

2014

# The Innovation of Simulation Laboratories and the Novice Nurses in the Clinical Setting

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*Walden University*

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# Walden University

College of Health Sciences

This is to certify that the doctoral study by

Brenda W. Moore

has been found to be complete and satisfactory in all respects,  
and that any and all revisions required by  
the review committee have been made.

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2014

Abstract

The Innovation of Simulation Laboratories and the Novice Nurses in the Clinical Setting

By

Brenda W. Moore

MSN, Walden University, 2011

BSN, Union University, 2005

AAS, Shelby State Community, 1989

Project Submitted in Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2014

## Abstract

The push to generate professional nurses has raised questions about the competency level of the novice nurses that are entering the workforce. Utilization of simulation laboratories is being viewed as an option for bridging the gap for the shortage of nurses, nurse educators, and clinical sites. The theory of goal attainment was used to guide this project, which aimed to develop and validate an ER simulation scenario that mimics a clinical setting as a tool for measuring nursing skills. An additional purpose, to be accomplished after graduation, will be to implement a pilot project to determine the impact of the validated simulation scenario within the nursing skills laboratories on the quality of care provided by novice nurses to patients. The validation of the ER simulation scenario was completed by having 10 local experts review the developed ER simulation scenario. The experts then completed a 5-question Likert-type scale survey. Descriptive analysis was used to evaluate the results of the survey and validate the simulation scenario tool. Results revealed that all experts strongly agreed that the ER scenario was visually appealing and had enough subject content. Most experts strongly agreed that it was easy to read and follow. Post-graduation and with the assistance of the education organization, the second part of this proposal will occur with a pilot study implementation. The significance of this project to the nursing practice is to utilize simulation as a bridge to real life practice settings. This project may contribute to the American Nurses Association Standards of best practice which works to improve patient safety as well as quality nursing care.

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## Dedication

I would like to dedicate this proposal to the two individuals who instilled in me “Nothing is too hard for God” and they are her parents John D. and Freddie M. Washington. Philippians 4:13 “I can do all things through Christ who strengthens me.”

## Acknowledgments

I would like to thank the faculty and advisors of the DNP Program at Walden University. A special thank you to Dr. Dana Leach (Chairperson and faculty member) and Dr. Deborah Lewis (Committee Member), whose feedback, direction, and patience were the cornerstone for enabling the completion of this proposal. Also, special recognition to the preceptors that so graciously and selflessly took the time out of their busy schedules to guide, support and mentor throughout the duration of this project. Thank you, Donna Zurlino, MSN, FNP, Dr. Felicia Pendleton and Lee E. Faulkner, MD for your support. Lastly, it would not have been possible without the support of family and friends who kept the cheering section going especially Stanley F. Wright. Much love is given to the three most important people in my life and they are my children, TeShaun, Herbert, and Amber Moore.

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On a scale of 1-5 (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree), please rate the following questions regarding diabetes.....40

1. The simulation scenario looks appealing.....40  
1 2 3 4 5.....40

2. The simulation scenario is easy to follow.....40  
1 2 3 4 5.....40

3. The simulation scenario is easy to read. ....40  
1 2 3 4 5.....40

4. The color scheme of the simulation scenario is appealing. ....40  
1 2 3 4 5.....40

5. The font large enough to read. ....40  
1 2 3 4 5.....40

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## Section 1: Nature of the Project

### **Introduction**

The culture of nursing has changed over the past 20 years. In this change has come the crossroad of computer technology and quality patient care (Munroe, Kaza, & Howard, 2011). Health care facilities measure the quality of patient care. Quality care of patients is dedicated to patient satisfaction, and rigorous attention is given to patient safety (Downs, Standish, & Allred, 2012). Nurses and other health care professionals are under inspection to provide safe and effective care (Kilpatrick, 2013). Likewise, nursing education programs are faced with increased pressure to produce graduates who are capable of safe patient care (Durham & Alden, 2008). The use of simulation as a teaching strategy can contribute to patient safety and optimize the outcomes of care, providing the novice nurse with the opportunities to experience scenarios and intervene in clinical situations within a safe, supervised setting without posing a risk to the patient.

The skill required to respond appropriately to patient needs is not inborn but must be learned and developed through education, practice, training, and repetition. Clinical simulation is an innovative way to educate novice nurses for the future (Wagner, Bear, & Sanders, 2009). Simulation technologies are revolutionizing health care education for students as well as seasoned practitioners.

Childs and Supple (2006) affirmed that the student attained knowledge, acquired critical thinking skills and psychomotor skills, and developed confidence through various active learning strategies and transferred these skills into the clinical setting of caring for

patients. One method being used to teach these skills, enhance novice nurse competencies, and develop novice nurses' critical thinking is simulation.

### **Background**

The use of clinical simulation in nursing programs creates many opportunities for the novice nurse to learn and apply critical thinking skills with decrease levels of anxiety of nursing care in a patient safe environment. Patient safety has become a national safety goal that is enforced by the Joint Commission. Safe quality patient care is a requirement at all times. This quality initiative has attracted the attention of health care leaders, academic, Centers for Medicare and Medicaid Services (CMS), Joint Commission (JC) as well as the patient. An option for ensuring the novice nurse can perform at a satisfactory level of competency is to expand the clinical simulation settings with a focus on transitioning the novice nurse into an actual clinical setting as a professional nurse.

### **Problem Statement**

One of today's major problems within the health care arena is the nursing shortage which is a nationwide dilemma. The nursing shortage has a domino effect on the need to increase enrollment in nursing programs which also affects the shortage of nurse educators and clinical sites for training the nurse (Leners, Sitzman, & Hessler, 2006). The push to generate professional nurses has also raised questions about the competency level of the novice nurses that are entering the workforce (Messmer, Jones, & Taylor, 2004). Often nurse leaders complain that new nurses are not prepared to perform at the expected level of competency even as a novice nurse.

Use of simulation laboratories is being viewed as an option for bridging the gap for the shortage of nurses, nurse educators, and clinical sites. Researchers have shown although simulation cannot replace actual clinical experience; this setting can be used as a tool for the performance assessments of the students and can be used to measure the basic assessment skills, patient safety initiatives, to analyze, and intervention and communication skills (Frontiero & Glynn, 2012).

Health care facilities throughout the world depend on the bedside nurse to provide safe quality care to the patients. The rising cost of hospital stays as well as the strict adherence of the Center for Medicare and Medicaid Service (CMS) regulations does not allow for unsafe practices without the consequences of penalties of nonpayment. All stakeholders must be reminded of this when preparing the novice nurse to enter the professional health care arena.

### **Purpose**

The purpose of this project is to determine what affects do simulation laboratories have on promoting evidence-based practices and enhancing the quality of care provided by novice nurses to patients (Moore, 2013). A pre and posttest will be administered at the implementation of this project after graduation. The pre and posttest will be used to measure the progress of the novice nurses; as well as identify areas of improvement that is needed for the successful use of simulation clinical while using evidence-based practices (Moore, 2013). An ER simulation scenario will be distributed to the graduate nurses before starting the simulation. The purpose of this is to measure the level of the novice nurses' anxiety level before proceeding with the scenario.

The requirement for quality patient care, the shortage of nurses, nursed educators, and limited clinical settings have prompted hospital administration, academic, nurse leaders, and other health care professionals to examine alternative methods for promoting patient safety while preparing future nurses for the emergence of safe quality care of patients as a student into a competent professional nurse.

### **Objectives**

- Develop and validate a simulation scenario that will mimic clinical setting that will be able to evaluate nursing skills performance.
- The target population (Novice Nurses) will be able to perform at the desired level of competency safely and effectively providing quality nursing care in a simulation setting.
- The student will demonstrate significant differences in critical thinking and self-confidence behavior as evidenced by pretest and posttest simulation performance measures with input from staff nurses, educators, and nurse leaders.
- The student will demonstrate increase critical thinking skills and decision making skills as evidence by completing nursing interventions according to protocol while providing quality patient care.

The activities that will be used to meet the objectives are as follows:

- Communication-Open and honest collaboration will be encouraged at all times between group members (student, simulation facilitator, educator, program designer).

- Educational Activities-Opportunity for all disciplines to learn how to cope with diverse differences such as novice to expert by being tolerant and respectful of each person's level of performance.
- Behavior Modification Activities-Staff nurse, Nurse Educators, and Nurse Leaders reinforcing the behavior of critiquing critical thinking skills and professionalism to the student nurses.
- Environmental Change Activities-Authenticating the simulation environment into an original clinical setting by introducing student nurses to the state of the art simulation technology and by navigating scenarios with real life situations.
- Community Advocacy Activities-Involve the academic community and health care community in reaching goals as set by the group for effective student nurse patient care.

### **Frameworks for the Project**

The Imogene King Theory of Goal Attainment is a strategic model that will be used as a guide to assist in the evaluation process of this project. According to King (2006), she used concept of self-perception, communication, interaction, transaction, role and decision making in the planning process. King's theory allows the student nurse, staff nurse, educator, and nurse leader the ability to interact and set goals that they can mutually agree upon and achieve.

A Likert-type scale will also be used in this project; this will be used during the planning stage for evaluation. The Likert-type scale contains the components necessary



for measuring the effectiveness of the simulation laboratories, novice nurses' anxiety levels, and the performance of safe quality patient care (Zaccagnini & White, 2011).

### **Nature of the Project**

The approach or method that is being used for this DNP project will be a pre and posttest design. According to Polit and Beck (2008), the approach of this design is to collect data before and after nursing interventions has been performed. The pretest and posttest will be used to measure the competency level of the novice nurse while performing the nursing skill. A simulation scenario will also be developed to measure the anxiety level of the novice nurse after reading the simulation scenario.

This project is also being conducted to validate the usage of simulation clinical settings as a tool for measuring nursing skills as well as providing a safe environment for both the student and patient who is conducive to learning and reducing the risk of injury to patients. I will use the pre and posttest design to evaluate the student nurse performance with high-fidelity simulation while measuring assessment, critical thinking, analytical, communication, and the quality of patient care (Moore, 2013).

Data will be collected through a pretest simulation evaluation instrument (questionnaire) to assess the competency entry level of each student. A posttest simulation evaluation instrument will be given at the end of the project to assess the difference in level of competency.

## **Definitions**

*Nurse Educator:* A Nurse Educator is responsible for the planning, organizing, assessment, and evaluation of the student nurse, the simulation scenario, and the outcomes of the simulation task (Billings and Halstead, 2009).

*Novice Nurse:* Target population of the project subject used to assess, diagnose, plan, implement, and evaluate the outcome for safe quality patient care (Billings and Halstead, 2009).

*Nurse Leader:* Stakeholder that gives input on the expectations of what areas a novice nurse should be competent in when he/she enters the work force (Kelly, 2012).

*Hospital Administrators:* Concern with the leadership, strategic planning (action plans), customer focus, workforce focus, operational focus, and results (Kelly, 2012).

*Simulation Laboratory:* Laboratories designed specifically to capture the essence of traditional clinical settings without compromising the safety of patients (Billings and Halstead, 2009).

## **Assumptions**

This project is guided by the theory guidelines of a ground theory. The novice nurses are being exposed to scenarios that are based on real life situations. The intent is to capture the simulation patient's physical, spiritual, ethical, and cultural beliefs within each scenario. Studies have not been shown to provide the data as according to (Jean Watson, 2013), transpersonal caring relationship that is found between the nurse and their patient.

### **Scope and Delimitations**

The practice problem that was chosen for the project is patient safety. Patient safety is being addressed in many countries today. Patient safety is also adopted by the World Health Organization (WHO) World Alliance for Patient Safety. Leaders in health care are redesigning systems and processes in an effort to increase patient safety (Emanuel, et al., 2008). This has been done through the implementation of Computerized Physician Order Entry (CPOE), five rights of medication administration, two patient identifiers, and using current evidence based practices throughout the health care system. The target population for this project is student nurses. The simulation boundary is set to measure the novice nurses' anxiety level, critical thinking, analytical, assessment, communication and evaluation skills.

### **Limitations**

One of the limitations is the convenient sample size as well as the inability to use control groups. Limitations are identified from the perspective of adhering to the goals and objectives that must be met for each student as required by the Schools of Nursing and Allied Health. It is not possible to omit teaching some students or not provide the required access to information to a designated group of students. Another limitation is the students are associate prepared versus baccalaureate prepared. The project will take place in one-simulation laboratory. I must consider the behavior of participants providing information that the program designer wants to hear. The time frame of the project is less than one year. The bias attitudes towards simulation experiences in comparison to traditional clinical experiences will also be considered in this project.

### **Significance**

The significance of this project to the nursing practice is to utilize simulation as a bridge to real life practice settings. Allow the novice nurse to be taught in a safe setting without clinical environment distractions (discharges, low-patient census, and unavailability of patients for student nurses to care for) or a safety risk involved in students' clinical decision making that could cause harm to the patient. Allow the novice nurse the opportunity to gain comfort and confidence in performing procedures and caring for patients (Billings & Halstead, 2009).

This project can potentially contribute to the American Nurses Association Standards of best practice which works to improve patient safety by promoting quality in nursing care which meets the guidelines for evidence-based practices (American Nurses Association, 2012). The project results can also contribute to the possible feasibility of clinical simulation as well as simulation check-offs in the hospital settings for new interventions and procedures that may be introduced to the health care arena.

The center of Walden University's mission statement is social change. Every student at Walden University is exposed to the concept of social change. This project will have a positive influence on the patient safety as well as an increased level of nursing competency for the novice nurses entering the health care community.

### **Summary**

Massive changes are taking place in the health care world daily. The introduction of computer technology, patient center care, and the push to eradicate health care errors or injuries has placed accountability not only on the nurse or doctor but also on the health

care facilities and the governing organizations such as CMS and JC. Also, to compound these issues are the nursing shortages and the limited clinical space for training nurses to bridge the nurse shortage gap. Simulation laboratories have been cited as a venue to assisting in providing a safe and effective environment for student nurses to be trained.

## Section 2: Review of Literature and Theoretical and Conceptual Framework

Use of simulation laboratories is being viewed as an option for bridging the gap for the shortage of nurses, nurse educators, and clinical sites. Researchers have shown although simulation cannot replace actual clinical experience; this setting can be used as a tool for the performance assessments of the students and can be used to measure the basic assessment skills, patient safety initiatives, to analyze, and intervention and communication skills (Frontiero & Glynn, 2012).

Health care facilities throughout the world depend on the bedside nurse to provide safe quality care to the patients. The rising cost of hospital stays as well as the strict adherence of the CMS regulations does not allow for unsafe practices without the consequences of penalties of nonpayment. All stakeholders must be reminded of this when preparing the novice nurse to enter the professional health care arena. The simulation laboratories will play a vital part in possibly decreasing hospital-acquired injuries (HAIs) while in orientation. Also, with the proper training with simulation scenarios the goal in future studies is to also associate simulation training with a decrease HAIs or no correlation with HAIs.

The purpose of this project is first to develop and validate simulation scenario mimicking a clinical setting as a tool for measuring nursing skills. The second purpose to be accomplished after graduation will be to implement a pilot project to determine what effect does the validated simulation scenario within the nursing skills laboratories have on promoting evidence-based practices and enhancing the quality of care provided by novice nurses to patients.

The requirement for quality patient care, the shortage of nurses, nursed educators, and limited clinical settings have prompted hospital administration, academic, nurse leaders, and other health care professionals to examine alternative methods for promoting patient safety while preparing future nurses for the emergence of safe quality care of patients as a student into a competent professional nurse. According to Nagle, McHale, Alexander, and French (2009), simulation is being assimilated into undergraduate and graduate nursing programs. More and more hospital based orientation, continuing education, and skills based certification programs are using simulation. The increased usage is in correlation to health care errors, patient safety, limited clinical instruction time, limited clinical space, and the need to provide a clinical setting to student nurses and staff.

### **Literature Search Strategy**

Access library databases and search engines use in the review of literature:

- University of Arkansas-Fort Smith Library
- Walden University Library
- Google Scholar
- EBSCOhost Cumulative Index to Nursing and Allied Literature (CINAHL) with full text
- Cochrane Database of Systematic Reviews
- Ovid
- Journal of Nursing Education
- ProQuest

The key search terms were as follows: *simulation, novice nurse, and evidence based practice, quality of care, nursing care, competency, critical thinking, skills, and patient safety*. These key search terms yielded 2,159 full text papers, articles, and journals. The yield was narrowed to 5 years or less and there was a decrease to 139 full text papers, articles, and journals.

The scope of the literature review dated back as far as 1947. The review provided the history on simulation which originated during World War II. Simulation was used at that time to teach soldiers how to fly by the Link Trainer or the “Blue Box” or “Pilot Trainer” (Albert, 1981). The simulation was later adopted by the medical students for operating room training. Eventually, nurse educators begin to incorporate simulation into the clinical setting.

The type of literature that was used to gather data was literature reviews, peer reviews, research studies, articles in journals and website information. The majority of the studies used were quasi-experimental designs. All studies reviewed reported simulation as a valid teaching/learning strategy.

### **Concepts, Models, and Theories**

The Imogene King Theory of Goal Attainment is a strategic model that will be used as a guide to assist in the evaluation process of this project. According to (King, 2006), the use of a concept of self-perception, communication, interaction, transaction, role and decision making in the planning process are the key components of goal attainment. King’s theory allows the student nurse, staff nurse, educator, and nurse leader



to interact and set goals they mutually agree upon and can be mutually achieved that is in the best interest of patient care.

A Likert-type scale will also be used in this project; the scale will be used during the planning for evaluation. The Likert-type scale contains the components necessary for measuring the anxiety level of the novice nurses before pretesting by allowing novice nurse to read an ER simulation scenario before the pretest (Zaccagnini & White, 2011).

### **Frameworks**

The role of the target population (novice nurses) is to participate voluntarily in the pre and posttest simulation evaluation instrument competency skills check-off as well as agree to participate in simulation scenarios to measure their nursing competency level. The Theory of Goal Attainment is one of the frameworks used for this project. According to (Parker, 2006), conceptual system are self-perception, communication, interaction, transaction, and decision making. As nurses we bring knowledge skills that influence our perceptions, communications, and interactions in performing the functions of the nursing role and responsibilities. The key statement in the concept is nurse/patient the perception of each the nursing's judgment of the actions taken of the reaction and interaction of a transaction (Parker, 2006).

The goal attainment theory was used in an article written by Whelton (2008) which articulated that the blend of philosophy and theory is established with the goal of shedding light on healthcare decisions. Whelton (2008) acknowledged the complexity of contextualized individual decisions requires the insight and discipline of the moral practitioner and the patient. Although palliative care is extreme, the objective is to

develop the novice nurses' critical thinking skill to the level of competency to be able to make decisions that will not compromise the safety of the patient or self.

### **Literature Review Related to Method**

Hicks, Coke, & Li (2009) asserted that ambiguity of literature reviews related to simulation was identified in the review of the literature related to simulation despite its vast volume of literature. The studies appear to have small sample size, provided data that can be interpreted as biased, short time frames, and conclusions based on student or instructor's observation.

According to Bambini, Washburn, and Perkins (2009) the increased use of technology within nursing programs throughout the country. The authors also identify the achievement of critical thinking skills through simulation. The researcher recognized more research is needed to measure the outcomes of effective learning skills based on high-fidelity simulation (HFS) and real life settings.

The pre/posttest method of gathering data has been seen as the most prevalent means of collecting and measuring outcomes. Various Simulation Evaluation Tools were used during the actual process of clinical simulations as skills check-off to categorize the student nurses' level of competency. These methods of measurement according to recent studies are the most reliable tool for evaluating novice nurses in the simulation laboratories. Archival data were collected by placing key terms into EBSCO host database and other databases. The data range was from 1947 to 2013. These key search terms yielded 2,159 full text papers, articles, and journals. When the yield was narrowed down to 5 years or less it was decreased to 139 full text papers, articles, and journals.

## **Background and Context**

The DNP project is being implemented at a community college that is located in the southwest region of the U.S. The vision of this college is a community college intends to be a nationally recognized 2-year comprehensive institution that excels in providing community, transfer, and workforce education in a learning-centered environment.

The mission of this project is: It is our mission to foster a culture that increasingly values quality patient care. Expose our student nurses to current evidence-based practice approaches that will lead to greater student nurse/patient satisfaction; thereby, promoting a community of effective patient care while transitioning from a student nurse to a licensed professional nurse.

The target population will be 100 third and fourth-semester nursing students in the Associate Degree Nursing program at a community college. The expected convenience sample size is 24 students. The student nurses will be informed this study is voluntary only; with the understanding that this is no reflection on their present grade. This project will not determine whether they pass or fail the nursing course. Demographic information will be collected before administering a pretest simulation evaluation instrument to assess the entry level of each student. The student nurses will be bringing a willingness to learn how to care for patients without the chances of causing harm or making a mistake that can cause harm

## **Summary**

One of the limitations of the study is the small sample sizes and usually one-simulation site at a time is studied which limits the validity of the studies. The focus of

the literature reviews is inclusive of critical thinking skills, and the impact simulation experiences have on student nurses whether negative or positive. The literature reviews vary in results and conclusions. More studies are needed to measure more concise outcomes of clinical simulation.

According to the pre and posttest simulation evaluation instruments, indicate improvements are seen in the performance and critical thinking skills of the student nurse. Although, simulation has become more accepting in the academic, continuing education at health care facilities it is not known to what extent at this time a simulation will be implemented as a necessary entity of educating the student nurse, staff nurse, patient, family, ancillary staff and other health care professionals.

This DNP project will give advance nursing practice the autonomy to educate the health care community and patient and family community with a decreased chance of causing injuries. The success of the effective use of simulation with student nurses can determine if its usage will be beneficial in other areas such as with patient and family teaching, staff teaching, and community teaching.

Nurse Educators are able to observe and experience both the simulation and traditional clinical setting. The increased enrollment of student nurses requires more clinical space. Students and nurse educators are having clinical classes in the evening and weekends due to the lack of availability. The researcher is currently acting as one of the liaisons between the university and the local partnering hospitals. Quarterly meetings are held to give updates on the policy changes, schedule changes for the students, and concerns on the progression of the students. One of the major concerns is management

feels the graduate nurse are coming to them unprepared or not as advanced as a novice nurse as they would like to see them. Due to budget cuts and nurse shortages administration has concerns about bridging the gap of novice nurses to professional nurses with fewer hours of orientation.

### Section 3: Methodology

The purpose of this project is to determine what effect does simulation laboratories have on promoting evidence-based practices and enhancing the quality of care provided by novice nurses to patients. The requirement for quality patient care, the shortage of nurses, nursed educators, and limited clinical settings have prompted hospital administration, academia, nurse leaders, and other health care professionals to examine alternative methods for promoting patient safety while preparing future nurses for the emergence of safe quality care of patients as a student into a competent professional nurse. The approval number for this project is 07-08-14-0151786.

#### **Approach and Method**

According to Dimitrov and Rumrill (2003) pre and posttests can be used for the purpose of comparing and measuring the changes in competency. I will use the pre and posttest design to evaluate the student nurse performance with high-fidelity simulation while measuring anxiety level, assessment, critical thinking, analytical, communication, and the quality of patient care. According to Onello & Regan (2013) the absence of a standardize model to assess the use of High Fidelity Simulation (HFS) challenges faculty seeking effective teaching strategies, a method that can develop strong clinical judgment, and reasoning skills makes it very difficult to compare findings across studies, so as to identify best practices or develop evidenced-based models. After searching through several articles and literature reviews this method seems the most applicable for the DNP project, was the Creighton Simulation Evaluation Instrument (C-SEI), Lasater (2007),

Radhakrishnan, Roche, and Cunningham (2007), Morgan, Cleve-Hogg, DeSousa, and Tarshis (2004) and Cant and Cooper (2009).

The community college where the project is taking place opened their state of the art simulation laboratory in January 2013. The laboratory consists of the most recent computer technology. The simulation setup includes an ICU, labor and delivery, emergency room, and medical-surgical unit. The equipment includes the most recent

Alaris pumps, Laerdal High Fidelity Simulation manikins, crash carts, and computer control centers. There is a diverse mix of students male and female, older and younger, Hispanic, Black, and White.

### **Ethical Protection**

I am awaiting the IRB approval from Walden University. I have received ethics certification after the successful completion of the National Institutes of Health (NIH) on February 23, 2013. This training was completed prior to initiation of the Practicum Project. Proof of completion in the form of a NIH certificate was submitted to DNP chairperson, IRB committee at Walden University, and the study facility.

To prevent the risk for exposure of personal information the course faculty has agreed to be responsible for coding the data (de-identifying) to ensure anonymity of study participants. Study data will be reported in aggregate form. The study data will be stored on a password encrypted computer and backup to a USB drive that is locked in the preceptor's file cabinet (data will not leave study area).

A variable that has been identified that will possibly compromise data collected in this project is each student will complete a demographic profile which includes age, race,

gender, educational background, nursing assistant experience, and prior classes using high-fidelity simulation (Fero, et al., 2010). The older students present a behavior of more self-confidence and more advanced critical thinking skills. Therefore, an ER simulation scenario has been developed by the program designer to be distributed to the student nurses before beginning the pretest to measure their anxiety level.

The IRB is currently working to finalize approval of the project. The IRB is also working to ensure that the question of whether the program designer will be analyzing the standard assessment data generated by the simulation classroom activities or will the program designer be asking students to complete additional assessments that serve research purposes.

### **Description of Data Collection**

The convenience sample size will be approximately 24 senior student nurses. The student nurses and I will meet at least three times during the duration of the project. An ER simulation scenario will be distributed to each student nurse to read before beginning the pretest. The simulation scenario will measure one of the variable found in simulation, and that is the anxiety level of the student nurse as evidence by ten items answered on a Likert-type scale questionnaire. A pretest will be administered to the students before the implementation of the project and also before the beginning of each session. The initial pretest will be given to establish a baseline for the knowledge level of each student's level of competency. The pretest given before each session will allow the researcher to measure the progression of the nursing student level of competency. The scenario will be provided to each student nurse to read before the pretest to measure their anxiety level.



There will be debriefing after every session and a posttest will also be administered to measure the effect of the simulation clinical on the student's level of nursing skill competency.

According to Kardong-Edgren, Adamson & Fitzgerald (2010) there is an absence of reliable and valid instruments in evaluating simulation learning outcomes. Until there is a more standardized evaluation tool that can be used; the implementation and mandated usage in all nursing programs will be inhibited.

According to Frontiero & Glynn (2012) the use of Simulation evaluation instruments aid faculty in recognizing performance issues in student nurses. These issues could be identified in patient safety and delegation of care that could be addressed during debriefing. The student nurses performance measurements will be done with a simulation evaluation instrument after participating in two-training sessions. These sessions will facilitate consistency of reliability, the administration of the testing sessions, and discussion of anticipations for student performance.

### **Data Analysis**

The researcher will use the pre and posttest design to evaluate the student nurse performance with high-fidelity simulation while measuring assessment, critical thinking, analytical, communication and the quality of patient care in the simulation setting (Moore, 2013). The *t* test and ANOVA will be used to analyze the progression of the students' level of knowledge that will be measured with a simulation evaluation instrument as evidenced by the pretest and posttest percentage scores that are given before and after each simulation clinical session.

The system that will be used to track and analyze data will be Statistical Package for the Social Science (SPSS). As the project develops there is a possibility of including other tracking and analyzing data. The ER simulation scenario that is being developed for the assessment of faculty and student will be used measured with a 10 item questionnaire using the Likert-type scale.

Budget and resources have been considered for this project. The existing faculty and faculty work hours, as well as existing simulation laboratories will be used for the project. The preexisting provisions do not substantiate budgetary concerns. Program designer will be requesting a letter of approval be provided before utilizing faculty, student nurses, simulation laboratories, and equipment. The mentor has agreed to participate voluntarily with no financial compensation in the project. Consideration has been given to budget and resources necessary to continue or replicate project.

### **Pilot**

The community college opened their simulation laboratory in January 2013. At the completion of this project, the results will be used by the college to compare with its current simulation curricula and possibly use the data to implement changes for the enhancement of the simulation clinical.

### **Summary**

As the project progresses the variables will be more evident. The Likert-type scale will be used to measure novice nurses' anxiety levels. The Creighton Simulation Evaluation Instrument (C-SEI) will be used to measure the novice nurses' ability to demonstrate competency levels in the areas of assessment, communication, critical

thinking, and technical skills. The collection of the data will be input into IBM-SPSS for results or findings of this project.

#### Section 4: Findings, Discussion, and Implications

The purpose of this project was to develop and validate a simulation scenario mimicking a clinical setting as a tool for measuring the anxiety level of the novice nurses while performing nursing skills. The second purpose to be accomplished after graduation will be to implement a pilot project to determine what effect does the validated simulation scenario within the nursing skills laboratories have on promoting evidence-based practices and enhancing the quality of care provided by novice nurses to patients. Ten local experts were asked to review the developed ER simulation scenario and complete a Likert-type scale 5 question questionnaire. The experts included preceptor, simulation instructor, hospital educator, and professional colleagues. A descriptive analysis was used to analyze the data. Post-graduation and with the assistance of the education organization, the second part of this proposal will occur with a pilot implementation.

#### **Implementation, Possible Outcome, and Evaluation**

After the development of an emergency room simulation scenario by the DNP student, 10 local experts were asked to review and provided feedback on the ER simulation scenario (Appendix A) and the ER Simulation Validation Survey (Appendix B), a 5 question survey. The validation survey was of a constructivist nature. The constructivist approach recognizes the importance of the stakeholders and builds in consistence on what needs to be improved (Billings & Halstead, 2009). A Liker-type scale was used as a validation survey tool to assess the appeal of the scenario, ease of following the scenario, the font of the scenario, and ease of reading the ER simulation

scenario. The scale ranges from 1 to 5, 1 being *strongly agree* to 5 being *strongly disagree* (Gunderman & Chan, 2013). The results from the survey tool are as follows:

<b>Total</b>	<b>Questions</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	<b>% Answered</b>
5	1	100%	0%	0%	0%	0%	100%
5	2	60%	40%	0%	0%	0%	100%
5	3	80%	20%	0%	0%	0%	100%
5	4	100%	0%	0%	0%	0%	100%
5	5	100%	0%	0%	0%	0%	100%

Feedback was given on the survey for the simulation scenario was voluntary. An example of the ER simulation scenario can be found in (Appendix A) and the ER Simulation Scenario Validation Survey can be found in (Appendix B). Additional feedback noted under comments was: “Conciseness and clarity is important especially under time constraints that often occur in simulation labs.”

The second purpose to be accomplished after graduation will be to implement a pilot project to determine what effects the validated simulation scenario have on promoting evidence-based practices and enhances quality care provided by novice nurses to patients.

The approach or method that will be used in this DNP project will be the pre and posttest design as in Tables 1 and 2.

Table 1

*Pretest Data*

Question type	Number of Questions	Number Answered	Number Correct	Percentage %
Assessment	4	?	?	?
Communication	4	?	?	?
Critical	4	?	?	?

Thinking Technical Skills	4	?	?	?
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Table 2

*Post Data*

Question type	Number of Questions	Number Answered	Number Correct	Percentage %
Assessment	4	?	?	?
Communication	4	?	?	?
Critical Thinking	4	?	?	?
Technical Skills	4	?	?	?

**Implications**

Contingent on the success of the post graduate project the results will be the ground work for the development and implementation of universal simulation measuring tools. Currently, there is no standardized simulation measuring instrument that has been accepted by the American Association of College of Nurses (AACN) or National League of Nurses (NLN). Substantiation to establish an authentic, simulation evaluation instrument for the learner's competency level continues to vary (Onello & Regan, 2013). The aggregate gap of available competent nurses and educators is growing along with the availability of space and the concern for patient safety. As the computer technology continues to advance the usage and demand for simulation will also be on the rise. The evidence-based practice data that is now being collected can be used to support the effectiveness of simulation for the future of the professional nurse.

### **Future Research**

The future research of this project will focus on continuing to critique and develop a standardized measuring instrument that can be accepted and implemented by the AACN and NLN for quality improvement in the measurement of student nurses' competency levels in the simulation clinical. Also, future studies will include conducting a study with BSN students and ADN to compare the competency levels of nursing skills. The same simulation evaluation instrument will be used to measure and compare variances.

### **Social Change**

Providing safe quality patient care which is enforced by the Joint Commission as evidence by the National Patient Safety Goals (The Joint Commission, 2014) is the number one priority in patient care. The Patient Protection and Affordable Care Act (ACA) which was passed and signed by President Obama in March 2010 with the purpose of providing most Americans with affordable quality health insurance (Quattrochi, 2013). If the rights of healthcare for the people are met for the (ACA) there will be an increase of nursing shortages as well as a demand for more qualified competent professional nurses. These challenges will call for a more aggressive approach for ensuring the training of more student nurses to be transitioned to professional nurses.

### **Project Strength and Limitation**

Due to time constraints this project could only be presented as a proposal. Providing data for dissemination, implementation and evaluation will be done after the completion of the project and when time is not as limited. Another limitation that has

been observed during the preparation of the proposal is the decreased competency level of the older instructors using computer technology. The younger instructors were called to navigate and program the desired scenarios for the older instructor. This interruption in the simulation clinical setting negates from the effective outcomes. The student nurses are distracted by the downtime. The student nurses seem to lose their focus and become engaged in personal conversations. The Executive Director recognizes the limitations and significance of the older instructors and scheduled simulation training to take place in the coming months.

### **Analysis of Self**

The procession of Masters of Nursing to Doctorate of Nursing practice has made me realize the importance of higher education. Boyer (1996) scholarship of discovery, scholarship of integration, scholarship of teaching, and scholarship of application are now fully understood. This proposal was chosen for the purpose of putting forth the effort to make a difference in the healthcare profession by attempting to assist in addressing the nursing shortage, incompetency of novice nurses, as well as continuing the continuity of safe quality patient care. These issues have reached a national and international level. In order to be placed in a position of becoming a change agent, it is necessary to be able to understand not only focal points but the system as a whole. Advanced Practice Nurses have been given the autonomy and well as the post graduate education to disseminate, implement and evaluate evidence-based practices. The progression of computer technology will allow the pioneer advance practice nurses the opportunity to make history in policy making, simulation, and the usage of computer technology.



### **Summary**

The implementation of this project on simulation clinical will require the support of all stakeholders. The growing need for healthcare in today's society has reached an epidemic level. There must be some closure in the gap of patient care and nursing shortage. Although, simulation does not take the place of traditional clinical training it does contribute to aiding in transitioning our student nurses into competent professional nurses. Simulation clinical is another source to use for the limited traditional clinical space that is available in today healthcare facilities.

## Section 5: Scholarly Product

Dissemination of findings is necessary for the implementation and evaluation of the proposal. Disseminating the findings of the research project can be done through publishing incredible healthcare journals. Today's online journals are more likely to be researched by healthcare professional than periodicals. Currently, there are online simulation journals that are being used to keep simulation instructors abreast of recent research articles and systematic reviews, teaching and developmental strategies of simulation for students and nurses, and updated guidelines, regulations and legislative policies.

The DNP student will continue the simulation project at the University with a larger population of students. The students will be given the opportunity to assess at least one of the scenarios with a questionnaire about the contents before taking a pretest prior to performing clinical skills competency check offs. This questionnaire will also be used to measure the anxiety level and confidence level of the student nurse. Through, research studies and finding it is also the intent to produce a standardized simulation evaluation instrument that is accepted by all institutions and facilities throughout the world.

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## Appendix A: Emergency Room Simulation Scenario

### **Emergency Room Simulation Scenario**

Scenario: ER Chest Pain Scenario

Target Audience: student nurses, simulation instructor, nurse educator

Goal/Purpose: Practice the care and management of a patient experiencing chest pain in ER

#### **Simulation Lab Set-up**

Patient Simulator: Hal S3000

Patient physiognomies: 50 y/o obese African American man

Vital upon admission: T 37.1 C, P 112, R 24, BP 190/88, O2 Sat 90% on RA

Environment/setting: Simulation Emergency Room Chest Pain Center

Lab staff for simulation: Instructor, simulation instructor, student nurses

Equipment supplies & prep list: IV starter kit, telemetry monitor, binasal cannula, emergency crash cart, Alaris IV pump, 12 lead EKG machine, Acute Myocardial Infarction (AMI) Core Measure Set, simulation medications and blood pressure monitor

#### **Learning Outcomes**

Learner will be able to:

1. Identify the 10 AMI Core Measure sets
2. Understand the equipment and preparation needed for patient care and management of a patient experiencing chest pain in ER
3. Identify complications that may arise in a patient with Chest Pain (CP) and apply appropriate nursing interventions
4. Apply knowledge listed above and assessment skills pertinent to an AMI in a simulation scenario

#### **Student preparation**

Prerequisite knowledge/activities:

Knowledge of cardiovascular physiology related to AMI

Knowledge of chest pain management including potential problems and interventions

Understanding of the 10 AMI Core Measures

#### **Simulation Event Data**

**Admitting Dx: Chest Pain**



HP: G.C. This is first ER visit for a 50 yo AA male presented to ER Simulation via private vehicle c/o chest pain and SOB. Patient states, “I have been having gas off and on for about a week but it has gotten worse and I’m having a hard time catching my breath.” Patient is diaphoretic, SOB and c/o chest being “tight”. Patient is obese but well groomed. T 37.1 C, P 112, R 24, BP 190/88, O2 Sat 90% on RA. Patient describes no other associated symptoms during these episodes of chest pain, including dizziness, or palpitations. Patient becomes short of breath during these episodes but describes no other exertional dyspnea, orthopnea, or paroxysmal nocturnal dyspnea.

PMH: Diagnosed with HTN and DM in 2012 has not taken medication for greater than a year.

Social History: Smoker (1 pack/day for 35 years). Patient is currently unemployed lives with mother. Drinks 1 or 2 beers/day.

### **Medication and Allergies**

Medications: Unknown

Allergies: NKDA

### **Actor Roles and Behavior Overview**

1. Patient (voice) – anxious, short of breath, uncomfortable, but downplays symptoms a little
2. Triage Nurse- receives report from EMT and begins AMI Core Measures (Aspirin, EKG, Labs)
3. ER Nurse-assigned to monitor patient
4. EDT (Emergency Dept. Tech)- transports patient to x-ray and other procedures
5. FNP or Physician-input Computerized Physician Orders Electronically (CPOE)

### **Scenario Events and Expected Actions**

#### Events in chronological order-Expected actions

1. Triage nurse- begins AMI protocol and admits patient to ER
2. Triage nurse gives report to assigned ER nurse- continues to monitor patient
3. FNP or Physician-input CPOE
4. ER nurse checks orders and implement as ordered through CPOE monitors patient continuously during ER visit

### **Post Conference**

1. What interventions was a priority?
2. Did you have the knowledge and skills to care for this patient?
3. During the scenario, at what point was communication most important?
4. What would you do differently next time?

5. What did you learn new from the ER scenario?
6. Were you anxious?

## Appendix B: Simulation Scenario Validation Tool

On a scale of 1-5 (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree), please rate the following questions regarding the ER Simulation Scenario.

1. The simulation scenario looks appealing.

1      2      3      4      5

2. The simulation scenario is easy to follow.

1      2      3      4      5

3. The simulation scenario is easy to read.

1      2      3      4      5

4. The color scheme of the simulation scenario is appealing.

1      2      3      4      5

5. The font large enough to read.

1      2      3      4      5

## Appendix C: Acute Myocardial Infarction Core Measure Set

**Acute Myocardial Infarction Core Measure Set**

<b>Set Measure ID#</b>	<b>Measure Short Name</b>
<b>AMI-1</b>	Aspirin at arrival
<b>AMI-2</b>	Aspirin prescribed at discharge
<b>AMI-3</b>	ACEI or ARB for LVSD
<b>AMI-4</b>	Adult Smoking Cessation Advice/Counseling
<b>AMI-5</b>	Beta-Blocker prescribed at discharge
<b>AMI-7</b>	Median time to fibrinolysis
<b>AMI-7a</b>	Fibrinolytic therapy received within 30 minutes of hospital arrival
<b>AMI-8</b>	Median time to primary PCI
<b>AMI-8a</b>	Primary PCI received within 90 minutes of hospital arrival
<b>AMI-9</b>	Inpatient mortality
<b>AMI-10</b>	Statin prescribed at discharge

(The Joint Commission, 2001).

## Appendix D: ER Simulation Scenario Validation Survey

**ER Simulation Scenario Survey****1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
After reading the scenario I feel a sense of anxiety					
The ER scenario was in sequential order which reduced my anxiety					
The content was easy to read which reduced my anxiety					
The content easy to understand which reduced my anxiety					
The scenario was clear and concise which reduced my anxiety					
Seeing this scenario being used in the future will increase my anxiety					
Seeing this scenario as a real situation in the ER causes anxiety					
Following the AMI core measurement set caused increased anxiety					
I would make changes to the scenario to decrease anxiety					
I feel comfortable with using the ER scenario in a simulation setting?					

Comments:
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## Curriculum Vitae

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**Education:**

<u>Dates</u>	<u>Institution</u>	<u>Degree</u>
2012-Present	Walden University Minnesota, MN	DNP Pending
2009-2011	Walden University	MSN-EDU
2003-2005	Union University Germantown, TN	BSN
1987-1989	Shelby State Comm. Coll. Memphis, TN	AAS

**Licensure, Credentialing or Certification:**

Tennessee RN License #83729  
 BLS/ACLS Certified Expires 08/2015

**Honors, Scholarships and Special Recognition:**

Sigma Theta Tau International Nursing Honor Society, Phi Nu Chapter

**Professional Experience:**

<u>Dates</u>	<u>Institution</u>	<u>Position</u>
August 2012-Present	University of Arkansas Fort Smith, AR	Instructor
April 2011-2012	Tennessee Technology Memphis, TN	Instructor
May 2005-Oct 2011	Methodist University Memphis, TN	Clinical Educator
April 2003-May 2005 Nurse	Baptist Memorial Hospital Memphis, TN	Weekender Charge
Dec. 2000-April 2003	Regional Medical Center Memphis, TN	Staff Nurse
April 1999-May 2000	Veterans Administration	Staff Nurse

September 1991-Present	Memphis, TN Nurse Finders	Traveling Nurse
May 1990-June 1991 Nurse	Memphis, TN Baptist Memorial Hospital	Weekender Staff

**Professional Membership:**

American Nurses Association (ANA)-Present  
Tennessee Nurse Association (TNA)-Present

**Professional Activities:**

Admission & Advising –Committee Member  
Curriculum-Committee Member  
Student Nurse Association-Faculty Adviser

**Community Activities:**

Chairperson of United Methodist Women-District Level  
Chairperson of Women’s Church Group  
Chairperson of Church Trustees