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Utilizing Early Simulation to Increase Clinical Confidence in Novice Nursing Students

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Utilizing Early Simulation to Increase Clinical Confidence in Novice Nursing Students

by

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Approval Page

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Abstract

The purpose of this project was to determine if early simulation would increase the clinical confidence of novice nursing students. A convenience sample of 20 junior nursing students in their first semester of a baccalaureate nursing program within a small, rural university participated in the project prior to their first clinical experience. The students were administered the Confidence Scale as a pre-test prior to the early simulation experience which consisted of a scenario comparable to what the students would experience in the clinical setting. After the simulation, the primary investigator facilitated a debriefing exercise and then administered the Confidence Scale again as a post-test, as well as the Student Satisfaction and Self-Confidence in Learning Instrument to determine confidence levels after the simulation. A paired samples *t* test was performed to evaluate the change in confidence levels after the early simulation intervention. The results indicated that there was a statistically significant improvement in confidence scores after the simulation for each of the five questions on the Confidence Scale. The Student Satisfaction and Self-Confidence in Learning instrument results also demonstrated high levels of satisfaction and confidence after the early simulation experience. Linear regression was implemented to determine relationships between the demographic information and the changes in the pre-test and post-test confidence levels. A statistically significant relationship was found between the Confidence Scale question related to confidence in portraying competence in front of an observer and employment as a home health CNA. Another statistically significant relationship was found between the Confidence Scale question related to confidence in task performance and employment as a long term care CNA.

Keywords: simulation, early simulation, simulation-based learning, novice nursing students, confidence, clinical confidence, measuring confidence

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CHAPTER I

Introduction

Confidence in nursing education is often gained through increased knowledge, experience in client care, and self-reflection (Blum, Borglund, & Parcells, 2010). Confidence is frequently measured subjectively by nursing faculty after observation of the students' interaction with the client, the clients' families or caregivers, and interdisciplinary team members in the clinical setting; however, this type of subjective form of measure does not reflect the students' perception of self-confidence (Blum et al., 2010). Rarely do nursing faculty measure the level of students' self-perceived confidence level (Blum et al., 2010). According to Blum et al. (2010), the literature promotes the measurement of student confidence through student self-reflection.

The importance of measuring self-confidence in nursing students has been identified in the literature. Confidence is a vital concept in nursing education (Perry, 2011). Nursing students with low levels of confidence often leads to clients' lack of trust in the students' abilities (Perry, 2011). Perry (2011) defined self-confidence as the belief in one's abilities. Confidence influences student performance, including the performance of nursing students in the clinical setting (Perry, 2011). Goodstone et al. (2013) stated that the goal of nursing education is to graduate students who are confident and who exhibit strong critical thinking abilities.

Nurse education should incorporate strategies that may increase student confidence levels. Many researchers have stated that simulation can be performed in nursing education to promote student confidence (Pauly-O'Neill & Prion, 2013; Perry, 2011; Blum et al., 2010; Bambini, Washburn, & Perkins, 2009; Jeffries, 2007).

Wane and Lotz (2013) reported that simulations that provide applicable experiences related to clinical situations are the most effective. Therefore, an essential concept that should be considered in nursing simulation is the curriculum design. It is vitally important to align the course objectives and curriculum with the simulation curriculum (Sanford, 2010; Jeffries, 2007). The simulation experience should not be comprised of more advanced information than the nursing students have learned. Because of these features related to nursing simulation curriculum, it is essential that nursing programs incorporate a specific nursing curriculum associated with the courses taught.

Problem Statement

Nursing students often report low levels of confidence related to clinical experience (Perry, 2011). In nursing education, simulation has been used to increase student confidence (Pauly-O'Neill & Prion, 2013; Perry, 2011; Blum et al., 2010; Bambini et al., 2009; Jeffries, 2007). Simulation has been identified as a successful strategy that aids students in controlling fear and panic in relation to client care (Perry, 2011). The ability of the students to control these emotions increases their confidence levels (Perry, 2011). Simulation experiences offer a safe, controlled environment which is ideal for nursing students to learn to control emotions and gain confidence because no real harm can occur to the simulated patient.

Justification of Project

Simulation is used in nursing education to prepare students for clinical practice (Hovancsek, 2007). Because simulation combines assessment, communication, teamwork, management, and decision-making skills, its use is ideal in nursing education (Wilford & Doyle, 2006). If integrated by faculty properly, nursing simulation aids

students in critiquing their actions and the actions of others (or lack of actions), in reflecting upon their actions and skills, and in analyzing mistakes (Hovancsek, 2007). Simulation in nursing education makes it possible to meet certain learning objectives while not causing harm to patients (Jeffries, 2007; Wilford & Doyle, 2006). Nursing simulation also allows nursing programs to meet board of nursing clinical requirements when clinical site space is limited (Alinier, Hunt, Gordon, & Harwood, 2006).

Ying (2011) discussed that nursing simulation assists in deepening students' learning, in helping students integrate nursing skills and transition from the classroom to the clinical setting, and in promoting safety in the clinical setting. Ironside, Jeffries, and Martin (2009) stated that nursing simulation can aid nursing faculty in more accurately evaluating student competencies.

Research has identified that simulation can help students become more confident with nursing skills and nursing care (Jeffries, 2007). Partin, Payne, and Slemmons (2011) noted that when knowledge is increased, confidence is also increased. Studies have demonstrated that simulation, if designed appropriately, can increase students' self-confidence and clinical judgment skills (Jeffries, 2007). Simulation allows nursing students to interact in realistic clinical situations, and this strategy leads to improved critical thinking and problem-solving skills which promotes self-confidence (Jeffries, 2007). Integration of early simulation that occurs prior to novice nursing students' first clinical experience could increase their confidence levels on the first clinical day.

At the end of the first semester of the Foundations and Concepts for Professional Nursing course in a new nursing program at a small, rural university, the principal investigator discussed with the first cohort of junior nursing students their thoughts

regarding the simulation experience after their first simulation day in the laboratory. This simulation experience occurred after the students had participated in five days of clinical training on a medical/surgical unit at a local hospital. Some of the students suggested that a simulation experience prior to their first clinical experience would have made them feel more comfortable and confident in the clinical setting. The principal investigator decided to implement early simulation to attempt to increase the students' clinical confidence because this particular new nursing program did not have a specific simulation curriculum in conjunction with the Foundations and Concepts for Professional Nursing course.

One of the goals of integrating the simulation curriculum at this small, rural university was to promote students' self-perceived confidence levels related to patient care, including the first clinical experience. Sanford (2010) and Blum et al. (2010) stated that novice nursing students described an increase in confidence after simulation. Smith and Roehrs (2009) found that simulation scenarios with specific design characteristics like clear objectives and challenging problems aid in increasing nursing student confidence.

Statement of Purpose

The purpose of this project was to answer the clinical question that developed from this clinical practice need, "In novice junior nursing students enrolled in the Foundations and Concepts for Professional Nursing Practice course, does a detailed simulation curriculum design that initiates early simulation compared to a simulation experience for one day at the end of the first semester in the nursing program increase perceived self-confidence in the nursing students involved in the early initiation of

simulation?" Use of the PICO format was beneficial in the generation of the clinical question.

- Population (P): The target population with the clinical need was novice junior nursing students enrolled in the Foundations and Concepts for Professional Nursing Practice course. The term "novice" was defined as a new nursing student in his/her first clinical nursing rotation course.
- Intervention (I): The intervention that was implemented was the design of a detailed simulation curriculum for the Foundations and Concepts for Professional Nursing Practice course. The implemented curriculum was used for initiation of early simulation to better enable the students to increase self-confidence in the clinical setting.
- Comparison (C): The comparison group was the junior nursing students enrolled in the Foundations and Concepts for Professional Nursing Practice prior to the implementation of the simulation curriculum.
- Observation (O): The intended outcome for the simulation curriculum was to increase the perceived self-confidence of the students who experienced the simulation curriculum with early simulation experiences.

Assumptions

The following assumptions were made related to the use of simulation in nursing education:

1. Simulation can be used for novice nursing students (Hovancsek, 2007).

2. Low-fidelity, medium-fidelity, and high-fidelity simulation are effective teaching strategies utilized in all levels of nursing programs across the United States (Hovancsek, 2007).
3. Simulation is a compelling strategy for nursing students to practice assessment skills because the faculty can program and change client assessment data (Hovancsek, 2007).

Theoretical Framework

The theoretical framework used in this project was Pamela Jeffries' Nursing Education Simulation Framework. This framework has five conceptual components: *teacher* elements, *student* elements, *educational practices* that need to be integrated into the simulation experience, *simulation design*, and *student outcomes* (Jeffries, 2007). Each of these concepts was applied to this project.

The teacher is a vital part of the learning process, and teachers become the coordinator and evaluator in simulations used in nursing education (Jeffries, 2007). The teacher aids in making the simulation a deeper level of critical thinking by asking questions throughout the simulation and by debriefing the students after the simulation is completed (Jeffries, 2007). The teacher should be comfortable in this role and should be capable of utilizing the technology needed to perform the simulation (Jeffries, 2007).

The student is at the center of the simulation experience (Jeffries, 2007). Nursing students should use self-assessment strategies during the period of debriefing to determine if they met the designated learning objectives in the simulation experience (Jeffries, 2007). The student should be given the information that mistakes may be made

in the simulation lab and that lessons should be learned from those mistakes (Jeffries, 2007).

If role-play is involved, the student(s) should be supplied with proper instructions for the part(s) so that the learning experience will be the most beneficial (Jeffries, 2007). Students may be given a response-based role in which they are an observer who is not actively involved in the scenario and has no control over the situations that occur during the scenario (Jeffries, 2007). Students may also be given a process-based role in which they are actively involved in the scenario and must make decisions which influence the situations that occur in the scenario (Jeffries, 2007). The students who participated in this project assumed a process-based role and were actively involved in the role of the primary nurse in the scenario.

Within Jeffries' Nursing Education Simulation Framework, the component of educational practices encompasses the issues of active learning, diverse learning styles, collaboration, and high expectations (Jeffries, 2007). In this project, the educational practice was defined as simulation. Active learning involves the importance of designing simulation scenarios that allow the students to become actively involved in the scenarios (Jeffries, 2007). Being actively involved in the learning process increases critical thinking skills and allows nursing faculty to more accurately assess the students' learning outcomes (Jeffries, 2007). An important factor of active learning is feedback which should be incorporated into the simulation experience, either at the end or during the scenario (Jeffries, 2007).

Faculty members need to identify that students have diverse learning styles (visual, auditory, tactile, and kinesthetic); therefore, each of these learning styles should

be integrated into the nursing simulation scenarios (Jeffries, 2007). Jeffries (2007) gave examples of ways that faculty can incorporate different learning styles into the scenarios: client rooms can be set up realistically for visual learners, verbal simulator responses and a person role-playing a family member for the auditory learners, ability to perform physical assessments on the simulators for the tactile learners, and supplying hands-on equipment for "patient (simulator) use" for the kinesthetic learners.

Collaboration must transpire between the teacher and the students so that information can be comfortably shared and gained by all involved in the simulation (Jeffries, 2007). Just as the students should receive constructive evaluation about their performance in the simulation, the teacher should also receive feedback about the simulation design from the students (Jeffries, 2007). More active and engaged learning can take place in a collaborative environment (Jeffries, 2007).

The teacher should voice high expectations to the students in conjunction with a supportive atmosphere in order for nursing students to succeed (Jeffries, 2007). Jeffries (2007) reported that simulation experiences can increase the competency levels of nursing students when a positive learning environment is achieved.

As described in the Nursing Education Simulation Framework, proper simulation design is vital. In this project, the simulation design was defined as the simulation scenario developed by the principal investigator which incorporated objectives, fidelity, problem-solving opportunities, student support, and a debriefing exercise. Objectives need to be devised to direct the simulation scenario to meet the student learning outcomes (Jeffries, 2007). Whether the objectives were met or not met should be discussed in the debriefing session (Jeffries, 2007).

The simulation design should also include fidelity which refers to realism (Jeffries, 2007). High-fidelity, medium-fidelity, and low-fidelity simulations can be utilized to integrate the proper amount of realistic qualities depending upon the skills to be performed (Jeffries, 2007). The level of fidelity reflects the amount of problem-solving features in the simulation; however, the intricacy of the simulation should match the knowledge level of the students (Jeffries, 2007).

Support of the students should be demonstrated as the simulation scenario unfolds (Jeffries, 2007). Faculty may find it necessary to give the students prompts to encourage proper flow of the scenario (Jeffries, 2007).

Debriefing involves reflection of the simulation scenarios in order to determine the knowledge gained (Jeffries, 2007). The teacher should guide the debriefing session so that learning outcomes are met (Jeffries, 2007). The projected outcomes after simulation and debriefing are learning (knowledge), skill performance, learner satisfaction, critical thinking skills, and self-confidence (Jeffries, 2007).

In Jeffries' Nursing Education Simulation Framework, student outcomes are identified as knowledge, nursing skills, student satisfaction, critical thinking skills, and confidence (Jeffries, 2007). Evaluation of student outcomes is vital in concluding the success of the educational practice (Jeffries, 2007). In this project, the student outcome was defined as the confidence levels of the participants.

In this project, the *student* was defined as junior level nursing students enrolled in a Foundations and Concepts for Professional Nursing laboratory course and was measured by reporting information on the demographic form. *Educational practices* were defined as simulation that incorporated active learning and high expectations and were

measured by observation and constructive comments and questions reflecting critical thinking. *Simulation design* was defined as self-reflection and was measured by the Modified Plus/Delta Debriefing Tool. Student outcomes were defined as the students reported measure of self-confidence and were measured by the Confidence Scale and the National League for Nursing (NLN) Student Satisfaction and Self-Confidence in Learning Tool. The concepts utilized from Jeffries' Nursing Education Simulation Framework are diagrammed in the Conceptual, Theoretical, and Empirical (CTE) structure in Figure 1.

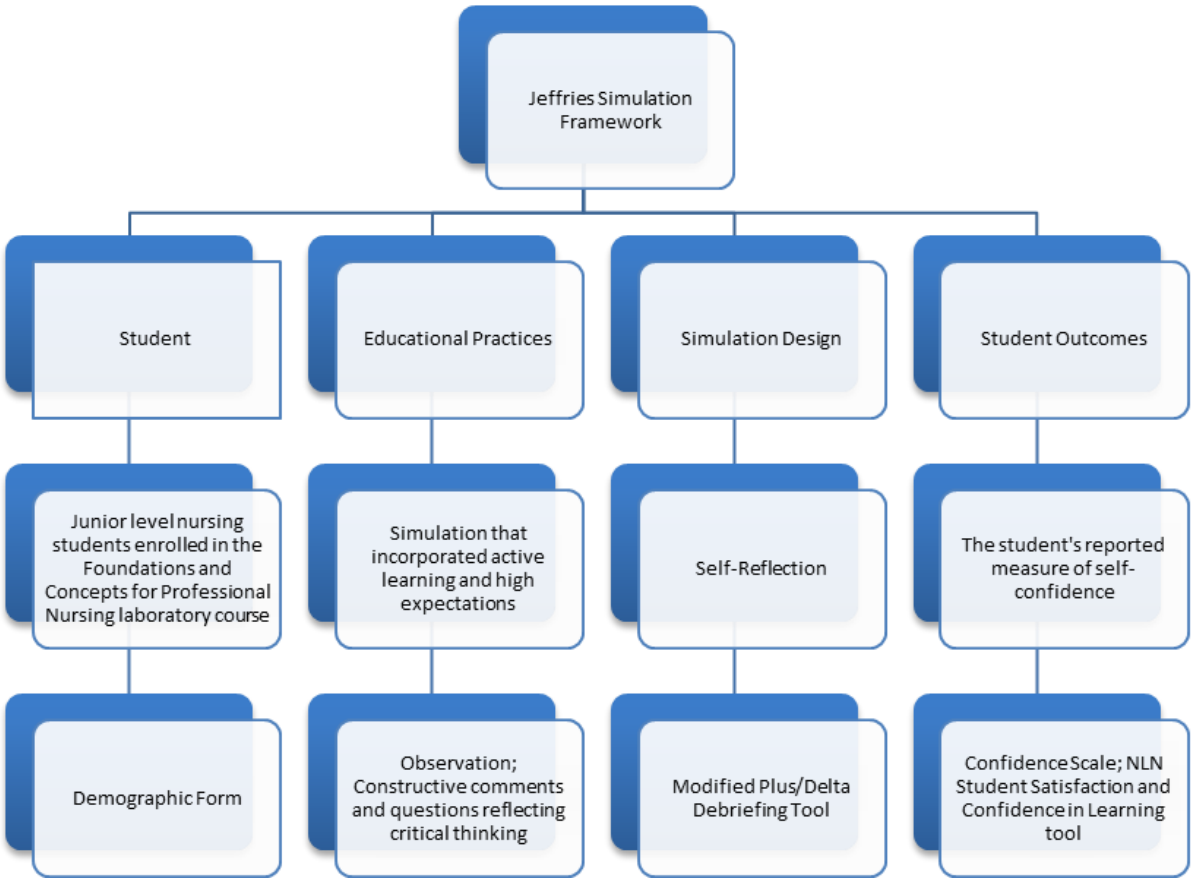

Figure 1. CTE Diagram Relating Jeffries' Framework to Capstone Project

Concepts and Definitions

- Simulation: Simulation is a replication of a clinical situation that resembles reality so that key components of that situation can be better understood (Hovancsek, 2007). Simulations can be low-fidelity, medium-fidelity, and high-fidelity. Simulations can be used in nurse education to increase knowledge, critical thinking, and exposure to clinical situations that may not be experienced in the clinical setting (Hovancsek, 2007).
- Confidence: A nursing student's belief in his/her abilities to perform safely and effectively reflects the concept of confidence. This performance can occur in the simulation lab or in the clinical setting. Confidence is a concept that is necessary for improved student performance that also promotes positive patient outcomes.
- Simulation-based scenario: A simulation-based scenario is a realistic situation portrayed in the simulation laboratory using real equipment to provide care for simulated patients through role-play or the use of mannequins.
- Novice nursing students: Novice nursing students are considered those students in their first semester of a nursing program who have not participated in their first clinical nursing experience. These students generally have either a limited experience or no experience in health care prior to enrollment in a nursing program.

Summary

Novice nursing students need to build their confidence levels prior to the first day of clinical experience. If early simulation is found to increase confidence in novice nursing students, the results may indicate that the student performs much more

effectively and efficiently in the clinical setting; this performance will help the students focus on proper client care, instead of feelings of anxiety or fear. Early simulation is a compelling strategy to encourage increased confidence levels in novice nursing students.

CHAPTER II

Literature Review

Using the Cochrane Library, three pertinent articles were found related to "nursing simulation curriculum." Using the Cumulative Index to Nursing and Allied Health (CINAHL) Plus Database with Full Text and PubMed databases, the following terms were searched for relevant literature: "nursing simulation curriculum," "nursing simulation and confidence/self-confidence/perceived self-confidence", and "Jeffries and simulation." This search identified many articles important to the design of the nursing simulation curriculum change in clinical practice.

Conceptual Literature Review

A review of the literature indicated that the utilization of simulation in nursing education has many benefits. Some of the benefits of simulation noted in the literature were satisfaction with simulation, self-confidence, critical thinking, and competence. The focus of this literature review was to determine the correlation between simulation and confidence in nursing education.

Simulation

Tosterud, Hedelin, and Hall-Lord (2013) used a quantitative, comparative study to evaluate 86 baccalaureate nursing students' perception of different simulation styles. The 86 students, who were at different educational levels, were divided randomly into small groups of three to four students (Tosterud et al., 2013). The students participated in a simulation-based scenario based on their year in the nursing program. The focus of the first year students' scenario was to assess respirations and report the assessment to peers, the focus of the second year students' scenario was to assess respirations and perform appropriate interventions, and the focus of the third year students' scenario was to assess

respirations, perform appropriate interventions, and notify the physician with sufficient information (Tosterud et al., 2013). Each group participated in the same simulation-based scenario according to their year of education but experienced a different form of simulation style (Tosterud et al., 2013). The groups either used a high-fidelity simulator, a low-fidelity simulator, or a copy of a case study in their simulation experience (Tosterud et al., 2013). After the simulation was complete, the students completed three questionnaires: the Student Satisfaction and Self-Confidence in Learning Scale, the Educational Practices Questionnaire, and the Simulation Design Scale (Tosterud et al., 2013).

The results of the study indicated statistically significant differences in the students' confidence levels with all three simulation styles, with the most improvement demonstrated in the paper-based case study group (Tosterud et al., 2013). The case study group reported higher levels of satisfaction with teaching method than the high-fidelity simulator group; the case study and low-fidelity simulator group reported higher levels of satisfaction with learning materials and activities than the high-fidelity simulator group (Tosterud et al. 2013). The case study group also reported higher levels of satisfaction with motivation to learn than did the high-fidelity or low-fidelity simulator groups (Tosterud et al., 2013). Despite the educational level of the students, all three simulation style groups reported high levels of satisfaction and confidence after the simulation experience (Tosterud et al., 2013).

A statistically significant result was identified in the educational practice of diverse learning styles with all three groups (Tosterud et al., 2013). The case study and low-fidelity groups reported that their simulation styles proposed a variety of ways to

promote knowledge (Tosterud et al., 2013). The high-fidelity simulator group reported higher scores related to the ability to discuss learning points throughout the scenario than the other two groups (Tosterud et al., 2013). The low-fidelity simulator group reported higher scores than the case study group on receiving cues during the scenario (Tosterud et al., 2013). The case study group reported higher scores on productive learning times based on the simulation style than the high-fidelity simulator group (Tosterud et al., 2013). Despite the educational level of the students, all three simulation style groups reported that the elements of collaboration and active learning were present in the simulation scenarios; however, concerning teamwork on completing the scenario, the scores in the year three students was significantly higher (Tosterud et al., 2013).

The students in all groups reported that the simulation design features were present in their simulations (Tosterud et al., 2013). The case study group reported statistically significant higher scores related to realism in the scenario (Tosterud et al., 2013). Despite the educational level of the students, all three simulation style groups reported that the features of the simulation design, including guided reflection, were present in the simulation (Tosterud et al., 2013).

Felton, Holliday, Ritchie, Langmack, and Conquer (2013) used a qualitative pilot study to evaluate the effectiveness of simulation that focused on helping adolescents in emotional distress as a teaching strategy with 16 Master's degree level pre-registration nursing students. Prior to the simulation, which used young actors as the adolescent patients who had participated in self-harm; the students experienced a one hour orientation to the subject of caring for adolescents in emotional distress (Felton et al., 2013). The students participated in two 45-minute scenarios that targeted care for two

different adolescents who had self-harmed; after the completion of the two scenarios, the students engaged in a debriefing focus session and completed a questionnaire with similar questions to ensure anonymity (Felton et al., 2013).

The feedback obtained during the focus session and from the questionnaire indicated that simulation was a useful strategy that provided an engaging learning experience (Felton et al., 2013). Many of the students reported that they would like to participate in more simulation activities because of the active learning components of this teaching strategy (Felton et al., 2013). Some of the students, though, reported not enjoying the simulation experience due to fear of not performing interventions correctly in front of peers, while others viewed the experience as an opportunity to learn new skills and information from peers (Felton et al., 2013).

McCaughey and Traynor (2010) used a mixed method, longitudinal, descriptive study to evaluate the effectiveness of simulation using high-fidelity and medium-fidelity simulators of 93 third year nursing students. The students who participated in the study completed a questionnaire after a four hour simulation experience which measured the students' opinions of simulation (McCaughey & Traynor, 2010). Of the participants, 96.8% reported that simulation provided a useful way for instructors to evaluate the students' assessment skills (McCaughey & Traynor, 2010). The majority of the students (82.2%) communicated that simulation helped them in process of care planning, while 77% documented that simulation aided them in learning how to administer holistic patient care (McCaughey & Traynor, 2010). Of the participants, 92.5% reported that simulation increased their confidence levels, and 87% stated that simulation helped them recognize how theory relates to clinical practice (McCaughey & Traynor, 2010). Only

58.1% of the participants thought the simulation was realistic; however, 92.5% reported that they used concepts learned in their simulation exercise in the clinical setting (McCaughey & Traynor, 2010). Many of the participants (86%) also communicated that they learned or further developed nursing skills with the utilization of simulation, and 72% of the participants stated that simulation helped them transition from student nurse to clinical nurse (McCaughey & Traynor, 2010).

Bruce et al. (2009) used a pre-test and post-test study to evaluate the effectiveness of simulation related to knowledge and confidence with 107 undergraduate nursing students and 11 graduate nursing students. Prior to the simulation, the graduate students participated in a lecture about crisis management pertaining to cardiac arrest, while the undergraduate students participated in a lecture on managing care in patients experiencing cardiac arrest (Bruce et al., 2009). Prior to simulation, the graduate students were required to complete a demographic form, the Knowledge Test that measured knowledge regarding the current American Heart Association recommendations related to managing care for patients experiencing cardiac arrest, and the Confidence Scale which measured the students' level of confidence in managing care for patients experiencing cardiac arrest (Bruce et al., 2009). Prior to simulation, the undergraduate students had to complete a demographic form and a Knowledge Test which was used to measure the students' knowledge level of managing a patient experiencing cardiac arrest (Brue et al., 2009).

The students participated in a simulation scenario that focused on a patient experiencing cardiac arrest (Bruce et al., 2009). During the graduate level simulation, a faculty member used the Competency Scale to measure students' ability to manage the

patient in cardiac arrest (Bruce et al., 2009). After the simulation, the students participated in a debriefing exercise; then, the graduate students were given the opportunity to participate in the scenario a second time and were then administered the Knowledge Test and the Confidence Scale as post-tests (Bruce et al., 2009). The undergraduate students were not able to participate in the simulation a second time due to the large number of undergraduate participants; so they were administered the Knowledge Test after the first simulation experience and again four to eight weeks later (Bruce et al., 2009).

The results of the study indicated a statistically significant improvement in knowledge between the pre-test and post-test scores for the graduate level students (Bruce et al., 2009). There were no statistically significant differences between the graduate students' level of confidence and skill performance when the pre-test and post-test scores were compared (Bruce et al., 2009). The findings also suggested that there was a statistically significant difference between the pre-test and post-test scores regarding knowledge in the undergraduate group of students (Bruce et al., 2009).

Kiat, Mei, Nagammal, and Jonnie (2007) used a qualitative study to determine the perceived benefits of simulation from the student's point of view with 260 nursing students in their second (and last) year of nursing school (Kiat et al., 2007). Over six months, each of the 260 second year nursing students participated in 20 hours of simulation exercises related to the nursing curriculum (Kiat et al., 2007). The researchers created their own survey tool so that they could analyze how the students perceived simulation, and each question utilized a four-point Likert scale answer key and was directed at the potential benefits of simulation as described in the literature (Kiat et al.,

2007). The surveys were administered in the laboratory on the last day of simulation, and all 260 surveys were returned to the researchers (Kiat et al., 2007). However, 26 of the surveys were missing data, so the researchers replaced this data with the modal score for the questions that were missing data (Kiat et al., 2007). Kiat et al. (2007) reported that 93.8% of the students stated that simulation was an entertaining way to learn, that 95.4% of the students stated that it helped to develop critical thinking skills, that 95.3% of them reported more confidence, and that 88.1% believed that their communication skills improved (Kiat et al., 2007). The researchers also reported that effective simulation is based upon the realistic qualities of the simulation, the opportunity to use equipment, the preparation level of the students, and the faculty engagement and technical ability to utilize the simulators (Kiat et al., 2007). Overall, simulation was reported as a compelling teaching and learning strategy for nursing education (Kiat et al., 2007).

Johnson, Corrigan, Gulickson, Holshouser, and Johnson (2012) used a prospective, pre-test post-test mixed method experimental study to evaluate differences in clinical performance after the use of high-fidelity nursing simulation compared to the use of a CD-ROM-based scenario with 60 nurse anesthetist students in the United States Army Graduate Program. The participants were randomly placed into one of three groups: a group that experienced high-fidelity nursing simulation, a group that experienced a CD-ROM-based scenario, and a control group that received neither strategy (Johnson et al., 2012).

The high-fidelity simulation group participated in three simulated scenarios that focused on hypovolemic shock, pneumothorax, and cardiac tamponade (Johnson et al., 2012). The Combat Casualty Care CD-ROM group was required to view a PowerPoint

presentation that provided information on frequently occurring medical issues in combat: cardiac tamponade, hypovolemic shock, and pneumothorax (Johnson et al., 2012). The students then viewed the CD-ROM scenario which portrayed an actor with these medical problems and asked questions during the scenario (Johnson et al., 2012). After completion of their assigned learning strategy, all of the participants completed the Combat Performance instrument which measured the students' competence in treating trauma patients.

The results of this study indicated that the high-fidelity simulation group had significantly higher scores on the performance tool than did the CD-ROM group or the control group (Johnson et al., 2012). No statistically significant differences were noted between the CD-ROM group and the control group (Johnson et al., 2012).

Sharpnack and Madigan (2012) used a mixed method evaluative study to evaluate 32 baccalaureate sophomore students' opinions on the effectiveness of low-fidelity simulation in relation to educational practices, satisfaction with simulation, confidence levels, and simulation design characteristics. The participants used a computer-assisted instruction program to maneuver through an unfolding patient scenario (Sharpnack & Madigan, 2012). A low-fidelity simulator was utilized as the patient in the scenario, and the students were expected to perform necessary skills on the simulator (Sharpnack & Madigan, 2012).

After the simulation, the students were required to complete the Educational Practice Scale for Simulation, the Student Satisfaction and Self-Confidence in Learning instrument, and the Simulation Design Scale (Sharpnack & Madigan, 2012). The results of the study found that the participants viewed the low-fidelity simulation experience as

being realistic, using a collaborative approach, incorporating individualized learning strategies, and providing support (Sharpnack & Madigan, 2012).

Confidence

Khalaila (2014) used a descriptive, quantitative study to determine the success of simulation in increasing confidence, caring, and satisfaction and to determine the predictors and mediators of caring competence among 61 second-year nursing students prior to their first clinical experience. The students completed pre-test questionnaires related to demographic information, the State-Trait Anxiety Inventory to determine anxiety levels, a self-reported self-confidence scale, a satisfaction with simulation tool developed by the researcher, the Caring Ability Inventory to determine the students' ability to care for patients, and the Caring Efficacy Scale to determine the students self-reported caring behaviors (Khalaila, 2014). Two months later, the students were asked complete these questionnaires again as post-test data (Khalaila, 2014). During the two months, the students participated in two simulation days which consisted of two to three medical/surgical-type scenarios each day (Khalaila, 2014).

The results of this study related to confidence indicated that there was a statistically significant improvement in the confidence levels between the pre-test and post-test scores (Khalaila, 2014). There was also a positive correlation between self-confidence and caring competence for the post-test scores found (Khalaila, 2014). In addition, the study indicated that students who scored higher on the caring ability, confidence, and satisfaction with simulation questionnaires also had higher levels of caring competence (Khalaila, 2014).

Liaw, Scherpbier, Rethans, and Klainin-Yobas (2012) used a prospective, randomized controlled trial to evaluate 31 junior level nursing students' self-reported knowledge and confidence levels in clinical practice examined through simulation. All 31 students completed a pre-test that analyzed the students' demographic information, knowledge levels, and confidence levels; the students also participated in an assessment of clinical performance through participation in simulation which was video-recorded (Liaw et al., 2012). The students' knowledge level was evaluated with a tool developed by the research team that assessed student performance in managing care for a deteriorating patient, and the students' confidence levels were evaluated using the Confidence Scale (Liaw et al., 2012).

The students were randomly divided into an intervention group and a control group (Liaw et al., 2012). The intervention group consisted of 15 students, and the control group consisted of 16 students (Liaw et al., 2012). After the assessments were completed, the intervention group participated in a six hour simulation program related to patients with pneumonia, shock, hypoglycemia, and septic shock; the control group did not participate in the simulation program (Liaw et al., 2012). A week after the intervention group participated in the six hour simulation program, all of the students in the intervention and control groups completed a post-test and video-recorded simulation-based clinical performance assessment that was similar to the pre-test (Liaw et al., 2012). The videos of the pre-test and post-test assessments were scored by two raters using a tool designed from the Rescuing a Patient in Deteriorating Situation—Tool, and the students' physical identity was hidden in the videos (Liaw et al., 2012).

Liaw et al. (2012) reported a statistically significant improvement in the post-test scores for knowledge, skill performance, and self-confidence in the intervention group who participated in the six hour simulation. There were no statistically significant differences in the control group's pre-test and post-test scores related to skill performance and knowledge; however there was a statistically significant difference in the control group's pre-test and post-test scores for self-confidence (Liaw et al., 2012). The intervention group scored significantly higher on the skill performance and knowledge post-tests compared to the control group, but there were no significant differences between the control group and intervention groups' self-confidence scores (Liaw et al., 2012).

Lewis and Ciak (2011) used a quasi-experimental study to determine the effects of simulation on confidence in knowledge and learning through simulation. Sixty-two nursing students were given PowerPoint slides to view that contained theoretical information related to the content in the simulation. Then, the students were assigned to the simulation lab where they were required to take an online 20-question, multiple-choice pre-test to determine the students' baseline knowledge level (Lewis & Ciak, 2011). The students then completed four pediatric simulation scenarios and four maternal-newborn simulation scenarios and were given a post-test which contained the same questions as the pre-test (Lewis & Ciak, 2011). Two weeks after this simulation experience, the students completed the National League for Nursing's Student Satisfaction and Self-Confidence in Learning tool (Lewis & Ciak, 2011). The authors described positive results for nursing student self-confidence after simulation with a mean satisfaction level related to simulation of 4.33/5 and a mean self-confidence level of

4.35/5; however, there was no other statistically significant information reported on satisfaction and self-confidence (Lewis & Ciak, 2011).

Blum et al. (2010) used a quasi-experimental, quantitative study to evaluate knowledge, competence, and confidence in a nursing program. Fifty-three students were assigned to one of three laboratory groups: the control group which utilized task trainers, and two groups that utilized a high-fidelity simulator. Each of the groups performed skills with either the task trainers or with the high-fidelity simulator weekly during a 13-week course (Blum et al., 2010). The Lasater's Clinical Judgment Rubric was used to assess the application of knowledge, competence, and confidence to the clinical setting from the course laboratory with an 11-item Likert-scale design (Blum et al., 2010). The rubric measured the students' perceived level of clinical judgment which measured from one (beginning) to two (developing) to three (accomplished) to four (exemplary), and the rubric was completed by students at mid-term and again at the end of the semester (Blum et al., 2010). No statistically significant differences in self-confidence were found between the two high-fidelity simulation groups and the group that utilized task-trainers (Blum et al., 2010). Blum et al. (2010) reported that all of the students progressed at relatively the same level regardless of the laboratory teaching strategy utilized and recommended that students be targeted early in the nursing program to develop self-confidence. Because all three of the groups, however, used some form of simulation from the high-fidelity simulators to the low-fidelity task trainers, simulation as a whole cannot be ruled out by this study as a valid strategy for increasing confidence in nursing students.

Thomas and Mackey (2012) used a quasi-experimental, pre-test and post-test study to assess the confidence levels of 14 nursing students after completion of an elective course that implemented simulation once a week for three hours each week, and each session was followed by debriefing. Ten other students participated in the study but were part of a control group that was enrolled in a traditional clinical course (Thomas & Mackey, 2012). Confidence was measured in both groups at the beginning and at the end of the courses using the Clinical Decision-Making Self-Confidence Scale (Thomas & Mackey, 2012). At the beginning of the semester, the group enrolled in the simulation course had statistically significant less confidence than the control group. At the end of the course, the group enrolled in the simulation course had statistically significant more confidence than the control group (Thomas & Mackey, 2012).

Partin et al. (2011) used a qualitative, descriptive study to evaluate 49 nursing students' thoughts after they participated in maternity simulation scenarios for two or three sessions. After the simulation experiences, the students were given time to record their thoughts regarding simulation on a taped recording (Partin et al., 2011). The information on the taped recordings was not reviewed until final course grades were posted for the participants (Partin et al., 2011). Three main features were noted in the data from the students: an open, non-threatening environment; learning enhancement; and the feeling of practice preparedness (Partin et al., 2011). The students indicated that the interactive and kinesthetic experience encouraged them to be less fearful and more confident (Partin et al., 2011).

Mould, White, and Gallagher (2011) used a pre-test, post-test pilot study to evaluate 252 undergraduate baccalaureate nursing students' levels of confidence and

competence after participating in a critical care simulation series. In this study, the students participated in high-fidelity simulation scenarios over three weeks that focused on medical problems frequently encountered by critical care nurses: airway maintenance and spinal cord injuries (Mould et al., 2011). A debriefing exercise was performed after the simulations.

In this pilot study, the students were administered a self-report tool that had been developed for this study after the first simulation and again after the last simulation (Mould et al., 2011). The tool measured student confidence, student competence, effectiveness of the simulation, and the ability of the simulation to apply theory to nursing practice (Mould et al., 2011). Of the participants, 84% reported that they felt more confident, and 83% stated that they felt more competent (Mould et al., 2011). There was a statistically significant increase in confidence and competence after completion of the simulation series (Mould et al., 2011). Sixty-five percent of the students also reported that they valued and enjoyed the simulation experience; however, only 24% of the students communicated the ability of the simulation to help them apply theory to nursing practice (Mould et al., 2011).

Simulation-Based Scenario

Kirkman (2013) used a time series-repeated measures study to evaluate 42 first semester baccalaureate nursing students' ability to transfer nursing skills and knowledge from the classroom and high-fidelity nursing simulation to clinical practice. This study highlighted the use of a well-planned simulation-based scenario on the application of knowledge to the clinical setting. The students who participated in the study were observed for the capability to obtain an accurate patient history, to locate the lung fields,

to assess and differentiate breath sounds, and to document their assessments appropriately (Kirkman, 2013). Students were first observed when caring for a patient in the clinical setting prior to the lecture on the respiratory system (Kirkman, 2013). The second observation of the students occurred when caring for a patient in the clinical setting one week after the classroom lecture on the respiratory system (Kirkman, 2013). The last observation of the students occurred when caring for a patient in the clinical setting one week after a high-fidelity simulation-based scenario in which the students cared for a simulated patient with asthma and were given the opportunity after the simulation was completed to listen to different lung sounds using the high-fidelity simulator (Kirkman, 2013). The observers were nurses who used a seven-item tool based on the Objective Structure Clinical Examination instrument, and they used this tool with each of the three student observations (Kirkman, 2013).

Out of 12 possible points, the mean score for the first observation was 3.2619; for the second observation was 4.8333; and for the last observation was 6.5794 (Kirkman, 2013). The results of the study indicated a statistically significant difference in knowledge application over time which validated the proposal that a well-designed simulation-based scenario can aid in improving student clinical knowledge and performance (Kirkman, 2013).

Sportsman, Schumacker, and Hamilton (2011) used a quasi-experimental study to determine student competence and level of anxiety at a school of nursing that changed to scenario-based simulation with high-fidelity simulators from hospital-based clinical experience in order to allow more students into the nursing program. The study utilized the Clinical Competence Appraisal Scale, four subscales from the Learning and Study

Skills Inventory, and the Clinical Learning Environment Scale (Sportsman et al., 2011). Regarding the statistically significant findings of the study, the authors found that students' level of competence in nursing skills decreased and their level of anxiety increased when the program utilized only simulation-based scenarios with high-fidelity mannequins instead of hospital-based patient care (Sportsman et al., 2011). No statistically significant differences were found in the mean grade point averages or in NCLEX pass scores of seniors from either group (Sportsman et al., 2011). Early experience with simulation is recommended by the authors to build skill levels in a safe environment (Sportsman et al., 2009).

Panosky and Diaz (2009) used a qualitative study to evaluate two community health clinical groups' reflection regarding caring and empathy after a simulated role playing experience. This article described a unique simulation-based scenario in which the students became the simulated patient who required a colostomy or a urostomy bag for elimination or was having episodes of incontinence (Panosky & Diaz, 2009). The students with the colostomy bag or with the urostomy bag were required to put contents in the bag that resembled what was expected from the ostomy type and to wear the bag in their usual activities at school and at home for a brief period; these students were required to observe how long it took family and friends to realize that they had an ostomy bag (Panosky & Diaz, 2009).

The incontinent group was required to wear an adult diaper for six hours, and wet it either with urine or with warm water in the last 30 minutes of the experience (Panosky & Diaz, 2009). They were also prompted to participate in their normal daily activities (Panosky & Diaz, 2009).

Each group completed a discussion session and wrote journal entries which evaluated self-reflection thoughts after the experience (Panosky & Diaz, 2009). The students reported in the discussion groups and in their reflective journal entries a new sense of caring and empathy for those with ostomies and with incontinent episodes (Panosky & Diaz, 2009). The ostomy group discussed the implications related to patients who did not have the ability to manage their own ostomy appliances, and both groups realized the etiology of depression in patients with ostomies or incontinence.

Novice Nursing Students

Dearmon et al. (2013) used a mixed-method, quasi-experimental study to evaluate 50 baccalaureate nursing students in a foundational nursing course regarding the success of a simulation-based orientation, rather than a lecture-based orientation, in preparation for beginning their first clinical experience. Each of the students completed a demographic information form, the Knowledge Assessment tool to measure the knowledge level of the students, the Self-Confidence Assessment tool to measure self-confidence in performing nursing skills, the Perceived Stress Scale to measure stressful life situations, and the State-Trait Anxiety Inventory for Adults tool prior to the simulation-based orientation to measure whether stressful situations are perceived as a temporary circumstance or as a chronic problem (Dearmon et al., 2013). The students participated in two consecutive simulation days, each lasting eight hours (Dearmon et al., 2013). After completion of the simulation-based orientation, the students completed the Knowledge Assessment, the state section of the State-Trait Anxiety Inventory for Adults tool, and the Self-Confidence Assessment tool to evaluate changes after the simulation-based orientation intervention (Dearmon et al., 2013). The students who participated in

the study were divided into two groups based on age; group one consisted of 19 to 28 year olds, and group two consisted of 29 to 55 year olds (Dearmon et al., 2013). The students also participated in focus groups for debriefing after the simulation-based orientation was completed (Dearmon et al., 2013).

The results of the study indicated that the female participants had a stronger knowledge base prior to the simulation-based orientation (Dearmon et al., 2013). The knowledge base of the students was significantly higher after the simulation-based orientation, as well (Dearmon et al., 2013). The Perceived Stress Scale scores were significantly higher in the participants of this study compared to the norm, and the Perceived Stress Scale scores were reported higher in the younger age group compared to the older age group (Dearmon et al., 2013). Situational anxiety levels were significantly lower in the students who had worked in healthcare settings; anxiety levels were significantly lower for the students after the simulation-based orientation compared to the students' pre-orientation scores with females reporting the greatest decrease in anxiety levels (Dearmon et al., 2013). A statistically significant improvement in the students' self-confidence scores was reported after the completion of the simulation-based orientation for males and females, as well as for each age group (Dearmon et al., 2013). In the focus groups, the students verbally reported enthusiasm, confidence, and satisfaction with the opportunity to collaborate with faculty in a unique learning atmosphere (Dearmon et al., 2013).

Alfes (2011) used a quasi-experimental study to evaluate 63 first-semester baccalaureate nursing students' self-confidence and satisfaction levels after participation in simulation compared to participation in traditional skills laboratory training. The

students participated in a laboratory experience that focused on pain interventions with 10 to 14 students in the session, and the students were divided into either the experimental group who participated in simulation or the control group who received demonstrations (Alfes, 2011). The students completed a demographic information sheet and were instructed to rate their confidence level based on a Likert scale of one (not confident) to five (very confident) (Alfes, 2011).

The control group, which consisted of 34 students, received a ten-minute demonstration with instruction about nursing interventions for patients in pain (Alfes, 2011). The students were then allowed 15 minutes to practice the skills that had been demonstrated before they performed a return-demonstration using a low-fidelity simulator (Alfes, 2011). Upon completion of the return-demonstration, an instructor facilitated a discussion and provided feedback on the students' performance (Alfes, 2011).

The experimental group, which consisted of 29 students, received a presentation about the simulation scenario of a patient who had total knee replacement surgery three days ago and was experiencing pain (Alfes, 2011). Students in the group were randomly chosen to play the roles associated with the scenario except for the patient who was portrayed as a high-fidelity simulator (Alfes, 2011). After the completion of the simulation, the experimental group participated in a debriefing exercise with prompt feedback on the students' performance in the simulation (Alfes, 2011).

The experimental group and control groups completed the NLN Student Satisfaction and Self-Confidence in Learning questionnaire after their designated learning experience was completed (Alfes, 2011). While both groups reported a statistically

significant increase in confidence after the completion of their experiences, the results of the study also indicated a statistically significant higher level of confidence in the experimental group that participated in the simulation (Alfes, 2011). There were no statistically significant differences between the experimental group and the control group related to satisfaction with learning (Alfes, 2011). There was a statistically significant positive relationship between confidence and satisfaction with learning indicated by the results of the study (Alfes, 2011).

Theoretical Literature Review

The Cochrane Library and Cumulative Index to Nursing and Allied Health (CINAHL) Plus Database were used to review the literature regarding the use of simulation in nursing education and Jeffries' Nursing Education Simulation Framework. Four articles identified Jeffries' framework as the study basis: Reese, Jeffries, and Engum (2010); Smith and Roehrs (2009); Schlairet (2011); and Ironside et al. (2009).

Reese et al. (2010) used a descriptive study to evaluate 15 third-year medical students' and 13 senior-level nursing students' collaborative skills using simulation. The Nursing Education Simulation Framework was used to guide the development of this study (Reese et al., 2010). The students were placed into small groups of four, and the objectives of the simulation experience were reviewed upon arrival to the simulation laboratory (Reese et al., 2010). The simulation began with the medical student receiving verbal report from another physician and the nursing student receiving a tape-recorded report (Reese et al., 2010). The scenario focused on a patient with a deteriorating condition during which collaboration between the medical students and the nursing students occurred, and the scenario ended after 20 minutes when a debriefing exercise

transpired (Reese et al, 2010). After debriefing, the students were administered the Simulation Design Scale and the Student Satisfaction and Self-Confidence in Learning Scale, and a collaboration scale designed by the researchers (Reese et al., 2010).

The results of the study indicated that the students believed that they experienced a high level of challenging problem-solving learning strategies with constructive and timely feedback (Reese et al. 2010). The students also reported a high level of simulation student outcomes after the experience: self-confidence, collaboration, and satisfaction with simulation (Reese et al., 2010).

The study by Reese et al. (2010) demonstrated components of Jeffries' Nursing Education Simulation Framework. Both student satisfaction and self-confidence, defined as student outcomes in Jeffries' Nursing Education Simulation Framework, are measurable outcomes of this framework and were reported as a result in this collaborative study (Reese et al., 2010).

Smith and Roehrs (2009) used a descriptive, correlational study with 68 nursing students enrolled in their first medical/surgical nursing course to determine the correlation between high-fidelity simulation and nursing students' satisfaction and self-confidence. Students completed a one-hour simulation in weeks nine or ten in which they performed assessments, medication administration, and management of respiratory distress (Smith & Roerhs, 2009). In the scenarios, two of the students acted as nurses who performed physical assessments, administered medications, and were faced with a client in respiratory distress, while two other students observed the scenario (Smith & Roehrs, 2009). After the simulation experience, the students completed the NLN Student Satisfaction and Self-Confidence in Learning tool and the NLN Simulation Design Scale

(Smith & Roehrs, 2009). The study found that students reported increased confidence after simulation (with a mean score of 4.2, SD = 0.4) and that problem-solving skills and clear objectives attributed the most to the increase in self-confidence (Smith & Roehrs, 2009). This study found a significant correlation between high-fidelity nursing simulation and student self-confidence and satisfaction when clear objectives for the simulation were used and when the simulation scenarios were appropriately challenging (Smith & Roehrs, 2009).

The Smith and Roehrs (2009) study directly reflected two components of Jeffries' Nursing Education Simulation Framework. Both student satisfaction and self-confidence, defined as student outcomes in Jeffries' Nursing Education Simulation Framework, are measurable outcomes of this model, and the aim of this study was to determine if high-fidelity simulation affects student satisfaction and self-confidence (Smith & Roehrs, 2009; Jeffries, 2007).

Schlairet (2011) used a mixed method study to determine student thoughts, confidence levels, and satisfaction with simulation. The study identified Jeffries' Nursing Education Simulation Framework as the basis for the study and utilized medium-fidelity and high-fidelity simulation with 150 junior and senior-level Bachelor of Science in Nursing (BSN) students in both traditional and 15-month accelerated programs. Each of the students was exposed to different frequencies of simulation using high-fidelity and medium-fidelity simulators from their first nursing course and throughout their nursing schools experience, depending upon in which course they were enrolled (Schlairet, 2011). After the simulation experiences, the students participated in debriefing exercises coordinated by the faculty and then completed homework assignments related to the

simulation scenarios (Schlairet, 2011). After the students' simulation experiences, they were administered the Education Practices in Simulation Scale, the Simulation Design Scale, and the Student Satisfaction and Self-Confidence in Learning tool, and they were asked to complete a reflective journal describing their thoughts on their simulation experience (Schlairet, 2011). The study also surveyed 26 nursing faculty utilizing reflective journals, a simulation survey, and the Simulation Use Survey (Schlairet, 2011). The students reported that the collaborative, active learning, feedback, and supportive components of simulation were valued (Schlairet, 2011). The students also stated that the simulation experience aided them in critiquing their personal behaviors and actions (Schlairet, 2011). The students reported that developing critical thinking skills, self-confidence, and satisfaction with simulation was important to them (Schlairet, 2011).

Schlairet (2011) utilized many concepts from Jeffries' Nursing Education Simulation Framework in this study to determine that it was an appropriate resource in which to base a simulation program from both the student and the faculty perspective (Schlairet, 2011). The concepts used in this study were educational practices as defined by active learning, collaboration, and feedback; simulation design concepts as defined by debriefing; and student outcomes as defined by self-confidence and learner satisfaction with simulation (Schlairet, 2011).

Ironside et al. (2009) performed a quasi-experimental study to evaluate whether multiple simulation experiences affected students' safety practices and if the students' age, grade point averages, and tolerance for ambiguity also affected safety practices. The study consisted of a purposive sample of 413 students in their last semester with an overall grade point average (GPA) of 3.4 from eight schools of nursing, both Associate

Degree in Nursing and Bachelor of Science in Nursing, in Indiana. The students completed the Multiple Stimulus Types Ambiguity Tolerance Scale-I (MSTAT-I), which measures participants' cognitive ability to make judgments without an appropriate amount of information, prior to the first simulation experience which occurred at the beginning of the students' final semester (Ironside et al., 2009). The second simulation experience occurred in the second half of the semester after which the students' again completed the MSTAT-I. Significant differences were found related to improved safety competencies in the MSTAT-I scores after the two simulation experiences compared to the MSTAT-I score prior to simulation (Ironside et al., 2009). However, there were no significant differences found regarding tolerance of ambiguity in the MSTAT-I scores (Ironside et al., 2009).

The components of the Jeffries' Nursing Education Simulation Framework were clearly connected to the study. The article describes this linkage between the model and the study:

> Student factors identified by Jeffries (program, level, age) were augmented with measures of students' tolerance for ambiguity and self-reported cumulative grade point average (GPA) to determine the relationships of these factors to simulation outcomes. The design factors of the simulation (objectives, complexity, cues, and debriefing) were also constant across sites, further contributing to the reliability of the simulation experiences. Outcome factors identified by Jeffries include knowledge, skill performance, learner satisfaction, critical thinking, and self-confidence. For this study, faculty assessed student performance specific to patient safety competencies (knowledge and skill performance). Student

performance specific to clinical judgment was also assessed. (Ironside et al., 2009, p. 333)

Strengths, Weaknesses, Gaps, and Limitations

A thorough literature review revealed that simulation can be used as an effective strategy in nursing education to increase students' skills levels, competence, critical thinking, and confidence levels. However, the principal investigator found that few articles discussed the use of medium-fidelity simulators. Some of the articles mentioned that medium-fidelity simulators were available, but only one article was found that utilized medium-fidelity simulators in nursing simulation which indicates a significant gap in the literature related to this form of simulation experience. Most of the research utilized high-fidelity simulators, and if the researchers compared the high-fidelity simulator use to any other form of simulation, they usually performed comparisons with low-fidelity simulators. Another gap in the literature is that there is a lack of high-quality studies related to the correlation between simulation use and student confidence in which the researchers performed randomized controlled trials with large sample sizes (Yuan, Williams, & Fang, 2011).

Limitations discussed in some of the research were small sample size or lack of randomization of the participants. Some of the studies reported an inability to generalize findings due to lack of randomization or deficient simulation design.

CHAPTER III

Methodology

The purpose of this project was to determine if early simulation would increase clinical confidence in novice nursing students. This chapter discusses the design, setting, sample, methods, strategies used to protect the human subjects, the instruments utilized, data collection, and data analysis.

Design

This project represented a quasi-experimental, pre-test post-test design to determine the students' confidence levels before and after simulation prior to their first clinical day in the hospital. The pre-test and post-test approach was utilized to compare the students' confidence levels prior to the early simulation experience, or the intervention, with the students' confidence levels after the early simulation.

Setting

The project took place in a private, faith-based liberal arts university located in North Carolina. The university developed from a home school established in 1885, and the first graduate program opened in 1985. The university offers 29 undergraduate degrees, seven graduate degrees, and five adult studies degrees. There are approximately 2,040 students enrolled at this small, rural university.

Within the nursing department, undergraduates are offered a traditional Bachelor of Science in Nursing degree, and a maximum of 20 students are accepted into the upper division nursing program each year. The program provides face-to-face classroom experience with two simulation laboratories in which the students practice skills and

participate in simulation. The laboratories consist of two low-fidelity, five medium-fidelity, and two high fidelity nursing simulators.

Sample

A convenience sample of approximately 20 students enrolled in the Foundations and Concepts for Professional Nursing laboratory course in the fall of 2013 was included as potential participants in this research study. The sample consisted of first year nursing students who were Nurse Assistant I (NA I) certified with limited to no experience in patient care.

The work experience of the sample population related to patient care experience included three students who worked as nursing assistants (NA I) in the hospital setting, five students who worked as nursing assistants (NA I) in a long-term care facility, and one student who worked as a nursing assistant (NA I) in a home care setting. None of the students had worked as a Licensed Practical Nurse.

Methods

Prior to this project, simulation in the Foundations and Concepts for Professional Nursing course had been performed with the students on the last clinical day of the semester. In previous semesters students had expressed that they would like an opportunity to participate in a simulation experience prior to their first clinical experience. This project served as a way to bridge that knowledge gap for students by incorporating early simulation prior to the students' first clinical exposure and also provided a learning experience for the students.

A needs assessment was performed at the end of the fall 2012 semester when the most recent Foundations and Concepts for Professional Nursing Practice course had been

taught. The students who had already completed five days in the clinical setting followed by a clinical day in simulation were given a questionnaire that provided information on the students' first experience with simulation. All of the students indicated that they believed they gained knowledge from the simulation scenario, and many of the students indicated that they would prefer simulation before beginning their clinical experience in the hospital.

Preplanning

The principal investigator performed an observatory analysis at one of the hospital clinical sites prior to writing the simulation scenario. During this observation, the principal investigator focused on the flow of the work day in the specific nursing unit where the students would perform clinical duties. Since most of the students had little or no previous clinical experience, a simulation was written by the principal investigator to incorporate the expectations of the students on their first clinical day with an emphasis on the clinical flow of the hospital unit. The principal investigator's preceptor, as a previous simulation laboratory coordinator, provided clinical expertise in the area of simulation and reviewed the simulation scenario prior to its implementation. The principal investigator and preceptor remained in frequent contact by email throughout the simulation scenario development.

Initial Testing of the Simulation Scenario

Prior to the implementation of the simulation scenario for this project, the principal investigator tested the scenario by practicing the simulation several times in the laboratory after preparation for the scenario had been completed. Having facilitated multiple simulation exercises and clinical experiences in the hospital, the principal

investigator was comfortable in the laboratory setting and was able to practice the scenario efficiently.

Implementation

Twenty first-year nursing students enrolled in the Foundations and Concepts for Professional Nursing Practice course in the fall of 2013 participated in this project. At the time of implementation, students had attended seventeen 75-minute lectures in the Foundations course that focused on the care of patients in the clinical setting; the students had also attended eight 3-hour skills laboratories in which they were taught fundamental nursing skills by demonstration, individual student practice on low-fidelity and medium-fidelity simulators, and then return demonstration of the skill by the students to establish skills competency.

On implementation day, the principal investigator explained the project to the students and then left the classroom. A faculty member, not associated with the project, distributed consent forms (Appendix A) to the students and explained that participation in the project was voluntary and that the students could choose not to participate or could withdraw from the project at any time without repercussions. The consent forms were then gathered by the faculty member, placed in an envelope, and locked in the administrative assistant's office.

Over a two-day period, all students participated in an early simulation (Appendix B) experience. Students were randomly divided into four groups with five students in each group. The simulation experience reflected a typical day in the clinical setting in which they were expected to perform physical assessments, administer medications, and perform any other nursing skills for which they had met competency. Prior to the

simulation experience each student completed the demographic data form (Appendix C). Students were then oriented to the simulation, for example, where the supplies could be found and how to use the medication cart. Then students were instructed to complete the Confidence Scale (Appendix D) as a pre-test. They were told to imagine that they were at the first day of clinical in the hospital and to think about how they would feel right before entering their first patient's room to perform a physical assessment or to insert a Foley catheter for the first time on a real patient, as opposed to the simulators in the skills laboratory. After completion of the Confidence Scale, the principal investigator read the patient scenario to the group of participants at which time the students were expected to take report. The simulation experience lasted one hour and ten minutes with each group.

After the simulation, the students participated in a debriefing exercise facilitated by the principal investigator who utilized the Modified Plus/Delta tool (Appendix E) (Miller, 2012). The students were given five minutes to complete the Modified Plus/Delta tool and were then led in a debriefing/reflective learning discussion. During the debriefing exercise, the principal investigator discussed how each objective was met during the simulation experience, and the students were encouraged to discuss their thoughts and feelings of the simulation, as well as ask any questions. After the debriefing exercise, the students were asked to complete the Confidence Scale again as a post-test and to complete the NLN Student Satisfaction and Self-Confidence in Learning tool (Appendix F). Students were instructed to place all of their forms (demographic data form, pre-test Confidence scale, post-test Confidence Scale, and the NLN Student Satisfaction and Self-Confidence in Learning instrument) face-down on a table at the front of the skills laboratory while the principal investigator left the room until each

student in the group had exited the skills laboratory. The students were also instructed to retrieve a copy of the debriefing statement (Appendix G) upon exiting the laboratory, and all 20 copies of the debriefing statement were retrieved by the students. The data forms were placed in the principal investigator's office until all of the data had been gathered from all 20 students.

Protection of Human Subjects

Institutional Review Board approval was obtained from the research facility. Due to the pre-test/post-test design of this study the principal investigator needed to know each participant's identity. Participants were assigned a personal code to ensure pre-test and post-test surveys were matched. A faculty member not related to the implementation process of this project, assigned participants a random number. This personal code number was listed on the demographic information sheet and on each survey. The participant wrote his/her number on each instrument page and on the demographics sheet. The list of participant numbers linked to the student names was kept locked in the administrative assistant's office separate from the survey results and was not viewed by the principal investigator. Completed surveys were kept under separate lock and key in the principal investigator's office during data collection. Once completed surveys were analyzed, the participants identifying data was destroyed. No individual data was reported.

Instruments

The participants' self-confidence level was measured using the Confidence Scale and the NLN Student Satisfaction and Self-Confidence in Learning tool. Permission to use the Confidence Scale was obtained from the author, and permission to use Student

Satisfaction and Self-Confidence in Learning tool was obtained from the NLN (Appendix H).

The Confidence Scale was developed to determine the confidence level of nursing students in performing a nursing skill, specifically a physical assessment (Grundy, 1993). However, the Confidence Scale can be utilized with any nursing skill, not just physical assessments (Grundy, 1993). The Confidence Scale contained five questions scored on a Likert-scale rating from one (not at all certain, I have much hesitation, not at all [confident], not at all [satisfied with my performance]) to five (absolutely certain for all steps, absolutely no hesitation, [confident] for absolutely all of it, absolutely satisfied with all of it) (Grundy, 1993). The Confidence Scale has a reported Cronbach's alpha ranges from 0.84 to 0.93 for nursing students (Grundy, 1993). In this project, a Cronbach's alpha of 0.93 was obtained for the Confidence Scale pre-test, and a Cronbach's alpha of 0.868 was obtained for the Confidence Scale post-test.

The Student Satisfaction and Self-Confidence in Learning tool was developed by the NLN and was based on Pamela Jeffries' Nursing Education Simulation Framework. This instrument was designed to measure the confidence level of nursing students in relation to their knowledge of the simulated patient's clinical situation and to their performance of nursing skills (Jeffries & Rizzolo, 2006). The confidence measure portion of the tool consisted of 13 items that are scored on a five-point Likert-scale rating ranging from an answer of one (strongly disagree) to five (strongly agree) (Fountain & Alfred, 2009; Jeffries & Rizzolo, 2006). The satisfaction subscale consisted of five items, and the self-confidence subscale consisted of eight items (Fountain & Alfred, 2009; Jeffries & Rizzolo, 2006). The Student Satisfaction and Self-Confidence in

Learning questionnaire has a reported Cronbach's alphas of 0.87 for the self-confidence portion of the questionnaire and 0.94 for the satisfaction portion of the questionnaire (Smith & Roehrs, 2009; Jeffries & Rizzolo, 2006).

In this project, a Cronbach's alpha of 0.737 was obtained for the satisfaction portion of the NLN Student Satisfaction and Self-Confidence in Learning questionnaire, and a Cronbach's alpha of 0.776 was obtained for the confidence portion of the questionnaire.

Data Analysis

Data was entered into the principal investigator's computer on an Excel spreadsheet. Analysis was completed using Statistical Package for the Social Sciences version 17.0 © (SPSS). A statistician and a committee member with expert knowledge related to data analysis aided in the data analysis process to ensure accuracy. Data was analyzed using paired samples *t* tests and linear regression.

CHAPTER IV

Results

The purpose of this project was to determine if early simulation would increase the clinical confidence of novice nursing students. The following chapter presents the statistical analysis related to this purpose.

Statistical Presentation

Of the 20 students who were present for the early simulation days, all students (100%) completed the pre-test and post-test Confidence Scale questionnaires and the NLN Student Satisfaction and Self-Confidence in Learning questionnaire. Instructional Assessment Resources (2011) acknowledged that for face-to-face surveys, a response rate of 80-85% is considered acceptable; therefore a response rate of 100% is ideal.

Of the 20 students, 19 (95%) were female, and one student (5%) was male. One student (5%) stated that he/she had attended another nursing program in the past, and the remaining19 students (95%) stated they had never attended another nursing program. All 20 students (100%) stated they had never before experienced simulation or clinical experience in a nursing program.

All 20 of the students (100%) stated they had never worked as a Licensed Practical Nurse (LPN). Of the 20 students, nine students (45%) stated that they had worked as a Certified Nurse Assistant (CNA), while eleven students (55%) stated that they had never worked as a CNA. Length of employment as a CNA included two months (*n = 1*, 5%), four months (*n* = 1, 5%), six months (*n* = 1, 5%), eight months (*n* = 1, 5%), nine months (*n* = 1, 5%), 12 months (*n* = 1, 5%), 17 months (*n* = 1, 5%), 18 months (*n* = 1, 5%), 24 months (*n* = 1, 5%); the remaining 11 students (55%) identified that they had

never been employed as a CNA. The nine students (45%) who worked as a CNA identified three types of settings for their employment: long-term care (n = 5, 25%), hospital (n = 3, 15%), and home care (n = 1, 5%). The frequency distributions of the student demographic information are presented in Table 1.

Table 1

Frequency Distribution of Demographic Variables of All Students

Demographic Variable	*n*	%
Gender		
Male	1	5
Female	19	95
Attendance of another Nursing Program		
Yes	1	5
No	19	95
Previous Simulation or Clinical Experience in a Nursing Program		
Yes	0	0
No	20	100
Days of Simulation or Clinical Experience on a Nursing Program		
Zero	20	100
Employed as an LPN		
Yes	0	0
No	20	100
Employed as a CNA		
Zero months	11	55
Two months	1	5
Four months	1	5
Six months	1	5
Eight months	1	5
Nine months	1	5
12 months	1	5
17 months	1	5
18 months	1	5
24 months	1	5
Setting Where Employed as a CNA		
Long-Term Care	5	25
Hospital	3	15
Home Care	1	5
Not Applicable	11	55

Confidence Scale Questionnaire Data

The students were administered the Confidence Scale as a pre-test prior to the early simulation experience and as a post-test after the simulation experience. Descriptive statistics were analyzed and reflected the overall mean of student responses on the Confidence Scale pre-test and post-test questions.

Question 1. I am certain that my performance is correct. This question explored whether the students believed their skill performance would be correct prior to the early simulation (Time 1) and upon entering the clinical site after the early simulation intervention (Time 2). The students had one of five responses from which to choose for question one: 'not at all certain', 'certain for only a few steps', 'fairly for a good number of steps', 'certain for almost all steps', and 'absolutely certain for all steps' with responses coded 1 to 5, respectively. Pre-test (Time 1) responses for question one ranged from 'not at all certain' to 'certain for almost all steps' with a mean score of 2.80 (*sd* = .768), and the post-test (Time 2) responses for question one ranged from 'fairly certain for a good number of steps' to 'absolutely certain for all steps' with a mean score of 3.75 (*sd* = .550).

Question 2. I feel that I perform the task without hesitation. This question explored whether the students believed that they could perform any task without hesitation prior to the early simulation (Time 1) and upon entering the clinical site after the early simulation intervention (Time 2). The students had one of five responses from which to choose for question two: 'I have much hesitation', 'a fair amount of hesitation', 'a good part of it without hesitation', 'almost completely without hesitation', and 'absolutely no hesitation' coded from 1 to 5, respectively. Students' (*n* = 20) pre-test

responses for question two ranged from ‘I have much hesitation’ to ‘almost completely without hesitation’ with a mean score of 2.40 (*sd* = .821). Students’ responses (*n* = 20) on the post-test for question two ranged from ‘a fair amount of hesitation’ to ‘almost completely without hesitation’ with a mean score of 3.45 (*sd* = .605).

Question 3. My performance would convince an observer that I am competent at this task. This question explored whether the students believed that their performance of any task or skill would convince anyone watching the performance that they are competent and was measured prior to the early simulation (Time 1) and upon entering the clinical site after the early simulation intervention (Time 2). The students had one of five responses from which to choose for question three: ‘Not at all’, ‘agree, a little’, ‘for much of it’, ‘for almost all of it’, and ‘for absolutely all of it’ coded 1 to 5, respectively. Student (*n* = 20) responses for the pre-test question ranged from ‘not at all’ to ‘for almost all of it’ with a mean score of 2.75 (*sd* = .786). Post-test responses for question three ranged from ‘agree, a little’ to ‘for absolutely all of it’ with a mean score of 3.60 (*sd* = .681).

Question 4. I feel sure of myself as I perform the task. This question explored the students’ perceived confidence as they performed any task or skill prior to the early simulation (Time 1) and upon entering the clinical site after the early simulation intervention (Time 2). The students had one of five responses from which to choose for question four: ‘Not at all’, ‘very little’, ‘for much of it’, ‘for almost all of it’, and ‘for absolutely all of it’ coded 1 to 5, respectively. Pre-test responses for question four ranged from ‘not at all’ to ‘for almost all of it’ with a mean score of 2.70 (*sd* = .733). Post-test

responses for question four ranged from ‘very little’ to ‘for almost all of it’ with a mean score of 3.70 (*sd* = .571).

Question 5. I feel satisfied with my performance. This question explored whether the students believed that they would feel satisfied with their performance of any task or skill prior to the early simulation (Time 1) and upon entering the clinical site after the early simulation intervention (Time 2). The students had one of five responses from which to choose for question five: ‘Not at all’, ‘very little’, ‘for much of it’, ‘for almost all of it’, and ‘absolutely satisfied with all of it’ coded from 1 to 5, respectively. Pre-test (Time 1) responses for the students (n=20) for question five ranged from ‘not at all’ to ‘for almost all of it’ with a mean score of 2.85 (*sd* = .745), while the post-test (Time 2) responses for question five ranged from ‘for much of it’ to ‘absolutely satisfied with all of it’ with a mean score of 3.85 (*sd* = .671). Results of the analysis of central tendencies for each question of the Confidence Scale items and time are displayed in Table 2.

Table 2

Means and Standard Deviations of the Pre-Test (Time 1) and Post-Test (Time 2) Confidence Scale Questions for Total Sample (n = 20)

Time	Question	*M*	*SD*
1	1. I am certain that my performance is correct.	2.80	.768
2		3.75	.550
1	2. I feel that I can perform the task without hesitation.	2.40	.821
2		3.45	.605
1	3. My performance would convince an observer that I am competent at this task.	2.75	.786
2		3.60	.681
1	4. I feel sure of myself as I perform the task.	2.70	.733
2		3.70	.571
1	5. I feel satisfied with my performance.	2.85	.745
2		3.85	.671

Frequency distributions were used to determine the range of student responses for each question of the Confidence Scale. For all five of the Confidence Scale questions, each student consistently rated their confidence levels higher after the early simulation intervention. Figures 2 – 6 visually demonstrate the range of student responses for each of the five Confidence Scale questions using both the pre-test and post-test data.

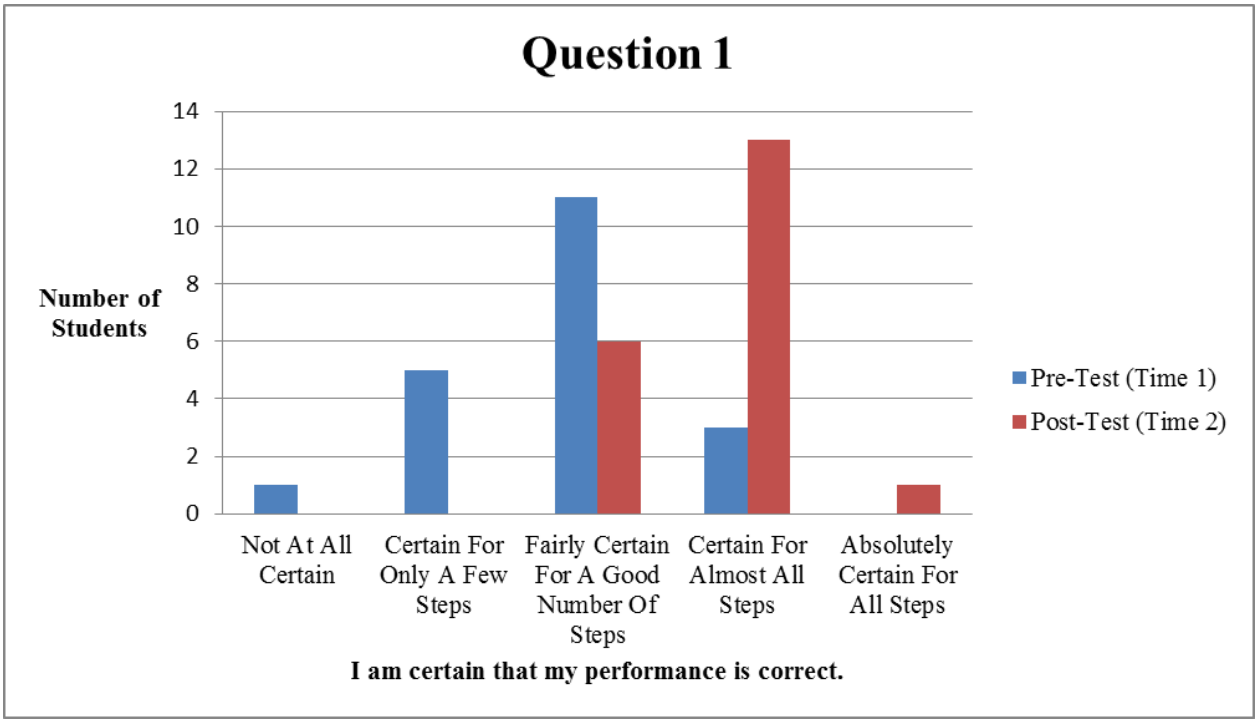

Figure 2. Student Responses to Question 1 on the Confidence Scale.

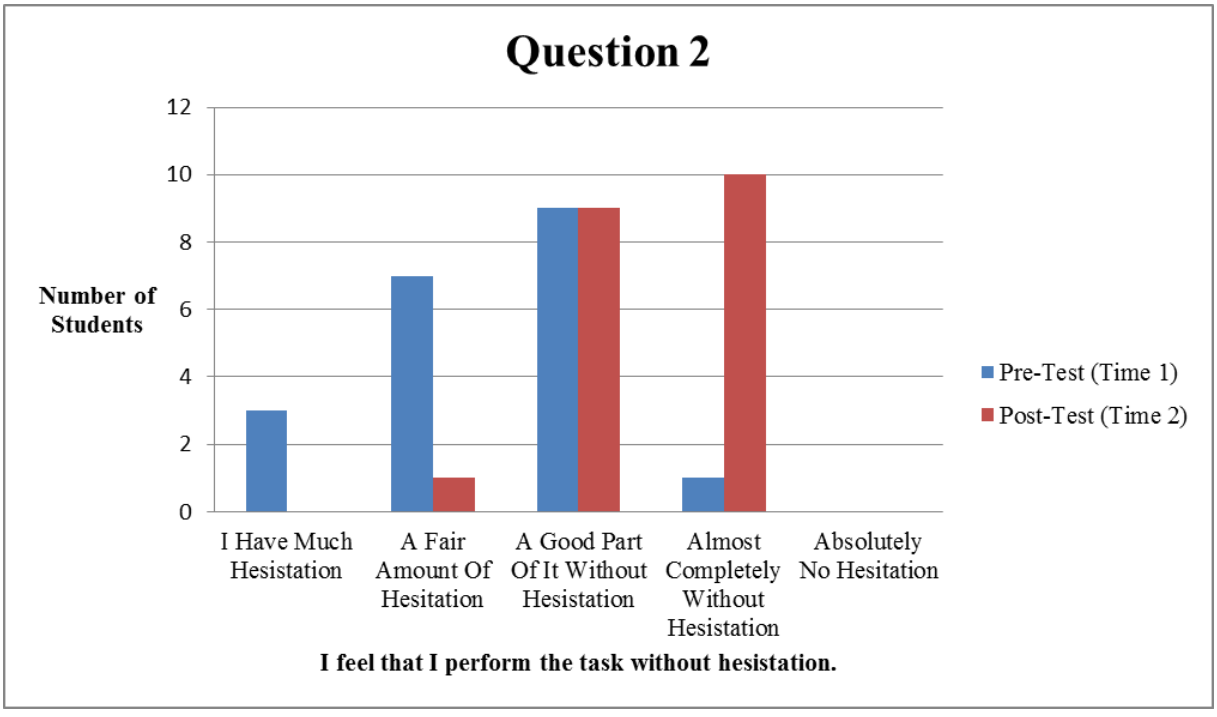

Figure 3. Student Responses to Question 2 on the Confidence Scale.

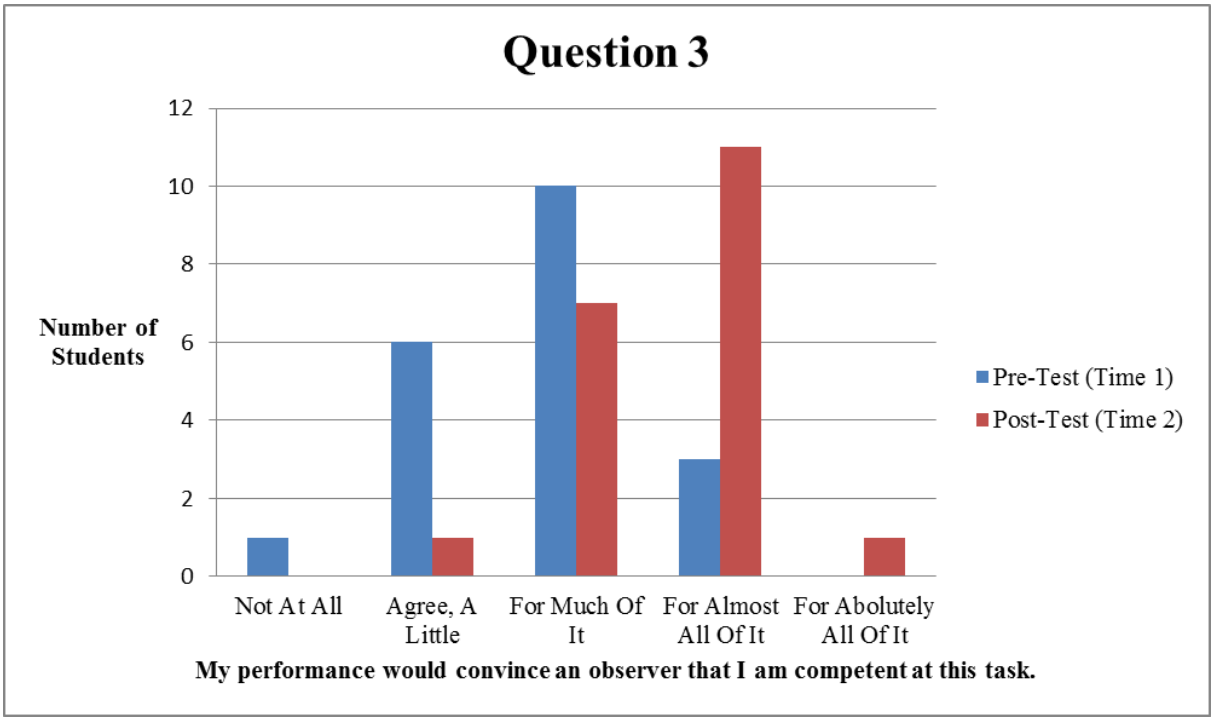

Figure 4. Student Responses to Question 3 on the Confidence Scale.

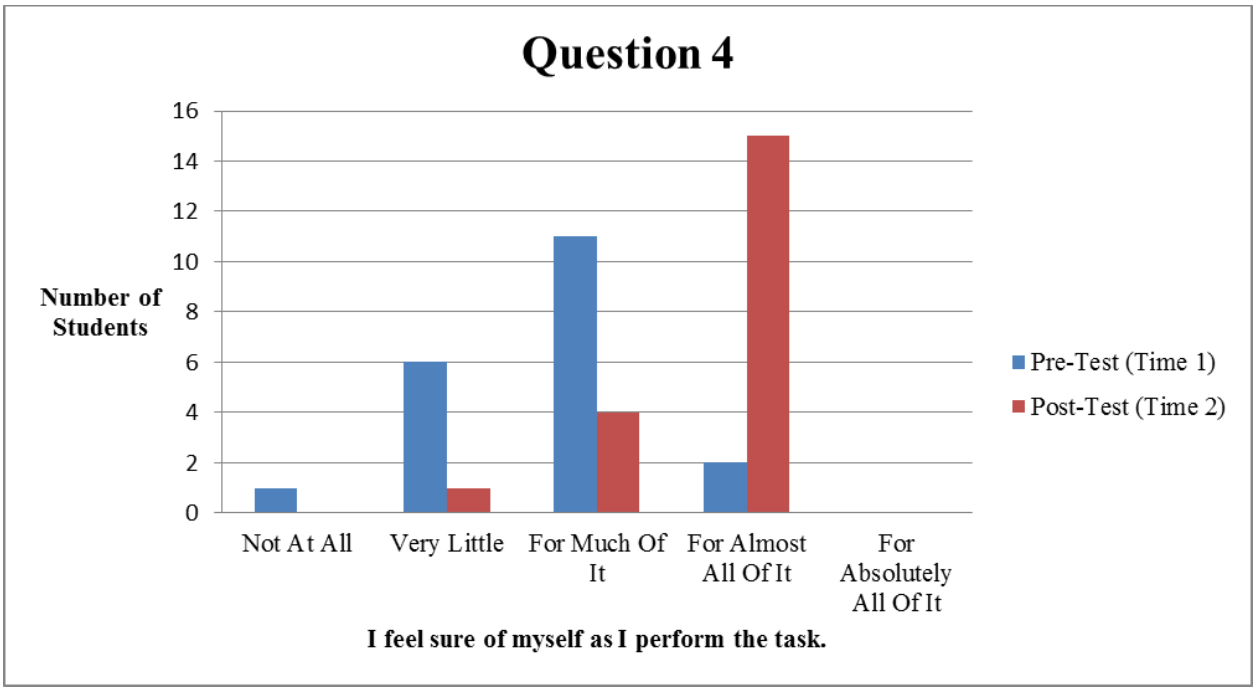

Figure 5. Student Responses to Question 4 on the Confidence Scale.

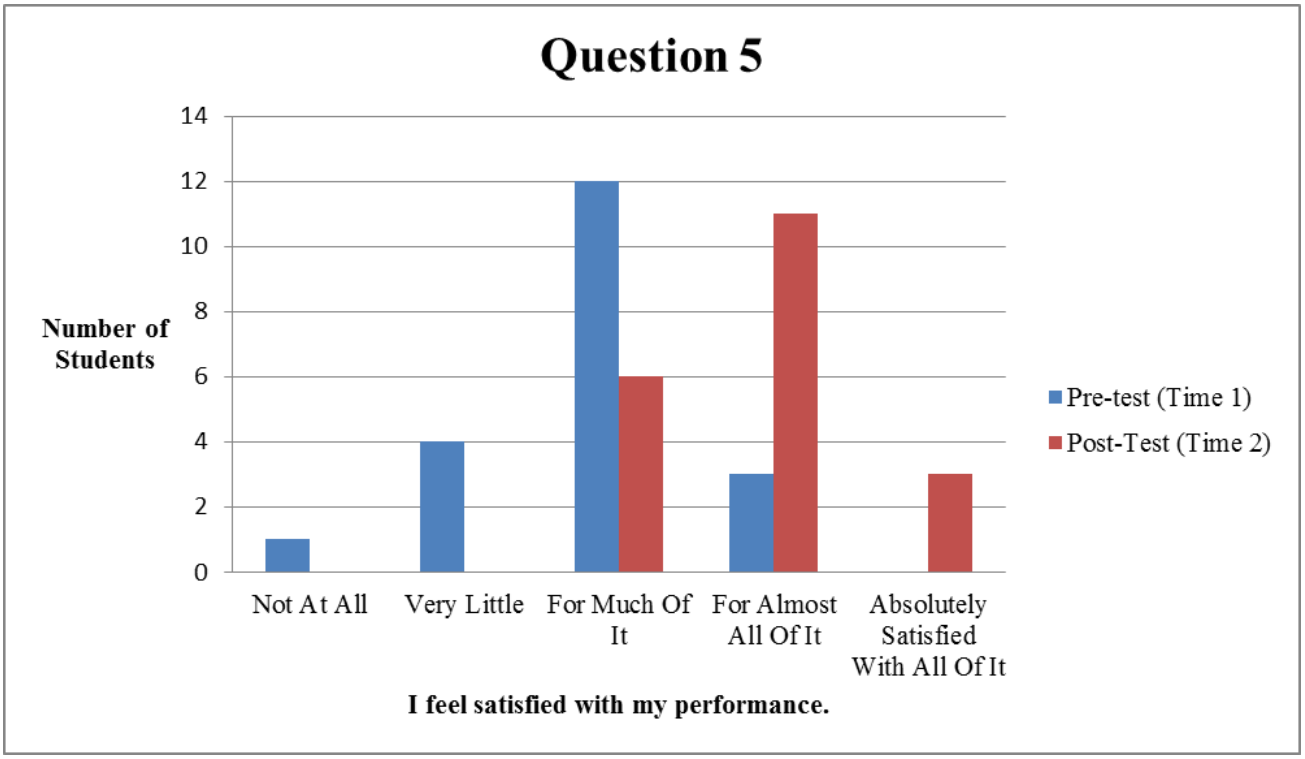

Figure 6. Student Responses to Question 5 on the Confidence Scale.

Paired samples *t* test was performed on the Confidence scale pre-test (Time 1) and post-test (Time 2) data. Paired samples statistics were used to determine the presence of significant changes between pretest and post-test scores for each of the five questions on the Confidence Scale. Six major assumptions underlie the paired samples *t* test: level of measurement, paired observations, independent observations, random sampling, normal distribution for different scores, and homogeneity of variance (O'Rourke, Hatcher, & Stepanksi, 2005). To meet the assumption of the level of measurement, the data predictor variables were analyzed using an ordinal scale (O'Rourke et al., 2005). Because the student responses were reported from a level one, referring to little or no confidence, to a level five, referring to great confidence, the level of measurement assumption was met.

The assumption of paired observations was met by performing the students' Confidence Scale pre-test scores with their post-test scores. To meet the assumption of independent observations, each of the student's responses for the Confidence Scale pre-test were not affected by any of the other students' responses on the pre-test or post-test (O'Rourke et al., 2005). The students answered the Confidence Scale questionnaire independently of each other. The students' pre-test and post-test scores were found to be moderately correlated for each question. For question one, the correlation between the pre-test (Time 1) and the post-test (Time 2) was .374. For question two, the correlation between the pre-test (Time 1) and the post-test (Time 2) was .573. For question three, the correlation between the pre-test (Time 1) and the post-test (Time 2) was .295. For question four, the correlation between the pre-test (Time 1) and the post-test (Time 2) was .277. For question five, the correlation between the pre-test (Time 1) and the post-test (Time 2) was .374. The correlations for each question can be found in Table 3.

Table 3

Correlations for Each Question of the Confidence Scale

Question	Correlation between Pre-Test (Time 1) and Post-Test
1	.374
2	.573
3	.295
4	.277
5	.374

The assumption of random sampling was not met because a convenience sampling from the target population was used. There were only 20 students in the nursing program who met the criteria for novice nursing students who had never experienced a nursing program clinical day prior to the implementation of the project. All 20 of these students were recruited.

The assumption of normal distribution for difference scores was met because the students' Confidence Scale pre-test score was subtracted from the same students' post-test score, and this method resulted in normally distributed difference scores. The assumption of homogeneity of variance was met for the Confidence Scale measurements before and after the early simulation intervention because the pre-test and post-test groups consisted of the same population of students. Norusis (2005) stated that for sample sizes between 15 to 40 participants, the data should not be skewed because there should not be any outliers.

The paired samples *t* test compared the Confidence Scale pre-test score (Time 1) with the Confidence Scale post-test score (Time 2). This test was found to be statistically significant for each of the five questions on the Confidence Scale questionnaire. The pre-test and post-test responses for question one, 'I am certain that my performance is correct,' was found to be a statistically significant test, ($t(19) = -5.596$, $p < .0001$), indicating an improvement in the students' beliefs that they are performing skills correctly between Time 1 ($M = 2.80$, $SD = .768$) and Time 2 ($M = 3.75$, $SD = .550$). The pre-test and post-test responses for question two, 'I feel that I perform the task without hesitation,' was found to be statistically significant, $t(19) = -6.842$, $p < .0001$, indicating improvement in the students' beliefs that they are performing skills without hesitation

between Time 1 (*M* = 2.40, *SD* = .821) and Time 2 (*M* = 3.45, *SD* = .605). The pre-test and post-test responses for question three, 'My performance would convince an observer that I am competent at this task,' was found to be a statistically significant test, $t(19) = -4.344$, $p < .0001$, indicating a modest improvement in the students' beliefs that they are performing skills competently if observed by another person between Time 1 (*M* = 2.75, *SD* = .786) and Time 2 (*M* = 3.60, *SD* = .681). The pre-test and post-test responses for question four, 'I feel sure of myself as I perform the task,' was found to be a statistically significant test, $t(19) = -5.627$, $p < .0001$, indicating a modest improvement in the students' beliefs that they are performing skills confidently between Time 1 (*M* = 2.70, *SD* = .733) and Time 2 (*M* = 3.70, *SD* = .571). The pre-test and post-test responses for question five, 'I feel satisfied with my performance,' was found to be a statistically significant test, $t(19) = -5.627$, $p < .0001$, indicating a modest improvement in the students' beliefs that they are satisfied with their performances between Time 1 (*M* = 2.85, *SD* = .745) and Time 2 (*M* = 3.85, *SD* = .671). Table 4 displays the results of the paired samples test of the Confidence Scale between the pre-test and post-test responses.

Table 4

Paired Samples Test of the Confidence Scale Questions between the Pre-Test and Post-Test Responses (n = 20)

Question/Time	*M*	*SD*	*t*	*df*	Sig. (2-tailed)
Q1T1 – Q1T2	-.950	.759	-5.596	19	.000
Q2T1 – Q2T2	-1.050	.686	-6.842	19	.000
Q3T1 – Q3T2	-.850	.875	-4.344	19	.000
Q4T1 – Q4T2	-1.000	.795	-5.627	19	.000
Q5T1 – Q5T2	-1.000	.795	-5.627	19	.000

Because one of the assumptions for the paired samples *t* test was violated, a Wilcoxon Signed Ranks Test was used to analyze data from the Confidence Scale pre-test and post-test scores. The data from this test also revealed statistically significant improvement in confidence for each question of the Confidence Scale after the early intervention of simulation in this group of students: question one ($Z = -3.624$, $p < .0001$), question two ($Z = -3.666$, $p < .0001$), question three ($Z = -3.231$, $p = .001$), question four ($Z = -3.573$, $p < .0001$), and question five ($Z = -3.397$, $p = .001$). Table 5 displays the results of the Wilcoxon Signed Ranks Test.

Table 5

Wilcoxon Signed Ranks Test Results

Question/Time	*Z*	Sig. (2-tailed)
Q1T2 – Q1T1	-3.624	.000
Q2T2 – Q2T1	-3.666	.000
Q3T2 – Q3T1	-3.2321	.001
Q4T2 – Q4T1	-3.573	.000
Q5T2 – Q5T1	-3.397	.001

Linear regression was performed to determine possible causes for the changes in the Confidence Scale pre-test and post-test scores. No statistically significant relationships were found between employment as a CNA and the changes in question one responses ($t(19) = -.914$, $p = .373$), between employment as a CNA and the changes in question 2 responses ($t(19) = .352$, $p = .729$), between employment as a CNA and the changes in question 3 responses ($t(19) = -.841$, $p = .411$), between employment as a CNA and the changes in question 4 responses ($t(19) = 1.140$, $p = .269$), and between employment as a CNA and the changes in question five responses ($t(19) = -.555$, $p = .586$). Table 6 displays the data related to the relationship between changes in all five questions and employment as a CNA.

Table 6

Linear Regression Indicating Relationships in Question Changes and Employment as a CNA

Question	*t*	*df*	*p*
1	-.914	19	.373
2	.352	19	.792
3	-.841	19	.411
4	1.140	19	.269
5	-.555	19	.586

No statistically significant relationships were found between length of time employed as a CNA and the changes in question one ($t(19) = -.897$, $p = .382$), between length of time employed as a CNA and the changes in question two ($t(19) = -.221$, $p = .828$), between length of time employed as a CNA and the changes in question three ($t(19) = -.558$, $p = .584$), between length of time employed as a CNA and the changes in question four ($t(19) = .537$, $p = .598$), and between length of time employed as a CNA and the changes in question five ($t(19) = .305$, $p = .763$). Table 7 displays the data related to the relationship between changes in all five questions and length of employment as a CNA.

Table 7

Linear Regression Indicating Relationships In Question Changes and Length of Time Employed as a CNA

Question	*t*	*df*	*p*
1	-.897	19	.382
2	.221	19	.828
3	-.558	19	.584
4	.537	19	.598
5	.305	19	.763

No statistically significant effects were found between the lack of work experience as a CNA and the changes in question one ($t(19) = .914$, $p = .373$), between lack of work experience as a CNA and the changes in question two ($t(19) = -.352$, $p = .792$), between lack of work experience as a CNA and the changes in question three ($t(19) = .841$, $p = .411$), between lack of work experience as a CNA and the changes in question four ($t(19) = -1.140$, $p = .269$), and between lack of work experience as a CNA and the changes in question five ($t(19) = .555$, $p = .586$). Table 8 represents the linear regression indicating relationships between changes in all five questions and lack of employment as a CNA.

Table 8

Linear Regression Indicating Relationships In Question Changes and Lack of Employment as a CNA

Question	*t*	*df*	*p*
1	.914	19	.373
2	-.352	19	.792
3	.841	19	.411
4	-1.140	19	.269
5	.555	19	.586

Regression analyses were also performed to determine if there were any statistically significant relationships between the type of CNA work experience and the changes in question responses. A statistically significant relationship was found between CNA long term care experience and the change in responses for question four ($t(19) = 2.121$, $p = .048$). Students working in long term care demonstrated greater changes in their response to question four addressing feeling sure of performing a task.

Additionally, a statistically significant relationship was found between CNA home health experience and the change in responses for question three ($t(19) = -2.434$, $p = .026$). Students working in home health demonstrated greater changes in their response to question three addressing their ability to convince others that they are competent.

The Student Satisfaction and Self-Confidence in Learning Questionnaire Data

The students were administered the NLN's Student Satisfaction and Self-Confidence in Learning questionnaire after the early simulation experience. Linear

regression analyses were performed on the data obtained from this questionnaire and allowed the ordinal variables to be treated as if they were continuous variables. This continuous measurement granted the ability to perform linear regression with dichotomous variables without violating assumptions. Descriptive statistics were also performed during the data analysis. There were 13 questions on the Student Satisfaction and Self-Confidence in Learning questionnaire. The first five questions were related to satisfaction with simulation as a learning strategy; the last eight questions were related to self-confidence with simulation learning. The data were analyzed as a total score for satisfaction and a total score for self-confidence.

On the self-confidence portion of the instrument, each of the eight questions related to confidence was individually scored by each student as a Likert-scale response ranging from one (strongly disagree with the [confidence] statement) to five (strongly agree with the [confidence] statement). When each of the responses for self-confidence was added up as a total confidence score, the total score could range from eight (strongly disagree with [every confidence] statement) to 40 (strongly agree with [every confidence] statement). The total mean confidence score of all 20 students was analyzed as descriptive statistics and equaled 34.7 which indicated confidence within the group.

On the satisfaction portion of the instrument, each of the five questions related to satisfaction with simulation and was individually scored by each student as a Likert-scale response ranging from one (strongly disagree with the [satisfaction] statement) to five (strongly agree with the [satisfaction] statement). When each of the responses for satisfaction was added up as a total satisfaction score, the total score could range from five (strongly disagree with [every satisfaction] statement) to 25 (strongly agree with

[every satisfaction] statement). The total mean satisfaction score of all 20 students was analyzed as descriptive statistics and equaled 23.95 which indicated satisfaction with simulation within the group. Table 9 represents the descriptive statistics analyzed for the total confidence score and the total satisfaction score on the NLN Student Satisfaction and Self-Confidence in Learning instrument.

Table 9

Descriptive Statistics for the Total Confidence Score and the Total Satisfaction Score on the NLN Student Satisfaction and Self-Confidence in Learning Instrument

Simulation Outcome	Mean
Self-Confidence	34.7
Satisfaction	23.95

Of all students, 50% (n = 10) responded that they either 'agreed' or 'strongly agreed' that the early simulation experience improved their self-confidence. Of the remaining ten students, seven answered 'undecided' and two students answered 'disagree' only to the question that stated "It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time,' one student answered 'undecided' for the question that stated 'I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum,' and one student answered 'undecided' for both questions that stated 'I am confident that I am mastering the content of the simulation activity that my instructors presented to me' and 'I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting.'

No statistically significant effects were found between employment as a CNA and self-confidence in simulation ($t(19) = -.207$, $p = .839$) and between length of time employed as a CNA and self-confidence in simulation ($t(19) = -.386$, $p = .704$). No statistically significant effects were found between a lack of work experience as a CNA and self-confidence ($t(19) = .207$, $p = .839$).

As an extra component to this questionnaire, the students' responses to the satisfaction with simulated learning questions were explored to determine if the students found simulation to be valuable to their learning experience. Of all students, 55% ($n = 11$) responded that they strongly agreed with the five questions related to satisfaction with simulation indicating that they were extremely satisfied with this learning strategy. The remaining 45% ($n = 9$), responded that they either agreed or strongly agreed with the satisfaction with simulation statements indicating that they were satisfied with this learning strategy.

No statistically significant effects were found between employment as a CNA and satisfaction with simulated learning ($t(19) = -1.909$, $p = .072$) or between length of time employed as a CNA and satisfaction with simulated learning ($t(19) = -1.244$, $p = .229$). No statistically significant effects were found between lack of work experience as a CNA and satisfaction with simulated learning ($t(19) = 1.909$, $p = .072$).

CHAPTER V

Discussion

This project examined the effects of early simulation on clinical confidence in novice nursing students. Chapter five discusses the implications of the findings of this project as they relate to nursing education.

Implication of Findings

A convenience sample of 20 novice nursing students participated in this project. This sample represents 100% of the first year nursing students in the project setting's nursing program. The students were expected to participate in the simulation as a part of their Foundations and Concepts for Professional Nursing Practice course laboratory requirements but were made aware that they did not have to complete any of the questionnaires. This high rate of participation may be related to the small size of the program and the resulting high levels of closeness and cooperation.

Of the participants, the majority had no previous work experience as a CNA, although they had completed the class to become certified for entrance into the nursing program. Nine of the 20 student participants had at least some work experience as a CNA, ranging from two months to two years. Five of the students who had work experience worked in long term care facilities, three students in the hospital setting, and one in a home health setting. Therefore, those students with experience may have had more clinical confidence as a result of their work exposure to clients and their clients' families and friends.

The overall mean scores for the Confidence Scale pre-test responses compared to the post-test responses indicated an increase in clinical confidence of the students after

the early simulation intervention. However, this increase in student clinical confidence occurred for students with CNA work experience, as well as for students without CNA work experience. One possible reason that there was an increase in confidence scores in the students with CNA experience is that nursing skills and client management is quite different for nurses as compared to nursing assistants. The simulation focused on the expected tasks of the students during each clinical day, like managing nursing skills such as Foley catheter insertions, nasogastric tube insertions, analyzing vital sign and blood sugar data, performing physical assessments, being able to think critically, and administering medications.

More than 70 linear regressions were analyzed to determine relationships between the students' demographic information and the students' confidence scores. Relationships were significant between the student confidence score for question three of the Confidence Scale and employment in home health. Question three of the Confidence Scale focused on the confidence of the student in his/her ability to convince an observer of competence in nursing skills. One reason home health experience may have had an impact on this type of student confidence is that in home health, the student (CNA) has to have confidence to walk into a client's home and perform skills in front of family and/or friends that may be present in the home.

Another significant relationship was revealed between the student confidence score for question four of the Confidence Scale and employment in long term care. Question four of the Confidence Scale focused on the confidence of the students in their abilities to perform tasks. One reason long term experience may have an impact on this type of student confidence is that in long term care, the student (CNA) usually performs a

lot of tasks, although these tasks may be less technical than in a hospital setting, which may increase the students' confidence level related to task performance. In long term care, the students who work as nurse assistants may not see the tasks and skills of the registered nurse performed as frequently as a CNA in the hospital; therefore, the CNA in the long term care may feel comfortable with the less technical skills that they have observed and performed themselves in this setting.

Using an additional source of confidence measurement, the NLN's Student Satisfaction and Self-Confidence in Learning questionnaire was administered to the participants to further explore whether the early simulation intervention impacted clinical confidence. The results of this questionnaire indicated that the majority of the students believed for most of the questions that the early simulation intervention aided them in improving their clinical confidence.

The students also rated their satisfaction levels with simulation learning very high. The high satisfaction score may be related to the ability of students to practice skills prior to entering the clinical site, the capability of practicing those skills in a safe environment where no real harm can come to a client, or the exposure to situations that challenge the students and require them to think critically.

Application to Theoretical Framework

Pamela Jeffries' Nursing Education Simulation Framework was used to guide this project. Simulation addresses the educational practices considered within the framework: active learning, feedback, student/faculty interaction, collaboration, high expectations, diverse learning styles, and time on task. Because the students were actively involved in the simulation, they experienced active learning. Constructive feedback occurred through

debriefing exercises at the completion of the simulation. Student and faculty interaction developed throughout the simulation, as the instructor facilitated the simulation scenario and student learning.

In this project, Jeffries Nursing Education Simulation Framework provided the foundation for the utilization of simulation. The principal investigator coordinated the student-centered simulation scenario. The novice nursing students participated in a process-based role in which they actively participated in the scenario. The simulation design incorporated active learning strategies using medium-fidelity simulators with all learning styles addressed. The students were provided with information regarding the learning objectives that they should meet, and debriefing was utilized for further development of critical thinking skills and self-reflection. The simulation was student-focused, and the students used self-reflection techniques during debriefing to determine learning points and areas of improvement.

Collaboration occurred through the faculty-student relationship in which participation and open communication developed from both the faculty and students. High expectations were developed and disseminated to the students through discussion of the learning objectives prior to the simulation activities. The simulation utilized visual, auditory, tactile, and kinesthetic styles so that students with different learning styles could be engaged in the simulation learning strategy. Ample time was allowed for the students to perform tasks and remain focused on those tasks.

Within this project simulation, the instructor (and principal investigator) was the facilitator who asked critical thinking questions throughout the simulation. The students

had a process-based role in the simulation; they actively participated in decision-making regarding what information to assess or to determine during the scenario.

The Nursing Education Simulation Framework simulation design concepts were utilized in the development of the simulation experience. Because objectives guide the learning process, objectives were written and disseminated clearly to the students. Medium-fidelity simulators and real-life scenarios were utilized to convey reality. The complexity of the simulation was based on the novice nursing students' knowledge and skill level, but it encouraged situations in which the students had to critically think. Student support was granted by the facilitator when cues were needed to enhance the learning process. Debriefing, or reflective thinking, occurred after the simulation scenario was completed, and the debriefing process was augmented by the Modified Plus/Delta tool. The student outcome of this scenario was to increase clinical confidence levels in the student participants which was evaluated with the Confidence Scale pre-test and post-test, as well as with the NLN Student Satisfaction and Self-Confidence in Learning questionnaire.

Limitations

The most significant limitation of this project was the sample size of 20 students. Project findings, therefore, are not generalizable to the entire nursing population. Because the setting was a small nursing program, only 20 first semester nursing students were eligible to participate since the focus was on novice nursing students. All 20 students participated in the project; however, it was still a small sample size.

The project also occurred at only one setting; it involved only one small, rural nursing program. This limitation also results in the inability to generalize the findings.

The nursing program where the project took place produced baccalaureate-prepared nurses which further limited generalization of the findings to all nursing students.

Another limitation of the project was the lack of randomization of the sample. Because the number of participants was already limited to 20 students, the principal investigator believed that it was important to recruit all of the eligible students so that the sample size would remain as large as it possibly could. The sample, therefore, became a convenience sample which also limits the ability to generalize findings to the population of nursing students.

Instructor involvement in the implementation of the project (except during the implementation phase) may have been another limitation. The instructor (and principal investigator) led the early simulation activities and debriefing exercises; therefore, students may have believed that they should participate in the project. To decrease this limitation, the instructor left the laboratory after the simulation and debriefing were complete so that students did not feel pressured to complete the questionnaires.

Self-report of clinical confidence may have been another limitation of this project. For some students, a lack of confidence in any situation, even those not related to nursing school, may be an issue; therefore, it may be difficult for some students to realize confidence after simulation. Some students may have wanted to state higher levels of confidence due to the relationship of the students and the instructor or for fear that their data could somehow be linked back to them despite the fact that confidentiality was maintained throughout the implementation and analysis of the project.

Implications for Nursing

An expected outcome of simulation is to provide students with skills that can be directly applied to the clinical environment (Jeffries, 2007). These skills learned and practiced in simulation then equip the student with increased confidence (Jeffries, 2007). Through research, educators have determined that simulation aids students in experiencing realistic clinical situations which can be practiced in a safe environment and in learning to think critically (Jeffries, 2007). This project demonstrated that student confidence is increased through simulation, and the students who participated in this project concluded that they were satisfied with the simulation experience.

An important implication of the findings of this project to nursing education is that the utilization of simulation provides a unique strategy to increase confidence in novice nursing students. At first, novice nursing students are often nervous and/or anxious to begin the clinical component of the nursing program. Just as learning foundational nursing skills can be taught and learned through simulation, confidence with nursing skills can be increased through experiencing a simulation scenario that reflects a typical clinical day in the hospital setting.

Recommendations

The findings of this project encourage the utilization of early simulation in novice nursing students. However, further research and/or projects are recommended to support early simulation in novice nursing students.

Projects and/or studies with larger sample sizes that investigate confidence levels after early simulation are warranted. The projects and/or studies should also include diversity in levels of degrees. This project monitored novice nursing students in a

baccalaureate nursing program; however, nursing students in diploma and Associate Degree in Nursing programs experience the same feelings of nervousness and/or anxiety as baccalaureate students. Therefore, novice nursing students in programs of varying classifications of degrees is justified.

Incorporating simulation with varying degrees of fidelity is also necessary to analyze. Utilization of low-fidelity simulators, medium-fidelity simulators, and high-fidelity simulators can be used in future projects and/or studies to determine the effect of simulator fidelity on confidence levels. This aspect of simulation is important to investigate because some nursing programs do not have the resources to obtain medium-fidelity and/or high-fidelity simulators. Therefore, analysis of which simulator fidelity can be used to increase confidence may be useful for some of these nursing programs.

Conclusion

Promotion of environments that encourage learning is essential to nursing education. Helping students overcome fears and anxiety in the clinical situation can expedite the clinical learning experience because students can focus more on learning in the environment rather than simply getting through the clinical day. Early simulation in novice nursing students can provide an engaged learning experience which increases confidence prior to entering the clinical setting.

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Appendix A

Consent Form

Informed Consent Form

Project Title: Utilizing Early Simulation to Increase Clinical Confidence in Novice Nursing Students

Investigator: Dana Martin **Phone Number** (704)463-3069

You are being asked to participate in the project described below. The investigator will explain the project and you may ask him/her any questions you have to help you understand the project. If you decide to participate, please sign below.

1. Nature of the project:

Nursing simulation has been utilized in nursing programs in order to increase knowledge, skill acquisition, safety, and progression from theory to nursing practice. Simulation has also been known to increase confidence and competence in nursing students.

This project will incorporate early nursing simulation to reflect your first clinical experience in the hospital. The simulation experience will occur prior to your first clinical experience to determine if increased confidence develops as a result of the simulation experience.

2. Explanation of procedures:

You will be asked to complete a Confidence Scale questionnaire; then, you will participate in a simulation experience that will reflect your first clinical experience in the hospital. After simulation, you will be asked to complete the Confidence Scale questionnaire again, and the principle investigator will analyze the pre-test and post-test data obtained from the Confidence Scale instrument. You will also be asked to complete the NLN Student Satisfaction and Self-Confidence in Learning instrument which is

designed to be administered after the simulation experience to determine student satisfaction with simulation as a teaching strategy and to determine student confidence levels after simulation.

3. Discomfort and risks:

There are no identified risks or discomforts associated with participation in this project. Decision to participate or not to participate will not influence the grades achieved in this course or your relationship with the researcher or university.

4. Benefits:

The hypothesized benefit of this project is increased confidence prior to your first clinical experience in the hospital. The increased confidence will benefit you, your instructor, and your clients.

5. Refusal/withdrawal:

You will not be penalized if you choose not to participate in this project. You may withdraw from the project at any time without consequence.

I agree to participate in the project described above. I know that I am free to withdraw from this study at any time without penalty.

_____ _____

Participant Signature **Date**

_____ _____

Investigator Signature **Date**

Any questions regarding the conduct of the project or questions concerning your rights as a project participant should be directed to the principal investigator or the chair of the IRB whose names and phone numbers are shown at the top of this form.

Appendix B

Scenario for Early Simulation

Patient Scenario

Client, Sandra Smith, is a 58-year-old African American female in bed seven. She was admitted 3 days ago with pneumonia. She has been receiving IV antibiotics but is changing over to PO antibiotics today. Her most recent VS (at 0400 this morning) were as follows: T 100.8º F, P 92, R 18, BP 132/80. Acetaminophen 325 mg PO given at 0410 for her temperature. I rechecked her temperature at 0445, and it was 98.9º F. Her pulse ox at 0400 was 95% on 2 L oxygen via nasal cannula. Her breath sounds are diminished in the left lower lobe. No complaints of pain. Client is receiving NS at 100 mL/hr through # 20 gauge IV in her left forearm.

Her health history is extensive. This admission is her third for pneumonia. She has a history of diabetes mellitus with a left below the knee amputation four years ago for a left lower leg wound that would not heal and became gangrenous.

Four weeks ago, she had ABD surgery to remove a small portion of the colon for diverticulitis. The surgery went well at first, but three days post-op, she developed a fistula. Dr. Snyder, her surgeon, went back in and performed an I & D of the infectious area. She was released home with home health for her dressing changes. Since she is here now, Dr. Levine, who admitted her through the ED, wrote for wet-to-damp dressing changes to her open ABD wound daily. Her dressing was changed at 1000 yesterday, and the supplies for her dressing change this morning should be in the room. The wound has nice granulation tissue present and looks really good.

She also has a history of hypertension and anemia.

Early Simulation Scenario

Objectives: By the end of this simulation experience, you will be able to…

- Describe the expected care to be given to clients during clinical experiences this semester
- Perform routine skills in the clinical setting, including health assessments and medication administration (and safety measures associated with medication administration)
- Express increased confidence prior to the first clinical experience as a result of simulation

(For Instructor Only)

0645 Report:

(Instructor to give students information about client in report).

Client, Sandra Smith, is a 58-year-old African American female in bed seven. She was admitted 3 days ago with pneumonia. She has been receiving IV antibiotics but is changing over to PO antibiotics today. Her most recent VS (at 0400 this morning) were as follows: T 100.8º F, P 92, R 18, BP 132/80. Acetaminophen 325 mg PO given at 0410 for her temperature. I rechecked her temperature at 0445, and it was 98.9º F. Her pulse ox at 0400 was 95% on 2 L oxygen via nasal cannula. Her breath sounds are diminished in the left lower lobe. No complaints of pain. Client is receiving NS at 100 mL/hr through # 20 gauge IV in her left forearm.

Her health history is extensive. This admission is her third for pneumonia. She has a history of diabetes mellitus with a left below the knee amputation four years ago for a left lower leg wound that would not heal and became gangrenous.

Four weeks ago, she had ABD surgery to remove a small portion of the colon for diverticulitis. The surgery went well at first, but three days post-op, she developed a fistula. Dr. Snyder, her surgeon, went back in and performed an I & D of the infectious area. She was released home with home health for her dressing changes. Since she is here now, Dr. Levine, who admitted her through the ED, wrote for wet-to-damp dressing changes to her open ABD wound daily. Her dressing was changed at 1000 yesterday, and the supplies for her dressing change this morning should be in the room. The wound has nice granulation tissue present and looks really good.

She also has a history of hypertension and anemia.

PFEIFFER UNIVERSITY HOSPITAL Tax ID: 12345678

Client Name: Sandra Smith Age: 58 DOB: 08/23/1955 Sex: F MRN: 432589

Address: 123 City Blvd Anywhere, NC 28109 Phone: 704-555-5555

Insurance: BCBS YPPW-123456789 $30 PCP $45 specialty $70 Urgent Care

Attending: Cooper Levine, MD Allergies: NKDA

Admitting Diagnosis: Pneumonia Height: 65 inches Weight: 148 lbs

ORDERS:

Admit to Med/Surg unit

Diet: Regular

Activity: OOB with assist

VS Q 4 hours

Fingerstick blood glucose ac & hs.

Sliding scale: Humulin R for BS < 200 administer 0 units, for BS 201-225 administer 2 units, for BS 226-250 administer 4 units, for BS 251-275 administer 6 units, for BS 276-300 administer 8 units, for BS 301-325 administer 10 units, for BS 326-350 administer 12 units, and for BS > 351 call provider.

Wet-to-damp dressing change daily to open ABD wound

Meds as at home:
Metoprolol 20 mg daily
Metformin 1000 mg BID
Calcium 500 mg + Vit D 400 IU BID
MVI daily
Ferrous sulfate 325 mg PO daily

Ciprofloxacin 750 mg q 12 hours
Morphine 2.5 mg IM q 4 hours PRN severe pain
Acetaminophen 325 mg 1-2 tablets PO Q 4 hours PRN pain or fever

PFEIFFER UNIVERSITY HOSPITAL MEDICATION ADMINISTRATION RECORD

Client Name: Sandra Smith DOB: 08/23/1955 Allergies: NKDA

MEDICATION	0700	0800	0900	1000	1100	1200	1300	1400
ROUTINE								
Fingerstick Blood Glucose ac & hs	0700				1100			
Humulin R per sliding scale	0730				1130			
Metoprolol 20mg daily			0900					
Metformin 1000mg BID		0800						
Calcium 500 mg + Vitamin D 400 IU BID			0900					
Ferrous Sulfate 325 mg daily			0900					
Multivitamin daily			0900					
Ciprofloxacin 750mg Q 12 hrs		0800						
PRN								
Morphine 2.5 mg IM Q 4 hours PRN severe pain								
Acetaminophen 325 mg PO Q 4 hrs PRN pain or fever								

Signatures:

INSTRUCTOR INFORMATION

0700 BS: 282 (So, students should administer 8 units of Humulin R insulin)

- (Students should question regular diet ordered when BS elevated).

Students should check the client's vital signs at 0800.

- Temperature: 100.5 º F (Students should administer Acetaminophen)
- Pulse: 94
- Respirations: 22
- BP: 124/72

0800 Students should administer Cipro & Metformin

Students should bathe client (anytime during shift).

0900 Students should administer Metoprolol, Calcium + Vit D, Ferrous sulfate, and MVI

Students should assess client early. Upon assessing the patient, the students will…

- Hear left lobe crackles
- Patient will be coughing
- Skin: Laceration to left upper leg (Students should ask how patient developed the laceration since it was not mentioned in report. Client will admit that she fell trying to get to the bedside commode alone. Students should state that they will complete an incident report).

1000 Dr. Levine rounds on client, Sandra Smith, and leaves the following orders:

- Insert Foley catheter (Students should insert).
- Incentive spirometer (Students should obtain and teach)

1000 Students should perform dressing change

1100 BS: 267 (So, students should administer 6 units Humulin

Appendix C

Demographic Data Form

DEMOGRAPHIC FORM

Utilizing Early Simulation to Increase Clinical Confidence in Novice Nursing Students

Instructions: Please answer the following questions that will be used for demographic purposes only. The data obtained from these questions will not be reported individually.

1. What is your gender? (Circle) Male Female

2. Have you attended another nursing program? (Circle) Yes No

   If so, did you participate in a simulation laboratory or in clinical experience in that nursing program? (Circle) Yes No

   How many approximate days of simulation or clinical experience do you have?
   _____

3. Have you worked as a Licensed Practical Nurse (LPN)? (Circle) Yes No

   If so, for how long have you worked as an LPN? _____

   In which setting have you worked as an LPN? (Please be specific.) _____
   _____
   _____

4. Have you worked as a Certified Nurse Assistant (CNA) I or II? (Circle) Yes No

   If so, for how long have you worked as a CNA I or II? _____

   In which setting have you worked as a CNA I or II? (Please be specific.) _____
   _____
   _____

   Thank you for your participation!

Appendix D

Confidence Scale

CONFIDENCE SCALE

Code Number: _____

Directions: Circle the number which best describes how you perceive your current ability to perform care on an adult in the hospital. (NOTE: Make sure that the circle encloses just ONE number.)

1. I am certain that my performance is correct:

1	2	3	4	5
not at all certain	certain for only a few steps	fairly certain for a good number of steps	certain for almost all steps	absolutely certain for all steps

2. I feel that I perform the task without hesitation:

1	2	3	4	5
I have much hesitation	a fair amount of hesitation	a good part of it without hesitation	almost completely without hesitation	absolutely no hesitation

3. My performance would convince an observer that I am competent at this task:

1	2	3	4	5
not at all	agree, a little	for much of it	for almost all of it	for absolutely all of it

4. I feel sure of myself as I perform the task:

1	2	3	4	5
not at all	very little	for much of it	for almost all of it	for absolutely all of it

5. I feel satisfied with my performance:

1	2	3	4	5
not at all	very little	for much of it	for almost all of it	absolutely satisfied with all of it

Appendix E

Modified Plus/Delta Debriefing Form

Name _____

DEBRIEFING TOOL: MODIFIED PLUS/DELTA (Miller, 2012)

Adjectives How would you describe your simulation experience?	**+** What worked well? What would you repeat again?	**Δ** What would you do differently?	**Take Aways** What did you learn?
Examples: Exciting Scary Challenging Enlightening	Examples: 1) Check two forms of patient identification prior to medication administration 2) Perform NG tube insertion correctly	Examples: 1) Check the patient's allergies prior to administering medications 2) Take more care not to break sterile technique when inserting a Foley catheter	Examples: 1) The importance of looking up medications 2) The importance of performing a thorough patient assessment

Reference:

Miller, J. L. (2012). Debriefing simulation experiences. Laerdal Simulation Users Network. Retrieved from http://www.laerdal.com/usa/sun/ppt/regions/SUN_debriefing_2012.pdf

Appendix F

Student Satisfaction and Self-Confidence in Learning Instrument

Student Satisfaction and Self-Confidence in Learning

Instructions: This questionnaire is a series of statements about your personal attitudes about the instruction you receive during your simulation activity. Each item represents a statement about your attitude toward your satisfaction with learning and self-confidence in obtaining the instruction you need. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the numbers that best describe your attitude or beliefs. Please be truthful and describe your attitude as it really is, not what you would like for it to be. This is anonymous with the results being compiled as a group, not individually.

Mark:
1 = STRONGLY DISAGREE with the statement
2 = DISAGREE with the statement
3 = UNDECIDED - you neither agree or disagree with the statement
4 = AGREE with the statement
5 = STRONGLY AGREE with the statement

Satisfaction with Current Learning	**SD**	**D**	**UN**	**A**	**SA**
1. The teaching methods used in this simulation were helpful and effective.	○ 1	○ 2	○ 3	○ 4	○ 5
2. The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum.	○ 1	○ 2	○ 3	○ 4	○ 5
3. I enjoyed how my instructor taught the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5
4. The teaching materials used in this simulation were motivating and helped me to learn.	○ 1	○ 2	○ 3	○ 4	○ 5
5. The way my instructor(s) taught the simulation was suitable to the way I learn.	○ 1	○ 2	○ 3	○ 4	○ 5
Self-confidence in Learning	**SD**	**D**	**UN**	**A**	**SA**
6. I am confident that I am mastering the content of the simulation activity that my instructors presented to me.	○ 1	○ 2	○ 3	○ 4	○ 5
7. I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum.	○ 1	○ 2	○ 3	○ 4	○ 5
8. I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting	○ 1	○ 2	○ 3	○ 4	○ 5
9. My instructors used helpful resources to teach the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5
10. It is my responsibility as the student to learn what I need to know from this simulation activity.	○ 1	○ 2	○ 3	○ 4	○ 5
11. I know how to get help when I do not understand the concepts covered in the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5
12. I know how to use simulation activities to learn critical aspects of these skills.	○ 1	○ 2	○ 3	○ 4	○ 5
13. It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time..	○ 1	○ 2	○ 3	○ 4	○ 5

 Revised December 22, 2004

Appendix G

Debriefing Statement

DEBRIEFING STATEMENT

Utilizing Early Simulation to Increase Clinical Confidence in Novice Nursing Students

Thank you for participating in this research study on how early simulation influences nursing student confidence. Your time is valuable to us.

The goal of this study is to determine whether early simulation experiences would benefit novice nursing students by increasing confidence levels. Based on prior research, we expect that early simulation will increase novice nursing students' confidence levels. If you would like more information about the effects of simulation on nursing student confidence levels, you may be interested in the following:

Alinier, G., Hunt, B., Gordon, R., & Harwood, C. (2006). Effectiveness of intermediate-fidelity simulation training technology in undergraduate nursing education. *Journal of Advanced Nursing, 54*(3), 359-369.

Bambini, D., Washburn, J., & Perkins, R. (2009). Outcomes of clinical simulation for novice nursing students: Communication, confidence, clinical judgment. *Nursing Education Perspectives, 30*(2).

Blum, C. A., Borglund, S., & Parcells, D. (2010). High-fidelity nursing simulation: Impact of student self-confidence and clinical competence. *International Journal of Nursing Education Scholarship, 7*(1), 1-14. doi: 10.2202/1548-923X.2035.

Jeffries, P. (2007). *Simulation in nursing education. From conceptualization to evaluation.* New York, NY: National League for Nursing.

Thomas, C., & Mackey, E. (2012). Influence of a clinical simulation elective on baccalaureate nursing student clinical confidence. *Journal of Nursing Education, 51*(4), 236-239.

If you have further questions or comments, you may contact Dana Martin, MSN, RN at 704-463-3069. Thank you again for your participation!

Appendix H

Permission to Use Tools

Permission to use the Confidence Scale

From: Grundy, Susan <grundys@saclink.csus.edu>
Tue 2/12/2013 4:14 PM
To:
Ms Dana Robinson Martin;
1 attachment

Dear Dana:

You have my permission to use the C-Scale I developed to measure confidence. I am emailing you a copy of the C-Scale that can be modified to measure confidence. The copy I am sending to you has "head-to-toe assessment" listed as the skill. It is very easy to change the skill, the type of patient (pediatric versus adult), or the setting.

Please feel free to modify the C-Scale as you wish for your research activity. I do ask that you credit me as the developer of the original instrument. The C-Scale is under copyright protection but there is no fee attached to using the instrument.

When the subject completes the scale - just add the numbers circled on each of the 5 statements. An individual's score can range from 5 (low confidence) to 25 (high confidence). Do not add the 5 numbers and then divide by 5.

The correct citation of the publication discussing the C-Scale is Nurse Educator (1993), Vol 18, No 1, pages 6-9. (The 1992 issue of the article lacked all of the information that I had edited.)

If you have any questions, feel free to email me. I would love to have an abstract of your findings when you are done. Good luck with your DNP project at Gardner Webb University.

Sincerely,

Dr. Susan Grundy
Professor Emeritus
California State University, Sacramento

Permission to use the Student Satisfaction and Self-Confidence Scale

From: Nasreen Ferdous <nferdous@nln.org>

Wed 3/13/2013 2:20 PM

To:

Ms Dana Robinson Martin;

3 attachments

It is my pleasure to grant you permission to use the "Educational Practices Questionnaire," "Simulation Design Scale" and "Student Satisfaction and Self-Confidence in Learning" NLN/Laerdal Research Tools. In granting permission to use the instruments, it is understood that the following assumptions operate and "caveats" will be respected:

1. It is the sole responsibility of (you) the researcher to determine whether the NLN questionnaire is appropriate to her or his particular study.
2. Modifications to a survey may affect the reliability and/or validity of results. Any modifications made to a survey are the sole responsibility of the researcher.
3. When published or printed, any research findings produced using an NLN survey must be properly cited as specified in the Instrument Request Form. If the content of the NLN survey was modified in any way, this must also be clearly indicated in the text, footnotes and endnotes of all materials where findings are published or printed.

I am pleased that material developed by the National League for Nursing is seen as valuable as you evaluate ways to enhance learning, and I am pleased that we are able to grant permission for use of the "Educational Practices Questionnaire," "Simulation Design Scale" and "Student Satisfaction and Self-Confidence in Learning" instruments.

Nasreen Ferdous | Administrative Coordinator for Grants/R&PD | National League for Nursing | www.nln.orgnferdous@nln.org | Phone: 212-812-0315 | Fax: 212-812-0391 | 61 Broadway | New York, NY 10006