioning to the Next Gen NCLEX, I am curious to see how students' clinical judgment changes based on exam remediation and to see if clinical judgement is a potential predictor of success on the NCLEX-RN. I believe that your tool fits the objectives of my study well, and I am seeking approval to implement your LCJR tool as published in The Journal of Nursing Education (2007). Secondly, while I currently believe that the LCJR could be used in its original form with numerical Likert scale from your dissertation, I would also like to ask your approval for potentially making modifications to the rubric to suit my non-clinical/non-simulation setting. Please let me know if you have any questions or concerns regarding this request. I appreciate any feedback you may have, and I look forward to hearing from you soon.

Smiling as I write this,
Jim

James F. Oberlander, MSN, RN
PhD in Nursing Education – student – UNCO
Cell Phone: 419-631-0317

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From: Kathie Lasater <lasaterk@ohsu.edu>
Sent: Tuesday, November 1, 2022 7:46:42 AM
To: Oberlander, James <ober7684@bears.unco.edu>
Subject: [EXTERNAL] Request to use Lasater Clinical Judgment Rubric in my PhD Dissertation

Hi Jim, glad to know you're smiling!! I am fine with all you propose and will be interested in the outcome. Re: making modifications, I would just note that any psychometrics the original LCJR has would not be applicable. You may be planning to do some psychometrics on the modified version or not--just wanted you to know. Here is my letter of permission with additional details:

Thank you for your interest in the Lasater Clinical Judgment Rubric (LCJR). You have my permission to use the tool for your project. I ask that you (1) cite it correctly, and (2) send me a paragraph or two to let me know a bit about your project when you've completed it, including how you used the LCJR. In this way, I can help guide others who may wish to use it. Please let me know if it would be helpful to have an electronic copy.

You should also be aware that the LCJR describes four stages of the Tanner Model of Clinical Judgment—Noticing, Interpreting, Responding, and Reflecting—and as such, does not measure clinical judgment because clinical judgment involves much of what the individual student/nurse brings to the unique patient situation (see Tanner, 2006 article). We know there are many other factors that influence clinical judgment in the moment, many of which are impacted by the context of care and the needs of the particular patient as well as the relationship of the nurse with the patient.

The LCJR was designed as an instrument to describe the trajectory of students' clinical judgment development over the length of their program. The purposes were to offer a common language between learners, faculty, and preceptors in order to talk about learners' thinking and to serve as a help for offering formative guidance and feedback (See Lasater, 2007, 2011). For measurement purposes, the rubric appears to be most useful with multiple opportunities for clinical judgment vs. one point/patient in time.

Please let me know if I can be of help,

Kathie

Kathie Lasater, EdD, RN, ANEF, FAAN
Professor Emerita, OHSU School of Nursing
Visiting Professor, Edinburgh Napier University

Kathie Lasater is also Assistant Editor of Nurse Education Today
http://www.nurseeducationtoday.com

APPENDIX I

ORIGINAL CONNOR-DAVIDSON RESILIENCY SCALE-10 AND AUTHOR'S PERMISSION TO USE AND MODIFY CONNOR-DAVIDSON RESILIENCY SCALE-10

CD-RISC-10

Instructions: Circle the answer that best describes you.

Item	0 Not true at all	1 Rarely true	2 Sometimes true	3 Often true	4 True nearly all the time
1. I am able to adapt to change.	0	1	2	3	4
2. I can deal with whatever comes.	0	1	2	3	4
3. I see the humorous side of things.	0	1	2	3	4
4. I feel obligated to assist others in need.	0	1	2	3	4
5. I tend to bounce back after illness or hardship.	0	1	2	3	4
6. I can achieve my goals.	0	1	2	3	4
7. Under pressure, I focus and think clearly.	0	1	2	3	4
8. I am not easily discouraged by failure.	0	1	2	3	4
9. I think of myself as a strong person.	0	1	2	3	4
10. I can handle unpleasant feelings.	0	1	2	3	4

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From: Oberlander, James F James.Oberlander2@utoledo.edu
Sent: Sunday, October 16, 2022 9:50:00 AM
To: mail@cd-risc.com
Subject: Seeking request for use of CD-RISC

To Whom It May Concern:

Hello,
My name is Jim Oberlander, and I am considering use of the CD-RISC-25 or CD-RISC-10. I have done an extensive literature search, and I am between the CD-RISC and the ARS-30. The request is for use as part of my dissertation with a population of roughly 100-200 nursing students (pre & post assessment). I am looking at the relationship among resiliency, clinical judgment, self-efficacy, remediation, and NCLEX-RN pass rates. I just wondering what the potential cost for use will be to use the tool within this research study.

Excerpt from website
14. Do I have to pay a fee to use the CD-RISC? A fee is charged for using the scale. The amount is determined by a number of factors, including the version of the RISC, student status, the volume (or number of administrations expected) and type of activity in which the scale will be used.

Jim

James “Coach” Oberlander, MSN, RN
Faculty Advisor: UT Pre-Nursing Student Organization
Office Location: Collier #3207, 3000 Arlington Ave, Mail Stop 1026, Toledo, OH 43614-2598
Office Phone: use cell phone
Cell Phone: 419-631-0317

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From: mail@cd-risc.com
Sent: Monday, October 17, 2022 4:33:00 PM
To: Oberlander, James F James.Oberlander2@utoledo.edu
Subject: Seeking request for use of CD-RISC

Hello Jim:

Thank you for your interest in the RISC 10 and 25, which we would be pleased to provide. CAn you please complete and return the two forms with payment of the $33 fee, and the scales will be duly sent.

With good wishes,

Jonathan Davidson

Dear Jim:

Thank you for your interest in the Connor-Davidson Resilience Scale (CD-RISC). We are pleased to grant permission for use of the CD-RISC-10 or -25 in the project you have described under the following terms of agreement:

1. You agree (i) not to use the CD-RISC for any commercial purpose unless permission has been granted, or (ii) in research or other work performed for a third party, or (iii) provide the scale to a third party without permission. If other colleagues or off-site collaborators are involved with your project, their use of the scale is restricted to the project described, and the signatory of this agreement is responsible for ensuring that all other parties adhere to the terms of this agreement.

2 You may use the CD-RISC in written form, by telephone, or in **secure electronic format whereby the scale is protected from copying, downloading, alteration, repeated use, unauthorized distribution or search engine indexing. In all use of the CD-RISC, including electronic versions, the full copyright and terms of use statement must appear with the scale. The scale should neither be distributed as an email attachment, nor appear on social media, nor in any form where it is accessible to the public and should be removed from electronic and other sites once the activity or project has been completed. The RISC can only be made accessible in electronic form after subjects have logged in through a link, password or unique personal identifier.**

3 Further information on the CD-RISC can be found at the www.cd-risc.com website. The scale's content may not be modified, although in some circumstances the formatting may be adapted with permission of either Dr. Connor or Dr. Davidson. If you wish to create a non-English language translation or culturally modified version of the CD-RISC, please let us know and we will provide details of the standard procedures.

4 Three forms of the scale exist: the original 25 item version and two shorter versions of 10 and 2 items respectively. When using the CD-RISC 25, CD-RISC 10 or CD-RISC 2, whether in English or other language, please include the full copyright statement and use restrictions as it appears on the scale.

5. A **student-rate** fee of $ 33 US is payable to Jonathan Davidson at 2434 Racquet Club Drive, Seabrook Island, SC 29455, USA either by PayPal (www.paypal.com, account mail@cd-risc.com), cheque or bank wire transfer (in US $$). Money orders are not accepted.

6. Complete and return this form via email to mail@cd-risc.com.

7. In any publication or report resulting from use of the CD-RISC, you do not publish or partially reproduce items from the CD-RISC without first securing permission from the authors.

If you agree to the terms of this agreement, please email a signed copy to the above email address. Upon receipt of payment and the signed agreement, we will email a copy of the scale.

For questions regarding use of the CD-RISC, please contact Jonathan Davidson at mail@cd-risc.com. We wish you well in pursuing your goals.

Sincerely yours,

Jonathan R. T. Davidson, M.D.

Agreed to by:

Signature (printed) Date

Student – PhD.
Title

University of Toledo / University of Northern Colorado
Organization

CD-RISC © Request to Use the Scale

Please complete each item clearly and email this form to Jonathan Davidson at mail@cd-risc.com.

With the information given, it will be possible to quote a use fee and prepare a user agreement.

Name of Principal Investigator/ Project Director/Clinician	James F. Oberlander (PhD student)
Department/Organization	University of Toledo, College of Nursing
Street Address and City	3000 Arlington Ave., Toledo, OH 43614
State/Province Zip/Postal code	Toledo, OH 43614
Country	United States
Telephone	4196310317
Email address	James.oberlander2@utoledo.edu

1. Organization Type: *Check box next to the category that best describes the type or primary purpose of your organization*.
   - ☐ Medical group/Clinical Practice
   - ☐ Hospital
   - ☐ Academic Center
   - ☐ Private Foundation
   - ☐ Insurance Company/Health Plan
   - ☐ Government Agency
   - ☐ Consulting Firm
   - ☐ Pharmaceutical Company
   - ☐ Other: _____

2. Please briefly describe the activity in which the CD-RISC is to be used (indicate purpose, objectives, design, key sample characteristics, source of any funding):

The CD-RISC will be used to evaluate the relationship among academic resiliency, exam remediation activities, student (academic/nonacademic) predictor variables, and academic performance (exit exam and NCLEX-RN). The study will follow a non-experimental, exploratory field stud design. No external funding. The sample consists of around 40 prelicensure, graduate-entry masters nursing students preparing for the licensure examination.

3. Estimated/hoped for number of people who will complete the scale (Note: A number is required):

The cohort being studied consists of around 40 students.

4. Total number of times the RISC will be given to each person:

The CD-RISC will be administered twice to each participant (pre-/post-).

5. Duration of study/activity utilizing the scale: < 1 year_x__ 1 year___ 2 years___ 3 years__ 4+ years___

5. Method of assessment (e.g., face-to-face, mail survey or internet. If electronic/internet, please describe procedure in detail, including how survey will be distributed, storage of data, use of password protection/link to survey and protection of scale security from unauthorized use):

Face-to-face (print version)

6. Other measurement tools include:

The Lasater Clinical Judgment Rubric will be a separate instrument used in the study.

7. Indicate if you are a student:

I am a PhD (Nursing Education). This study is part of my dissertation.

8. Indicate if preference for the RISC-25, RISC-10 or RISC-2:

CD-RISC-10

9. Please specify which languages you need (including English if required):

English

APPENDIX J

EXAM REMEDIATION DOCUMENT

NurseThink® Strengths and Opportunities CJE Open-Check Remediation Plan

Directions:

1) Complete the assigned Clinical Judgment Exam (CJE) assessment. After the course instructor has released the exam results to Examsoft, students will login to benchmark.examsoft.com. Select the assessment and save the results by clicking on the "Print" button (top right corner) and selecting "save as pdf/Microsoft to pdf".
2) Based on the results of your CJE assessment, complete pages 2-3 of this remediation plan. Identify the four weakest subcategories from the CJE results (p. 3).
3) For each of the four (4) weakest subcategories identified on page 3, complete the required remediation plan of activities outlined on page 4.
4) Fill in "Record of Completion" on page 5 as you are working on remediation activities.
5) **When finished with all assigned activities, submit the following items listed below** to the Strengths and Opportunities Remediation dropbox in Blackboard by the assigned due date **4/20/23 @ 0930.**
    - CJE assessment Strengths & Opportunities results document
    - Remediation Plan of and Record of Completion (this entire document)
    - Proof of completion of the Remediation Activities discussed on page 4-5 of this document.
        i. CJE assessment results (step 1 above)
        ii. Notebook pages (exported as PDF from NurseThink Notebook)
        iii. CJSims result pages (image with name, score, and time for each CJSim)
        iv. Images of handwritten CJSim "Consider" questions with responses

Note: Students will receive zero (0) for the correlated CJE Benchmark Exam if all the remediation is not completed and submitted to the Strengths and Opportunity Remediation Dropbox by the date of the CJE Benchmark Exam.

Student: **CJE Grade:** **Remediation Plan Due:** see syllabus

Review your NurseThink® Strengths and Opportunities Report and check the areas that are designated "Needs Improvement" for this exam.

Nursing Process ☐ Assessment ☐ Diagnosis ☐ Outcomes/Planning ☐ Implementation ☐ Evaluation	**NCLEX-RN® Client Needs** ☐ Management of Care ☐ Safety and Infection Control ☐ Health Promotion and Maintenance ☐ Psychosocial Integrity ☐ Basic Care and Comfort ☐ Pharmacological and Parenteral Therapies ☐ Reduction of Risk Potential ☐ Physiological Adaptation
System or Exemplar-Disease (Fill in the blank based on report) ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____	**Concepts** ☐ Acid-base Balance ☐ Addiction ☐ Cellular Regulation ☐ Clotting ☐ Cognition ☐ Coping ☐ Culture ☐ Development ☐ Elimination ☐ Family Dynamics ☐ Fluid & Electrolytes
Concepts ☐ Function ☐ Gas Exchange ☐ Glucose Regulation ☐ Health Promotion ☐ Hormonal Regulation ☐ Immunity ☐ Infection ☐ Inflammation ☐ Intracranial Regulation ☐ Metabolism ☐ Mobility ☐ Mood ☐ Nutrition ☐ Oxygenation	**Concepts** ☐ Pain ☐ Perfusion ☐ Psychosis ☐ Reproduction ☐ Role of the Nurse ☐ Safety ☐ Sensory ☐ Sexuality ☐ Spirituality ☐ Stress ☐ Thermoregulation ☐ Tissue Integrity ☐ Violence

I studied/prepared for this exam by doing the following:

- ☐ Reading prior to class at least 80% of time.
- ☐ Reading after class and/or before the exam at least 80% of the time.
- ☐ I created my own study tools to review.
- ☐ Reviewing class handouts/notes at least 80% of the time.
- ☐ Participating in a study group
- ☐ Doing NCLEX®-style review questions
- ☐ Studied mostly the day/night before the exam
- ☐ Studied several times per week between classes and the exam
- ☐ Using online resources available with the textbook at least 80% of the time
- ☐ Completed a Practice Exam
- ☐ Remediated after an exam
- ☐ Other: _____
  _____

I missed exam questions mainly due to:

- ☐ Not remembering the content
- ☐ Missing key words in the stem or answers
- ☐ Reading too quickly, assuming what the question was about
- ☐ Not using clinical judgement or decision-making
- ☐ Read too much into the question
- ☐ Not understanding the question
- ☐ Finding the questions too complex
- ☐ Not prioritizing
- ☐ Narrowing the answer to 2 choices but choosing the wrong answer
- ☐ Difficulty in applying information that I just know a little about
- ☐ Not having enough time
- ☐ Guessed at the answer
- ☐ Other: _____
  _____

The Concepts/Exemplar-Disease I need to work on the most are (LOWEST SCORES):

1.

2.

3.

4.

Instructions for Remediation Activities

Instructions:

1. Locate your individual overall assessment score from the CJE assessment (score placed on page 2).
2. Based on score, locate the matching column header from table below.
3. Using the column header, complete the required Guidelines for CJSim remediation and the corresponding NoteBook pages for each Concept/Exemplar-Disease as outlined below the table in the Remediation Guidelines section.
4. **Use the NurseThink Curricular Grid document (Excel document) to locate concepts and corresponding CJSims and Notebook pages. Use "control-F" to quickly locate concepts in the document.**
    a. Login to CJSims https://learning.nursethink.com/login/?lang=en
    b. CJSims that correspond with weak concepts can be identified through the Unit Census icon (located below the CJSim units). Complete CJSim and screenshot results for upload to Bb.
        i. Students must attempt to achieve an 85% on each CJSim. *(max of 3 attempts)*
        ii. Complete 1 "Consider" question per CJSim client. Write the question and the response. "Consider" questions **must be handwritten** and images submitted to Bb with this remediation plan.
    c. Notebook pages can be selected. Notebook pages and images submitted to Bb with this remediation plan **must have current date and student name.**

Specialty	Does Not Meet Standard	Minimally Acceptable	Meets Standard	Exceeds Standard
Readiness	≤65%	65%-74%	75%-85%	≥85%

Remediation Guidelines

(4 lowest scoring subcategories)

Exceeds Standard (estimated 2 hours)

- Complete **3** CJSim Clients, **3** CJSim consider questions (1 per CJSim), and **4** NoteBook pages

Meets Standard (estimated 2.5 hours)

- Complete **4** CJSim Clients, **4** CJSim consider questions (1 per CJSim), and **4** NoteBook pages

Minimally Acceptable (estimated 3 hours)

- Complete **5** CJSim Clients, **5** CJSim consider questions (1 per CJSim), and **4** NoteBook pages

Does Not Meet (estimated 3.5 hours)

- Complete **6** CJSim Clients, **6** CJSim consider questions (1 per CJSim), and **4** NoteBook pages

Remediation Activities Record of Completion

The Concepts/Exemplar-Disease I worked on:

Concepts/Exemplar-Disease	Notebook Page	CJSim Care Unit & Client Name	Highest CJSim Score Achieved & Time Taken
1.			
2.			
3.			
4.			

APPENDIX K

CONTENT VALIDITY INDEX TOOLS

LCJR Content Validity Index Tool

Thank you for providing your expert review of the Lasater Clinical Judgment Rubric (LCJR). The original instrument has been utilized in a variety of research related to development of clinical judgment in nursing students. However, it was not identified as a tool used to evaluate the self-perceptions of improving student clinical judgment on computerized examinations as a result of completing remediation activities. For the purpose of this study, the original tool's terminology has been slightly modified to better suit the environment and data collection of this study.

As a participant, you are being asked to examine the LCJR instrument and provide your expert opinion as to the content validity for student self-evaluation of improved clinical judgment on computerized examinations resulting from remediation activities. Names of experts will not be collected or recorded with responses. All participation will be considered anonymous.

LCJR Content Validity Index Tool (continued)

Instructions: The following Likert scale will be used to evaluate two components of content validity: (1) relevance and (2) clear communication. Circle one answer in each box.

Please add additional comments as rationale for your response (optional).

Likert Scale
1 = not relevant/clear
2 = somewhat relevant/clear
3 = quite relevant/clear
4 = very relevant/clear

Item	Relevant to Construct	Clearly Communicated	Comments for consideration
Noticing			
Focused Observation	1 2 3 4	1 2 3 4	
Recognizing Deviation from Expected Patterns	1 2 3 4	1 2 3 4	
Information Seeking	1 2 3 4	1 2 3 4	
Interpreting			
Prioritizing Data	1 2 3 4	1 2 3 4	
Making Sense of Data	1 2 3 4	1 2 3 4	
Responding			
Calm, Confident Manner	1 2 3 4	1 2 3 4	
Clear Communication	1 2 3 4	1 2 3 4	
Well-Planned Intervention/Flexibility	1 2 3 4	1 2 3 4	
Being Skillful	1 2 3 4	1 2 3 4	
Evaluating			
Reflection/Self-Analysis	1 2 3 4	1 2 3 4	
Commitment to Improvement	1 2 3 4	1 2 3 4	

CD-RISC-10 Content Validity Index Tool

Thank you for providing your expert review of the Connor-Davidson Resiliency Scale-10 (CD-RISC-10). The original CD-RISC-10 has been utilized in a variety of research, including nursing students, related to the construct of resiliency. However, the CD-RISC-10 has not been not identified as a tool used to evaluate the self-perceptions of resiliency as a result of completing remediation activities. For the purpose of this study, the original tool was not modified.

As a participant, you are being asked to examine the CD-RISC-10 instrument and provide your expert opinion as to the content validity for student self-evaluation of resiliency before and after the completion of remediation activities. Names of experts will not be collected or recorded with responses. All participation will be considered anonymous.

CD-RISC-10 Content Validity Index Tool (continued)

Instructions: The following Likert scale will be used to evaluate two components of content validity: (1) relevance and (2) clear communication. Circle one answer in each box.

Please add additional comments as rationale for your response (optional).

Likert Scale
1 = not relevant/clear
2 = somewhat relevant/clear
3 = quite relevant/clear
4 = very relevant/clear

Item	Relevant to Construct	Clearly Communicated	Comments for consideration
1. I am able to adapt to change.	1 2 3 4	1 2 3 4	
2. I can deal with whatever comes.	1 2 3 4	1 2 3 4	
3. I see the humorous side of things.	1 2 3 4	1 2 3 4	
4. I feel obligated to assist others in need.	1 2 3 4	1 2 3 4	
5. I tend to bounce back after illness or hardship.	1 2 3 4	1 2 3 4	
6. I can achieve my goals.	1 2 3 4	1 2 3 4	
7. Under pressure, I focus and think clearly.	1 2 3 4	1 2 3 4	
8. I am not easily discouraged by failure.	1 2 3 4	1 2 3 4	
9. I think of myself as a strong person.	1 2 3 4	1 2 3 4	
10. I can handle unpleasant feelings.	1 2 3 4	1 2 3 4	

APPENDIX L

INSTITUTIONAL REVIEW BOARD DOCUMENTS

April 9, 2023

M. Eileen Walsh, PhD, APRN, CVN, FAHA
Senior Associate Dean Academic Affairs
and Research, Director Nursing Honors
Professor, College of Nursing
Eileen.walsh@utoledo.edu

James Oberlander, MSN, RN
Instructor, College of Nursing
University of Toledo
Mail Stop 1026
3000 Arlington Ave
Toledo, Ohio 43614-2598

RE: Exploring the relationship among clinical judgment, resiliency, student predictors, and exam remediation in pre-licensure nursing students preparing for next generation NCLEX-RN exam

Dear Jim,

Congratulations on the successful defense of your doctoral dissertation, *Exploring the relationship among clinical judgment, resiliency, student predictors, and exam remediation in pre-licensure nursing students preparing for next generation NCLEX-RN exam.* Thank you for taking the time to discuss your proposed study, student population, data collection methods, and evaluation plan.

I am pleased to support the implementation of your study at the College of Nursing during the spring 2023 semester with our pre-licensure nursing students. I am confident that safeguards will be in place to avoid any potential conflict or bias with students participating in your study.

I look forward to hearing the outcomes of your project. All the best wishes as you complete your doctoral journey!

Sincerely,

M. Eileen Walsh, PhD, APRN, CVN, FAHA

Cc: Dr. Carrie Lee
Dr. Kelly Phillips

The University of Toledo
Human Research Protection Program
Social, Behavioral and Educational IRB
2801 W. Bancroft St., MS 218,
Toledo, Ohio 43606
Phone: 419-383-6796 Fax: 419-383-3248
(FWA00010686)

IRB Amendment Approval Notification

To: M. E Walsh PhD, APN, RN-BC FAHA

Nursing, College of (Instruction)

From: Social, Behavioral and Educational IRB

IRB Number: 301701

Title: Exploring the relationship among clinical judgment, academic resiliency, student predictors, and exam remediation in prelicensure nursing students preparing for Next Generation NCLEX-RN exam

Amendment Summary: Change potential participant descriptor to "prelicensure nursing students". Will also include an increased pool of around 200 potential subjects.

Signed Thursday, April 20, 2023 6:52:35 PM ET by Case, Patricia F. Ph.D.

The amendment to research referenced above was reviewed by the University's Social, Behavioral and Educational IRB. The amendment has been approved as of **04/19/2023**. This action does not affect your expiration date, your continuing review, your annual status report due date or your exempt status, whichever applies. This action will be reported to the full committee at its next convened meeting.

Documents reviewed and approved as part of this amendment application submission:

- AMENDED DOCUMENT - Exempt Consent UT IRB - Oberlander (new April) (Consent - Informed Consent Form)
- AMENDED DOCUMENT - Verbal/Email Script - Recruitment Communication (Recruitment Materials)
- (amended document) - CON Research Approval - Oberlander - AY2022-23-updated (Site Permission Letter)

Only the most recent IRB approved form(s) listed above may be used when enrolling participants into research.

Please note the following important items:
Per Federal regulations, changes MAY NOT be made to any element of the current research without prior IRB approval, except to eliminate an immediate and apparent hazard to subjects enrolled in the study.

Per UT policy, the IRB requires that you submit a final report WITHIN 30 DAYS following the expiration date or completion of data collection, analysis, and cessation of all study activity (whichever comes first). If no expiration date is indicated, submit a final report WITHIN 30 DAYS following the completion of data collection, analysis, and cessation of all study activity.

Failure to retain current IRB approval and/or to failure to conduct your research in accordance with what has been approved in your application may result in archiving the current study and human subjects non-compliance allegations.

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Institutional Review Board

Date:	04/13/2023
Principal Investigator:	James Oberlander
Committee Action:	**IRB EXEMPT DETERMINATION – New Protocol**
Action Date:	04/13/2023
Protocol Number:	2303048567
Protocol Title:	Exploring the relationship among clinical judgment, academic resiliency, student predictors, and exam remediation in prelicensure nursing students preparing for Next Generation NCLEX-RN exam
Expiration Date:	

2303048567

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(702) (704) for research involving

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS OF PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).

Category 4 (2018): SECONDARY RESEARCH USING IDENTIFIABLE DATA OR SPECIMENS. Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable biospecimens, if at least one of the following criteria is met: (i) The identifiable private information or identifiable biospecimens are publicly available; (ii) Information, which may include information about biospecimens, is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify subjects;

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(iii) The research involves only information collection and analysis involving the investigator's use of identifiable health information when that use is regulated under 45 CFR parts 160 and 164, subparts A and E, for the purposes of "health care operations" or "research" as those terms are defined at 45 CFR 164.501 or for "public health activities and purposes" as described under 45 CFR 164.512(b); or (iv) The research is conducted by, or on behalf of, a Federal department or agency using government-generated or government-collected information obtained for nonresearch activities, if the research generates identifiable private information that is or will be maintained on information technology that is subject to and in compliance with section 208(b) of the E-Government Act of 2002, 44 U.S.C. 3501 note, if all of the identifiable private information collected, used, or generated as part of the activity will be maintained in systems of records subject to the Privacy Act of 1974, 5 U.S.C. 552a, and, if applicable, the information used in the research was collected subject to the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 et seq.

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:

- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).
- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Interim IRB Administrator, Chris Saxton, at 970-702-5427 or via e-mail at chris.saxton@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - http://hhs.gov/ohrp/ and https://www.unco.edu/research/research-integrity-and-compliance/institutional-review-board/.

Sincerely,

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

Nicole Morse
Interim IRB Administrator

University of Northern Colorado: FWA00000784

2303048567