

**EFFECTS OF SIMULATION IN AN
ASSOCIATE DEGREE NURSING PROGRAM**

by

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Abstract

In 2014, an Associate Degree Nursing (ADN) program in Texas displayed an interest in implementing a teaching method conducive to improve students' critical thinking ability and increase their confidence level in providing quality patient care. The project question was, "In Associate Degree Nursing (ADN) students with a low level of confidence and inadequate critical thinking skills, how effective is simulation compared to case study scenario activities in assisting students to develop the confidence and critical thinking skills necessary to make effective clinical decisions?" The purpose sought to compare and evaluate the effectiveness of simulation versus the traditional classroom lecture. The project's aims were to develop a teaching method that will increase the students' confidence and critical thinking skills necessary to provide care to patients. This project involved 20 first-year Associate Degree Nursing students at a community college in Texas. The quasi-experimental design incorporated the Jeffries (2005) theory of designing, implementing, and evaluating simulation in a nursing program. Participants were measured on the results of lectures on two medical-surgical topics, one concluding with a case study scenario and one with a simulation activity. A Likert scale survey was used to evaluate the case study and simulation activity. Project outcomes supported the use of simulation as a successful teaching strategy and demonstrated how simulation boosts student confidence and critical thinking, enabling better preparation for patient care.

Keywords: Case study, Simulation, Critical Thinking, Confidence.

Dedication

I dedicate my project to my family, with special gratitude to my loving parents, Jimmy and Betty Green. Your continued words of encouragement gave me the push I needed to move forward in completing this program and project. My sisters Pedra Walker, Starla Green, Roshel Reed, Kamby Brown, and brother Selwyn Green were there for me throughout my journey in this program. Their love and support is very much appreciated. To my daughters Yoshika Walker and Katorra Bright, thank you for being there for me. Both of you are my jewels and your presence in my life gave me the desire I needed to persevere and excel in my profession.

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CHAPTER 1. INTRODUCTION

In a healthcare setting, the role of a professional nurse involves caring for patients with different types of health care problems. Each situation requires critical thinking and confidence to make the decisions necessary to provide the best nursing care. The objectives and goals of nursing students require critical thinking (Ravert, 2008). Being a good critical thinker and making sound clinical judgments means organizing and analyzing information to make valid clinical decisions that ultimately contribute to quality patient care. Educators incorporate critical thinking throughout nursing programs to assist students in developing the knowledge, confidence, and critical thinking needed to make effective clinical decisions. In the nursing profession, practitioners are responsible for making effective clinical decisions and displaying good judgment when providing care to patients. In a health care facility, the inability to make effective decisions can contribute to negative patient outcomes. In order to develop the required skills, nursing students need clinical experiences that enhance the learning outcomes within the curriculum (Nielsen, Noone, Voss, & Matthews, 2013). Clinical affiliates rightly expect nursing students to be educated on the skills and knowledge needed before they encounter patients. Traditional classroom lectures do not provide a level of learning that is essential for clinical placement (Brannan, White, & Bezanson, 2008). In order to prepare the current nursing students for the workforce and comply with the expectations of the clinical affiliates, a teaching method is warranted. This Doctoral of Nursing Practice (DNP) project was developed to compare and evaluate a teaching strategy based on results from a case study scenario and simulation activity. To differentiate the meaning of case study and simulation, *Mosby Medical Dictionary* (“Case study,” n.d.) defines case study as a detailed analysis of a person or group with a disease or condition identifying the characteristics of the disease or condition. Carver and Marshall (2010)

noted simulation contributes to reinforcement and encourages critical thinking allowing for hands-on management of patient problems. The project set out to evaluate learning levels of the nursing students' depicting confidence and critical thinking ability in their clinical decision making.

Nature of the Capstone Project

Room for improvement was discovered in a nursing program at a community college in the Southern United States (US) sector. During a training session on nursing skills in preparing the students for clinicals, the nursing students were unable to establish a plan of care when a medical-surgical scenario was presented. For example, during the training, students demonstrated an “unsure” stance of how to treat and provide care for the patient. Critical thinking and confidence is an important component when establishing a plan of care. Challenges can arise when nursing students are not able to demonstrate confidence and the ability to think critically while making patient care decisions. Critical thinking is emphasized in the nursing guidelines throughout the United States (Ravert, 2008). During the time of training, a process was not in place to properly prepare and evaluate the students. The current form of teaching and evaluation included lecture and standardized testing provided by the faculty.

Description of the Problem, Environment, and Target Population

The nursing faculty identified a problem within the nursing program of students not demonstrating confidence and critical thinking when making clinical decisions. The faculty agreed that an implementation of an interactive method would benefit the program in addition to enhancing their teaching strategy. As a Doctoral student, the nature of this concern created an opportunity to develop a method to implement within the School of Nursing. The PICO question determined for the project was: “In Associate Degree Nursing (ADN) students with a low level

of confidence and inadequate critical thinking skills, how effective is simulation compared to case study scenario activities in assisting students to develop the confidence and critical thinking skills necessary to make effective clinical decisions?” The proposal was presented and accepted by the leadership administrative team. Further discussion was held and a decision was made to integrate into the nursing curriculum pending successful outcomes. As Romeo (2010) noted, nurse educators recognize that critical thinking is the foundation of any nursing program. The participants were first-year nursing students enrolled in a medical-surgical nursing course. The nursing program is located at a not-for-profit community college in Texas. The physical location is a rural area close to the downtown sector, which makes it easier for students to commute if they do not have personal transportation. The institution as a whole enrolls approximately 8,000 students annually. The nursing program alone admits up to 40 students every fall semester. The activity was conducted in a designated area in the nursing skills lab so that learners could make, detect, and correct patient care errors without detrimental consequences. Jeffries (2005) noted, the simulation imitate the clinical environment, facilitate decision making, and encourage critical thinking.

The nursing program where the project was held, does not currently have a formal process in place to evaluate the confidence level and critical thinking ability of the nursing students. This project was attractive to the nursing department and helpful in assisting nursing students to obtain the skills and knowledge needed to make sound clinical decisions. The participants consisted of 20 students, 90% female and 10% male of whom consented to take part in the project. The students were first year nursing students without prior clinical experience. The majority of the students lack health care experience.

Purpose of the Capstone Project

The primary purpose of this project was to evaluate the effects of simulation in an Associate Degree Nursing Program. The project set to test a simulation teaching method for effectiveness in improving critical thinking skills and increasing the student confidence level in clinical decision making.

Significance of the Capstone Project

In a clinical setting, not being able to make effective decisions can contribute to negative patient outcomes. Clinical affiliates expect nursing students to be educated on the skills and knowledge needed before they engage in patient encounters. When basic skills are deficient, safety and quality patient care can be deficient (Bloomfield, Roberts, & White, 2010). According to Hoffman (2008), students are provided an opportunity to discuss realistic situations to stimulate their critical thinking through case studies. It is evident that nursing education has evolved and it is essential to provide a level of learning that is relevant to students in the 21st century. Modern nursing programs face many challenges, including increasing demands for safety and quality, evolving technology, nursing shortages, and changes in the delivery of care. The enthusiasm for a higher standard of learning reflects the need to ensure that nursing students are able to provide safe and competent patient care. Learners' can master critical thinking skills with simulation (Farrar & Suggs, 2010). The project results has the potential to help shape the nursing program's curriculum and instruction methods for improving critical thinking skills in nursing students. The significance of the work reflected in the students' increased levels of confidence and improved critical thinking ability upon completion of the project.

Definition of Relevant Terms

The relevant descriptors for this initiative is utilized and defined in detail throughout this document. The terms not commonly known to the reviewer or colleague include simulation, case study, self-confidence, and critical thinking.

Case study is a method for answering questions about how individuals respond to treatment or react to health conditions.

Critical thinking entail the ability to apply reasoning and logic to unfamiliar ideas and situations.

Self-confidence occur when the student gain a greater awareness and improvement of one's own abilities.

Simulation involves acting out a real life situation using electronic, computer based mannequins.

As indicated throughout this project, self-confidence and critical thinking are important entities contributing to the students' level of learning. A characteristic of self-confidence is the personal belief that one can achieve an outcome in a certain situation (White, 2009). According to Kaddoura (2010), critical thinking skills contribute to the knowledge and evidence that is essential to the nursing profession.

Assumptions

The results from the project will determine the effectiveness of case study and simulation teaching methods. The results will also indicate which method is effective to utilize throughout the program. The implementation of this project may enhance student learning with an interactive teaching modality. This method will strengthen and enhance the nursing faculty

teaching strategy in the classroom. High-fidelity simulation contributes to active learning and poses nurse educators the opportunity to teach utilizing significant teaching methods (Hawkins, Todd, & Manz, 2008). By initiating and implementing the project will lead the college of nursing to be recognized within the college. Adding this initiative into the program can lead to improved NCLEX-RN pass rates, positive student report of outcomes and continued growth of the program.

Limitations

This project included a number of limitations. The sample size was small and may not have been large enough to detect a significant difference between the results of the two activities. A larger sample size may have produced more of a definitive difference. Second, each activity took place in a single setting which limited the amount of time for each activity to occur. Future assessments of each activity should be investigated to determine the amount of time needed to teach the students. Lastly, the activities were limited to a controlled environment in a designated classroom and nursing skills lab. Further evaluation is warranted to investigate simulation use, confidence level and critical thinking ability of nursing students.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Literature Review

A review of relevant research provided substantial support to this project and provided an approach to the problem of how to best educate nursing students and observe their competency in demonstrating nursing skills. The search and review of literature involved use of the electronic databases CINAHL, ProQuest, and Ebscohost. The literature review included articles that were peer reviewed and published from January 2004 to December 2014. The information and articles reviewed related to nursing skills, student confidence, clinical decision making, and the use of simulation with human patient simulators (HPS), including high-fidelity mannequins. Exclusions included studies assessing the competence levels of graduate nurses. Studies have shown simulation as an effective method to educate and instruct students and it is becoming more common as a teaching strategy in health care practice (Harder, 2010). Simulation allows the student to obtain the skills needed to practice in a real-life setting without the real-life risks (Goodstone et al., 2013).

There is further research needed to support case study scenarios as an effective teaching tool. Lunney (2008) found that teaching and educating new nurses, case studies are not the best approach to teaching and train new nurses. The articles reviewed are not conclusive, but were from professional authors who studied critical thinking skills and simulation strategies. The information included in the evidence review of each article indicates that simulation is an effective method for student learning and that further research on the use of case studies to aid in learning is warranted. The review of literature displayed five categories including (a) effects of simulation on clinical judgment and critical thinking, (b) the use of high-fidelity simulation as a

teaching method, (c) student satisfaction and confidence level when utilizing high-fidelity simulation, (d) theoretical framework in simulation, and (e) case studies.

Dillard, Sideras, and Ryan (2009) described faculty development utilizing the Lasater Clinical Judgment rubric when evaluating students' clinical judgment skills during a simulation activity. Quantitative and qualitative data were collected from faculty and student evaluations. The findings supported the importance of simulation in clinical judgment. The research further indicated a need to incorporate this method of instruction into the course and demonstrated that high-fidelity simulation could engage students in the learning process. Nursing education programs are implementing innovative teaching modalities to assist students in comprehending the material and acquiring the knowledge needed to make clinical decisions. Lasater (2007b) formulated a qualitative study in first-term nursing students using high-fidelity simulation. The purpose was to examine its effects on the development of clinical judgment in students. The findings identified simulation as an integrator of learning that brought together theoretical bases and learned skills, allowing students to think critically and make decisions. Although the study sample was small and indicated positive outcomes, additional research to examine the effects of simulation on clinical judgment would be useful.

In nursing, it is imperative to exercise critical thinking when making clinical decisions and providing care to patients. A desired outcome of any nursing program is to produce graduates who are confident in a clinical setting and who can demonstrate critical thinking skills (Goodstone et al., 2013). Goodstone et al. (2013) explored the critical thinking of students receiving instruction using high-fidelity patient simulation versus low-fidelity simulation. The quasi-experimental study included a sample of first-semester Associate Degree Nursing students. One group in the study undertook patient simulation activities and the other group received case

studies. Both groups took tests before and after their respective activities. The results indicated an increase in critical thinking skills within both groups and there was no statistical difference between high-fidelity patient simulation and case study groups. The results of this study further suggest that each activity increased the students' critical thinking levels.

High-fidelity simulation is known to engage students in an environment that promotes learning. Guhde (2011) conducted a comparative study measuring the effectiveness of learning in a simple versus a complex simulation scenario. The study evaluated critical thinking and satisfaction with the teaching method. The results did not indicate a significant difference between the simple and complex scenarios. The students commented that each activity can be undertaken within the level of instruction and can assist in learning the different aspects of nursing. The study was based on the Jeffries (2005) model and included the simulation design. Data was collected from students ($N = 134$) in a medical-surgical course. The results support the need for more research on whether different levels of assignment are appropriate for different levels of learning.

Simulation continues to create a positive learning environment for nursing students. This method mimics a clinical setting by providing a hands-on, controlled environment. Weaver (2011) conducted an integrative review of studies published since 1998 on the use of high-fidelity simulation in nursing education. The review suggested that benefits to nursing students included knowledge, value, realism, and learner satisfaction. Findings further indicated mixed results in areas of student confidence, knowledge transfer, and stress.

Simulation provides opportunities to practice and apply skills in a safe and controlled environment. Hawkins, Todd, and Manz (2008) incorporated high-fidelity simulation in the program to enhance learning. This teaching strategy encompassed skills and care management

concepts. The beginning levels were less complex, becoming more advanced as students progressed through the program. The faculty guided the students through this process and provided opportunities for reflection. The method also offered a guide for developing and implementing simulated learning experiences and teaching strategies. Benefits included an increased comfort level for faculty and students.

Research is emerging to support the use of high-fidelity simulation as a teaching strategy in nursing (Smith & Roehrs, 2009). A descriptive study by Smith and Roehrs (2009) using the Jeffries theoretical framework examined the effects of simulation on student satisfaction and self-confidence. The sample consisted of junior students in a traditional nursing program enrolled in their first medical-surgical course. The results found more than a 40% variance in student satisfaction and self-confidence relating to the students' perceptions. Further research is warranted for performance and critical thinking. It is clear that faculty rely on the traditional method of teaching through lecture and that students are sometimes anxious and unprepared when encountering patients in a clinical setting. Brannan et al., (2008) conducted a study comparing the effectiveness of two instructional methods, including the human patient simulator method and a traditional classroom lecture. The results indicated that simulation made a positive difference in the students' testing and cognitive skills. A quasi-experimental pretest and posttest design was used. The sample included 107 nursing students in a medical-surgical nursing course. The results showed no significant difference in confidence levels between the two methods. It was further expressed that students' confidence levels rise after any teaching method. This study reveals that actively engaging students in decision making may be more useful for student learning.

Educators must find innovative ways to teach nursing students the clinical skills they require to function in the real world as professional nurses. Immersing students in lecture content while limiting clinical experience does not adequately prepare nurses for the complexities of the workplace (Jeffries, 2005). The theoretical framework used in this project was the Jeffries simulation model for designing, implementing, and evaluating simulation experiences in nursing education. The framework is comprised of five components with descriptors to guide the project and concludes with proposed outcomes based on teacher and student interactions, defined and expected best practices, and the carrying out of interventions. Studies show that simulation activities tend to increase students' confidence in their critical thinking and problem-solving abilities (Jeffries, 2005).

A continuing challenge is how to be creative in developing the best methods of educating nursing students and enhancing classroom instruction. Some believe that engaging in active learning is too much to ask in a classroom setting (Day, 2011). Due to the large amount of content that must be covered in a class, faculty can fail to adequately prepare students for the clinical experience. For years, case studies have supported student/teacher engagement and problem solving. Discussions allow students to delve deeper into the problem, enabling them to think critically about the disease process and prepare a plan of care based on the specific scenario. Insufficient evidence has been found to support the outcomes of classroom instruction utilizing case studies in the classroom (Day, 2011).

Summary

The Jeffries (2005) framework on simulation guided this project. Led by best practice and illustrated by reviews of literature, the simulation experience provided an evidence-based framework for the student nurse with regard to the delivery of patient care. Waxman (2010)

found that high-fidelity simulation presents genuine and interactive scenarios providing an avenue to instruct and teach learners' the skills and knowledge needed contributing to critical thinking. A survey evaluated the simulation and case study experiences and assessed the participants' performance, skills, and experience.

Numerous studies have been conducted in the use of simulation or human patient simulators. The results of these studies compared the effectiveness of simulation versus the traditional classroom lecture on a disease process. Studies shown the students were more engaged by simulation than by traditional classroom lectures (Brannan, White, & Bezanson, 2008; Cant & Cooper, 2010). High-fidelity simulation was shown to be effective in teaching, clinical decision making, and student learning (Lasater, 2007b).

Theoretical Framework

Nursing theory is an important contribution to the nursing profession. Establishing a theory to guide clinical practice is essential to facilitate reflection, questioning, and thinking. The introduction of any framework that encourages nurses to reflect, question, and think provides an invaluable service. As professionals, nurses pride themselves on providing the best possible care to patients. One method of ensuring the best possible care delivery is to base the care on a developed nursing theory. Albert Bandura's Self-Efficacy Theory was instrumental in this project. Zulkosky (2009) noted, although the person has conquered specific skills, self-efficacy is encountered when the person has a belief to complete the skills. With this theory, it is believed that an individual has the power to produce an effect after completing a task that was given. Self-efficacy motivates individuals to carry out actions that are desired to achieve an anticipated outcome (Chen et al., 2010). Utilizing this theory assisted individuals to set short range, attainable goals. If they have high self-efficacy, they will persevere and succeed. According to

Gore (2006) and Ferla et al. (2009), self-efficacy impacts a student's ability to embrace more demanding tasks that contribute to achieving the desired goal in spite of the opposition that is faced. For this project, ADN students will be given a task based on a case study scenario and simulation activity. The desired effect will indicate an increased confidence level and critical thinking ability to make effective clinical decisions. Before embarking on the tasks, Jeffries (2005) framework was utilized. It is expected that one can master the task and produce a positive outcome. The framework was a key to success as it allowed the students to be active participants and given the tools needed when making effective decisions in caring for patients. In observing the simulation activity, self-efficacy was viewed as the student's judgment of his or her capability to organize and perform the activity required to attain the correct performance. Cheraghi et al. (2009) postulated that a measure of self-efficacy can be used to measure the competencies of nursing students leading to a positive impact on educating future nurses. This theory allows problem-solving beginning with assessment, planning, and implementing nursing interventions directed toward evaluation of the effectiveness of the interventions.

As mentioned previously, this project employed the Jeffries (2005) framework for designing, implementing, and evaluating nursing education programs. This framework design on simulations for nursing education has been tested through research to guide practice. The framework includes (a) developing the blueprint, (b) procuring the bill of materials, (c) assembling the structure, and (d) finishing the project. (Jeffries, 2005)

Following these guidelines, a blueprint was designed, and materials gathered to carry out the activity. The level of the simulation activity determined the selection of materials. After the materials were selected, the next step was to assemble the structure. Prior to the simulation activity, the designated room and equipment were checked in order to ensure an optimal

experience. Prion (2008) postulated, simulation is not effective when proper planning, equipment, and instructions are not utilized. The faculty and student roles were identified and simulation planning was finalized. The last step entailed debriefing the students to discuss their experiences and identify areas for improvement. According to Jeffries (2005), appropriate simulation design and organization will contribute to successful student learning. The framework encourages problem solving through the use of assessment, planning, and implementation of nursing interventions followed by an evaluation of the effectiveness of the interventions.

The five major components of the simulation structure with descriptors included (a) teacher, (b) student, (c) best practices, (d) design characteristics, and (e) outcomes (Jeffries, 2005). The task concluded with proposed outcomes based on teacher and student interactions, defined and expected best practices, and implementation of the interventions. Based on the Jeffries framework, simulation creates an innovative opportunity for student learning. To assist new nursing students in providing quality care to patients, linking theory to practice is essential (Morgan, 2006). Carrying out both activities allowed each participant to evaluate the outcomes and the clinical decisions that were made. The participants attended a lecture on a disease process followed by a question and answer session. The simulation activity contributed to the learning experience and provided faculty an opportunity to bolster the students' learning by identifying areas for growth. Lasater (2007a) postulated that innovations in high-fidelity simulation display a promising opportunity for individuals to acquire the skills needed in clinical decision making. Following a theoretical framework was a key to success as it allowed the students to be active participants and to receive the tools needed to make effective decisions.

According to Mowat and Laschinger (1994), human beings with a high level of self-efficacy have the following characteristics: firm belief that they are capable of performing a task

(confidence), ability to carry out the task (capability), ability to be successful at the task over time (persistence), and the ability to perform in stressful situations (strength). Upon completion of this project, a relationship between self-efficacy and the performance of nursing students was determined. Gaining a better understanding of how self-efficacy relates to student learning initiated positive changes to the nursing curricula that would have an impact on nursing education. High-fidelity simulation presents the opportunity for the participants to make incorrect choices or decisions in the delivery of care.

CHAPTER 3. CAPSTONE PROJECT DESIGN

Project Design and Description

The project entailed a quasi-experimental design. The quasi-experimental design is known as the gold standard for evidence-based practice, offering evidence to support the validity of the project. A convenience sample ($n = 20$) of first year nursing students enrolled in a medical-surgical nursing course participated in the project. Observation and survey questions provided results that could be measured quantitatively. The design aligns with the assumption of determining a teaching method to increase student confidence and critical thinking ability. Inclusion and exclusion criteria were identified. Inclusion criteria included first year nursing students enrolled in a medical-surgical nursing course and no prior healthcare or simulation experience. Exclusion criteria included previous healthcare and simulation experience and graduate nursing students. The uniqueness of this design stems from the clinical question that was clearly identified before initiating the project. This particular design complements a smaller group of participants and does not require a control and treatment group. Meetings were held throughout project development and implementation in a designated classroom at the project site.

Capstone Project Intervention

The project was presented to the site Institutional Review Board (IRB) at the community college as well as to Capella University prior to meeting with the participants and implementation. The project adhered to the IRB guidelines of both institutions. An announcement of the project from the faculty to the students were addressed. The students were asked if interested in volunteering, to attend the information session that will explain the project in detail. Stipulations including first year nursing students enrolled in a medical-surgical nursing course as well as no previous health care experience were addressed as a preliminary to the

information session. During the information session, the project was introduced to 32 first-year nursing students. The students had the opportunity to participate in a question and answer session to discuss any concerns and gain an understanding of the project. They were informed that the participation was voluntary and they may withdraw without penalty. Students received an informed consent form to review and sign. Twenty students volunteered to participate. The project manager collected the signed consent forms and locked them up in a secure area. Students were told that the project would include two activities: a lecture with a case study scenario and a lecture with a simulation activity.

The participants were informed that they will complete the case study and simulation activity. Students were informed that the disease topic would not be revealed until the day of the activity. The intent was to be able to evaluate each activity thoroughly. The results would then indicate if participants attained the knowledge needed to enhance their critical thinking and confidence.

Weekly meetings on project development and implementation were held, during which key stakeholders discussed ideas and gathered feedback. The key stakeholders were an important component, bringing a diverse base of knowledge, experience, and expertise from a clinical, administrative, and educational standpoint. Their expertise were essential in the development, progression, and success of the project. In keeping with the approval process of the Doctor of Nursing Practice (DNP) progression committee and the site Institutional Review Board (IRB) committee, the faculty and staff were educated on the development and implementation process of the project. Jeffries (2005) framework for designing, implementing, and evaluating simulation in nursing education guided the effort. Identified project team members who contributed to the success of this project included:

Project Manager

The project manager supervises and coordinates the project. The role included collaborating and organizing meetings with the stakeholders to make sure the project progressed successfully. Part of the role entailed developing and implementing the tools utilized throughout the project.

Preceptor/Executive Dean

The preceptor was one of the key stakeholders who focused on the goal of student success. The preceptor is the mentor and liaison to the project manager. The preceptor fully supported this project and has also contributed ideas and constructive feedback. Weekly meetings were conducted with the project manager to discuss the progression of the project.

Curriculum Specialist

The curriculum specialist was a stakeholder whose goal was to make sure the teaching method to be implemented was developed effectively so that it could be integrated into the nursing program curriculum. Responsibilities included reviewing the current nursing curriculum and assisting in determining a method to incorporate throughout the nursing program.

Lab/Simulation Specialist

The lab/simulation specialist was a stakeholder whose responsibility was to make sure the simulation scenario was effectively delivered to the participants. Proper lighting of the environment, adequate supplies, and making sure the simulation equipment was properly set was an important responsibility to enhance the student learning experience. The role also consisted of reviewing the simulation scenario with the project manager and helping to select the best scenario for the project.

Faculty

Faculty members were stakeholders who contributed to the overall development and implementation of the project. The role consisted of reviewing and revising the curriculum, assisting with selection of the case study and simulation scenario, and aiding in the simulation activity.

Prior to project implementation, faculty met with the project team weekly to develop and create a case study and simulation scenario for the project. They decided to create a simple scenario on a disease process introduced in the first medical-surgical nursing course. The topics were not to include an illness based on critical care issues. The criteria selected was based on the fact that participants were first-year nursing students with minimal exposure to patient care modalities and in the introductory segment of disease processes in an adult health course. Starkweather & Kardong-Edgren (2008) noted new nursing students display an initiative to obtain the clinical skills, but more training is needed to acquire skills in providing care and collaborating with the healthcare team. The faculty and project team selected diabetes and angina pectoris as the disease topics to utilize in the project. The team further determined to utilize diabetes for the case study activity and angina pectoris for simulation. The activities were conducted over two days. All participants were to participate in both activities. The first day consisted of the lecture and case study activity on diabetes and the second day consisted of a lecture and simulation activity on angina pectoris. Applying the Jeffries theory of simulation added to each experience. A description of the case study and simulation activity are as follows:

Case Study

The first day of project implementation consisted of the case study activity. The participants attended the case study activity and were introduced to the disease topic of diabetes.

The lecturer presented the topic via PowerPoint, illustrating the desired objectives. The pathophysiology, clinical manifestations, treatment, nursing interventions, and care of diabetes were presented and discussed in order for the participants to understand the concept and treatment of the disease. After the lecture, students participated in a case study scenario with discussion and questions. They were given sufficient time to read the scenario and answer the diabetes-related questions. The purpose of this activity was to test the participants' knowledge, critical thinking skills, and confidence levels. The intent was to determine if the students had gained a level of confidence and understanding and were able to apply the knowledge when interacting with and providing care to patients. A discussion and question/answer session followed.

Simulation Activity

The simulation activity was conducted on the second day of the project implementation. The participants attended the activity and was introduced to the disease topic angina pectoris. Prior to coming into the lecture, participants did not have knowledge of the disease process to be presented. The lecturer presented the topic via PowerPoint. The objectives of the topic were defined. The lecture addressed pathophysiology, clinical manifestations, treatment, nursing interventions, and nursing care. After the lecture, the class held a question/answer session. Students received a simulation packet that included patient information, care plan, physician orders, lab values, and medications. The students were given directions to proceed with the activity and divided into four groups of five. Within each group, there were different roles: a documentation nurse, charge nurse, medication nurse, extra nurse, and a family member. Each session lasted 15 to 20 minutes. The project team remained on the outside, observing the activity and controlling the simulation. The controller introduced different cues, prompting the patient to

display a status ranging from normal to declining. For example, the simulation mannequin will present with a normal status of blood pressure, breathing, and heart rate. The controller will then cue a declining status with a high blood pressure, difficulty breathing and increased heart rate. Based on the cues, the participant should intervene with a treatment measure reflecting the mannequin's declining status. Based on the patient information and orders, the participants intervened to make clinical decisions and provide care. If a cue was overlooked, the controller alerted the participant, allowing the individual to intervene and provide a corrective measure of care to the patient. After the activity, a debriefing session was held to discuss the experience and possible improvements. Debriefing is essential in simulation in that it permits students to reflect on their experiences and incorporate the interactive learning from the simulation activity (Lasater, 2007b). When the activities had concluded, the participants completed a survey on each activity and expressed their thoughts and comments.

Assessment Tools

The review of literature on learning through simulation bolstered the body of evidence supporting simulation as a more effective teaching tool than learning through case study scenarios. The project involved repetitive performance of skills in a focused domain. The skills were practiced in a controlled environment where learners were able to make, detect, and correct patient care errors without negative consequences. Simulation provide students the opportunity to act out real-life situations and make clinical decisions based on different critical circumstances (Guhde, 2011). Case study activities and scenarios with simulation were carried out and analyzed to determine which method was more effective. The assessments were comprised of observations from the discussion during the question/answer session at the end of each lecture. Participants

were also evaluated on their skills, confidence, and critical thinking ability during the simulation activity.

A brief 17-item survey was created and administered at the conclusion of both activities. The project manager and participating nursing faculty reviewed the surveys. The survey of the case study and simulation activity included a 15-item questionnaire on each experience, with two additional questions evaluating confidence levels before and after each activity. The 15-item questionnaire used a five-point Likert scale ranging from one to five, with one indicating “*strongly disagree*,” and five meaning “*strongly agree*” (see Appendices C and D). The last two questions on each survey involved rating confidence levels from one to five before and after each activity. One indicated a low level of confidence and five represented a very high confidence level (see Appendix B).

CHAPTER 4. ANALYSIS OF CAPSTONE PROJECT IMPACT

Project Results

The participants had the opportunity to practice and develop their skills in a safe environment. The case study and simulation activity included a question/answer and debriefing session for participants to discuss and reflect on the decisions made during each experience. Dreifuerst (2009) postulated that debriefing supports a theoretical framework that encounters a problematic student learning experience. Due to the simplicity of the project and data, a statistical program to evaluate the results were not utilized. A 17 item survey consisting of a five-point Likert-scale was utilized. The survey results of the activities confirmed that the project was effective. Simulation was found to increase the participants' confidence levels and critical thinking ability. In their comments on each activity, simulation was mentioned as a positive learning experience. Lab activities that entail simulation enhance the students' proficiency to grasp difficult content (Brannan, White, & Bezanson, 2008). The participants had the opportunity to practice and develop their skills in a safe environment. Utilizing simulation as a teaching method contributes to student learning (Shepherd, McCunnis, Brown, & Hair, 2010). The results of the project was determined from the participants' responses from the survey. Five participants provided feedback regarding the project experience. Mostly positive in nature. For example, "Simulation opened my mind and made me think critically", "I feel these exercises will improve my critical thinking skills as well as [make me] be a better communicator with my peers", "It helps me understand the whole picture", "Points out key factors that are important in quick decision making", and "We should do more practice simulations." The following depicts the survey results from the lecture/case study and lecture/simulation activity.

Survey Results after Lecture/Case Study Activity

Twenty first-year ADN students participated in the project. Prior to progressing into the medical-surgical nursing course, Introduction to Nursing and Nursing Skills I courses were completed. There were three male participants and 17 female participants ($N = 17$). After the lecture and case study activity, all participants ($N = 20$) responded to a 15-question survey and an additional two questions measuring their confidence levels and critical thinking ability before and after the activity. Seventeen (80%) of the participants indicated that their confidence levels and critical thinking ability were lower before the case study and four participants (20%) said that they had a higher confidence level before the activity. Sixty percent responded that they had a lower level of confidence and critical thinking ability after the activity. Forty percent rated their confidence level and critical thinking ability as being higher after the activity (see Appendix B).

Survey Results after Lecture/Simulation Activity

Twenty first-year ADN students participated in the project. There were three male participants and 17 female participants ($N = 17$). The 20 participants had no prior experience in simulation ($N = 20$). After the simulation experience, all participants ($N = 20$) rated their confidence levels before and after the simulation experience. Forty percent reported very high confidence and the ability to utilize critical thinking before the simulation activity. Thirty percent rated their confidence and critical thinking ability as low before the simulation activity. Almost all of the participants ($N = 19$ or 95%) rated themselves as having a high level of confidence and critical thinking ability after the simulation activity. Only one participant ($N = 1$ or 5%) responded with a rating of three on a scale of one to five, with five representing very high confidence and one indicating low confidence, after the simulation activity (see Appendix C).

Summary of Results

This chapter defines the population, sample, and setting. The variables examined and analyzed were student confidence levels and critical thinking ability before and after a lecture/case study and lecture/simulation activity. A quasi-experimental design was utilized with a small sample of first-year ADN students enrolled in a medical-surgical nursing course. Students displayed higher levels of confidence and critical thinking ability in the simulation activity (see Appendix B). The majority of participants expressed a higher level of confidence and critical thinking ability after the simulation activity ($N = 19$) as opposed to the case study activity ($N = 8$). The results of the project aligned with the chosen theory illustrating the participants producing a positive outcome when given a task. This project added to the extensive literature supporting simulation as an effective teaching tool to increase student confidence and critical thinking in clinical decision making.

CHAPTER 5. IMPLICATIONS AND CONCLUSIONS

Implications for Practice

Nursing students must be prepared for the workforce to ensure safe and efficient practice. Simulation is aimed to provide a life-like learning experience to assist students in utilizing the knowledge and skills in a clinical setting (Kirkman, 2013). Nursing educators must find innovative ways to teach nursing students real-world clinical practice in a productive and effective manner. Alfes (2011) found simulation to be a solution to the task of integrating interactive teaching methods. The traditional method of case studies and lecture are inadequate in training students for the complexities of the workforce. Simulation has been found to provide a level of learning conducive to assist students in utilizing critical thinking and clinical judgment skills (Wane & Lotz, 2013). Incorporating simulation into the curriculum is an approach that prepares student nurses for safe and efficient practice. The use of simulation has grown rapidly in nursing education. Additionally, literature supports simulation as an effective method in educating nursing students.

Summary of Outcomes as Related to Evidence-Based Practice

The problem as identified and addressed was in keeping with the overall goal of promoting student confidence and critical thinking ability when making efficient clinical decisions. The effects of the simulation project demonstrated similar findings as displayed in the literature review. The faculty and key stakeholders were receptive of the project to strengthen the nursing program leading to positive student outcomes. Obtaining the evidence through a review of literature was essential to establish the effectiveness of the method being implemented. According to Melnyk and Finecut-Overholt (2010), evidence-based practice and clinical decision

making rely on the resources available to the clinician in order to implement an effective treatment plan.

It is found that evidence-based practice is linked with high quality care and positive patient outcomes (Makic et al., 2014). It is logical to evaluate the benefits of evidence-based clinical nursing practice. Based on the evidence gathered through literature reviews, simulation is an effective tool in nursing education. It is clear that evidence-based practice will continue to evolve and assume a role in supporting professional health care practice. Waxman (2010) postulated, evidence-based clinical simulation scenarios is an important entity in improving nursing education. The project raised the students' confidence levels and sharpened critical thinking skills. Results of the surveys led to simulation being integrated throughout the program.

Conclusions

Obtaining the evidence through a review of the existing literature was essential to establish the effectiveness of the method selected and implemented. The project expanded the students' knowledge and contributed to a greater sense of confidence and heightened critical thinking ability. Along with the new challenges nursing programs face, technology is evolving and it is essential to adopt the appropriate technology in the curriculum to create relevant learning opportunities for today's student. Nurse educators have a responsibility to assess the new evolving technology and practices to direct the learners in obtaining knowledge (Jensen & Sternberger, 2009). Simulation is a technology that meets the needs of students with interactive practice and instructional strategies.

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APPENDIX A. STATEMENT OF ORIGINAL WORK

Academic Honesty Policy

Capella University's Academic Honesty Policy ([3.01.01](#)) holds learners accountable for the integrity of work they submit, which includes but is not limited to discussion postings, assignments, comprehensive exams, and the dissertation or capstone project.

Established in the Policy are the expectations for original work, rationale for the policy, definition of terms that pertain to academic honesty and original work, and disciplinary consequences of academic dishonesty. Also stated in the Policy is the expectation that learners will follow APA rules for citing another person's ideas or works.

The following standards for original work and definition of *plagiarism* are discussed in the Policy:

Learners are expected to be the sole authors of their work and to acknowledge the authorship of others' work through proper citation and reference. Use of another person's ideas, including another learner's, without proper reference or citation constitutes plagiarism and academic dishonesty and is prohibited conduct. (p. 1)

Plagiarism is one example of academic dishonesty. Plagiarism is presenting someone else's ideas or work as your own. Plagiarism also includes copying verbatim or rephrasing ideas without properly acknowledging the source by author, date, and publication medium. (p. 2)

Capella University's Research Misconduct Policy ([3.03.06](#)) holds learners accountable for research integrity. What constitutes research misconduct is discussed in the Policy:

Research misconduct includes but is not limited to falsification, fabrication, plagiarism, misappropriation, or other practices that seriously deviate from those that are commonly accepted within the academic community for proposing, conducting, or reviewing research, or in reporting research results. (p. 1)

Learners failing to abide by these policies are subject to consequences, including but not limited to dismissal or revocation of the degree.

Statement of Original Work and Signature

I have read, understood, and abided by Capella University's Academic Honesty Policy ([3.01.01](#)) and Research Misconduct Policy ([3.03.06](#)), including the Policy Statements, Rationale, and Definitions.

I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the *APA Publication Manual*.

Learner name
and date

Katrina Walker 6/23/15

Mentor name
and school

Dr. Lydia Forsythe, Capella University

APPENDIX B. CASE STUDY AND SIMULATION ACTIVITY RESULTS

Summary of survey results from Case Study Scenario Activity

Participants (N=20)	5 Very High Confidence	4	3	2	1 Low Confidence
Before the case study scenario activity, on a scale of 1 to 5 where 1 is low confidence and 5 is very high confidence. Rate your confidence level in utilizing critical thinking skills.	1	3	8	8	0
After the case study scenario activity, on a scale of 1 to 5, where 1 is low confidence and 5 is very high confidence. Rate your confidence level in being efficient in utilizing your critical thinking skills when providing care to patients.	1	7	6	6	0

Summary of survey results from Simulation Activity

Participants (N=20)	5 Very High Confidence	4	3	2	1 Low Confidence
Before the simulation activity, on a scale of 1 to 5 where 1 is low confidence and 5 is very high confidence. Rate your confidence level in utilizing critical thinking skills.	3	3	8	6	0
After the simulation activity, on a scale of 1 to 5, where 1 is low confidence and 5 is very high confidence. Rate your confidence level in being efficient in utilizing your critical thinking skills when providing care to patients.	11	8	1	0	0

APPENDIX C. CASE STUDY SURVEY RESULTS

Items	5 SA	4 A	3 N	2 D	1 SD
1. I understood the purpose and objectives of the case study activity.	16	4	0	0	0
2. The instructor's questions helped me to think critically.	14	6	0	0	0
3. I feel better prepared to care for real patients.	5	5	0	10	0
4. I developed a better understanding of the medications utilized in the case study scenario.	6	10	0	4	0
5. I feel more confident in my decision making skills.	2	5	1	12	0
6. Case Study scenario activity made me more confident in utilizing my critical thinking skills when providing care for my patient.	3	5	1	11	0
7. My assessment skills have improved.	0	8	2	10	0
8. I feel more confident that I will be able to recognize changes in my real patient's condition.	8	10	0	2	0
9. The case study scenario provided ways to learn the material.	15	5	0	0	0
10. The teaching method was helpful and effective.	18	2	0	0	0
11. The time allowed to complete the case study was adequate.	3	15	2	0	0
12. I was confident in performing my assigned role.	8	10	2	0	0
13. The case study scenario allowed me to see my areas of weakness.	5	6	2	7	0
14. I felt this was a positive learning experience.	8	8	0	4	0
15. I felt that I learned more during the case study activity than on a traditional hospital floor.	0	6	2	12	0

SA = Strongly Agree

A = Agree

N = Neutral

D = Disagree

SD = Strongly Disagree

APPENDIX D. SIMULATION ACTIVITY SURVEY RESULTS

Items Participants (N=20)	5 SA	4 A	3 N	2 D	1 SD
1. I understood the purpose and objectives of the simulation activity.	15	5	0	0	0
2. The instructor's questions helped me to think critically.	18	2	0	0	0
3. I feel better prepared to care for real patients.	15	5	0	0	0
4. I developed a better understanding of the medications utilized in the simulation activity.	13	7	0	0	0
5. I feel more confident in my decision making skills.	17	2	0	1	0
6. Simulation activity made me more confident in utilizing my critical thinking skills when providing care for my patient.	17	3	0	0	0
7. My assessment skills have improved.	15	5	0	0	0
8. I feel more confident that I will be able to recognize changes in my real patient's condition.	19	1	0	0	0
9. The simulation activity provided ways to learn the material.	18	2	0	0	0
10. The teaching method was helpful and effective.	20	0	0	0	0
11. The time allowed for the simulation scenario was adequate.	13	4	0	3	0
12. I was confident in performing my assigned role.	12	6	0	2	0
13. The simulation activity allowed me to see my areas of weakness.	18	2	0	0	0
14. I felt this was a positive learning experience.	20	0	0	0	0
15. I felt that I learned more during the simulation activity than on a traditional hospital floor.	17	2	0	1	0

SA = Strongly Agree

A = Agree

N = Neutral

D = Disagree

SD = Strongly Disagree