Gardner-Webb University

Digital Commons @ Gardner-Webb University

Undergraduate Honors Theses   Honors Program

2017

BSN Students' Satisfaction and Self-Confidence in Simulation-based Learning

Aubrey Winum
Gardner-Webb University

Follow this and additional works at: https://digitalcommons.gardner-webb.edu/undergrad-honors

Part of the Nursing Commons

BSN Students' Satisfaction and Self-Confidence in Simulation-based Learning

An Honors Thesis
Presented to
The University Honors Program
Gardner-Webb University
7 April 2017

by

Aubrey Winum

Accepted by the Honors Faculty

_____
Dr. Tracy Arnold, Thesis Advisor

_____
Dr. Tom Jones, Associate Dean, Univ. Honors

_____
Dr. Eddie Stepp, Honors Committee

_____
Dr. Robert Bass, Honors Committee

_____
Dr. Candice Rome, Honors Committee

_____
Dr. Lorene Pagcaliwagan, Honors Committee

BSN Students' Satisfaction and Self-Confidence in Simulation-based Learning

by

Aubrey Winum

A honor's thesis submitted to the faculty of
Gardner-Webb University Hunt School of Nursing

Boiling Springs

2017

Submitted by: Approved by:

_____   _____

Aubrey Winum   Tracy D. Arnold, DNP, RN

_____   _____

April 7, 2017   April 7, 2017

Abstract

As nurse educators prepare students to enter the real world, they are challenged to create learning methods that develop confident and competent nurses. While new graduate nurses have much to learn, they are expected to be able to work as a team, think critically, and provide a safe environment for patients. A nursing program at a small, liberal arts college in the Foothills of the Blue Ridge Mountains utilized simulation-based learning experiences to prepare students for the many situations they may face as a future nurse. The purpose of this study was to evaluate the impact these experiences had on students' perception of satisfaction and self-confidence. A non-experimental, quantitative research design was used to conduct this study. Results showed an increase in undergraduate nursing student's perception of satisfaction and self-confidence following an Adult Health II course. Both the literature review and findings of this study indicate that simulation-based learning is a valuable tool used to enhance the skills and knowledge of undergraduate nursing students.

Keywords: debriefing, simulation

iii

Table of Contents

Chapter 1: Introduction

Nursing students must utilize all learning experiences during their collegiate career to best prepare for their entry into the work force. While the education they receive in the classroom is a large part of nursing care, they must also be able to apply knowledge and skills when treating patients. Hands-on patient care is best experienced through clinical rotations; however, this may be limited due to lack of clinical sites, facility size, staffing, department, availability of patients, and other factors. Many nursing programs have incorporated patient simulators to provide alternative clinical experience. With the increase in technology, use of simulation-based learning experiences in healthcare education has dramatically improved. Simulations vary on ability to replicate actual healthcare settings and situations. A low-fidelity simulation with a simple mannequin provides minimal patient interaction in comparison to a high-fidelity simulation with an advanced mannequin that presents lifelike movements and functions (Jeffries, 2007, pp. 27 – 30). These simulation-based learning experiences provide students the opportunity to improve technical skills, critical thinking, and communication.

Significance

Nurse educators have a responsibility to prepare students for the many challenges they will face as they enter the field of healthcare. Nurses must be competent and confident when applying nursing knowledge to critical situations. While the information students learn in the classroom is vital to nursing, they must also be able to use the knowledge and skills when caring for patients. Clinical rotations allow students to apply their skills, but opportunities can be limited. Skill labs are a great way to participate in hands-on learning; however, there is no interaction with the patient or use of critical thinking. Students often

graduate feeling unprepared to handle the many challenges nurses face. A common strategy used by nurse educators are simulation-based learning experiences. With simulations, nurse educators are able to utilize mannequins to stimulate real-life symptoms and conditions. Students can practice their skills safely in a controlled learning environment. Nurse educators are also able to focus on student development instead of worrying about patient safety.

Purpose

A nursing program at a small, liberal arts college in the Foothills of the Blue Ridge Mountains includes simulation-based learning experiences to help better prepare students for a career as a successful and competent nurse. This study was conducted to evaluate the impact these experiences had on students' self-confidence and satisfaction. Student perception is valuable in determining if this learning style is successful.

Research Question

1. What is the senior BSN student's perception of self-confidence with simulation-based learning experiences?
2. What is the senior BSN student's level of satisfaction with simulation-based learning experiences?

Theoretical Framework

Pamela Jefferies Simulation Framework served as the theoretical framework for this study. Jefferies' theory was developed to guide simulation-based learning experiences in nursing education.

Simulation-based learning changes the traditional role of the nurse educator to that of a facilitator and observer. With the student participating as the main role, nurse educators

must create an appropriate reflection of the healthcare environment. As a facilitator, nurse educators are responsible to set up equipment and use technology to interact with students throughout the simulation (Jeffries, 2007, p. 24).

Students participate in two main roles during a simulation. One, a response-based role, requires the student to only observe. They have no control over the simulation, but rather learn from those participating in a process-based role. This role allows students to actively participate and make decisions based on the events of the simulation. A process-based role may include that of a nurse, family member, or other healthcare professional. Variables such as student age and healthcare experience may affect students during their simulation activity (Jeffries, 2007, pp. 24 – 25).

The educational practices component is made up of several subsections including active learning, diverse learning styles, collaboration, and high expectations. Active learning allows students to apply critical thinking and problem-solving skills to the many different scenarios they may face as a nurse. Following a simulation, feedback should be given with explanation of the correct thought process to provide students an opportunity to understand and apply these rationales to future situations. Simulations also allow nursing educators to accommodate many different learning styles. For example, in the National League for Nursing (NLN)/Laerdal Simulation Study, an audiotaped report and spoken interaction with the mannequin was provided for the audio learner; the simulation room included actual supplies that could be utilized on the mannequin for the kinesthetic learner; the room was designed to imitate a real hospital room for the visual learner; and for the tactile learner, actual vital signs were able to be obtained on the mannequin (Jeffries, 2007, p. 26). A well-balanced relationship between the nurse educator and student is also important for

collaboration. Nurse educators should be approachable enough that students feel comfortable asking questions, but they should also be able to give unbiased constructive criticism. Nurse educators and students that participate in simulations should maintain high expectations. When students are held to a high standard, they are pushed to focus and perform to the best of their abilities (Jeffries, 2007, p. 25 – 27).

Five features make up the simulation design characteristics: Objectives, fidelity, problem solving, student support, and reflective thinking (debriefing). Objectives should be provided for students to prepare for simulation experiences and help guide them toward the main learning goals. The three levels of fidelity: low, moderate, and high, reflect the extension of how well simulations represent the actual healthcare environment and scenarios. A low-fidelity simulation includes a simple mannequin or object that allows students to practice nursing skills such as IV insertion or subcutaneous medication administration. A moderate-fidelity simulation utilizes a mannequin with features such as bowel sounds and pulses that can be controlled by faculty. High-fidelity simulations are more technologically advanced with mannequins that are able to perform realistic functions such as chest rise and fall. Simulations should be designed to meet the knowledge and skill level of students to allow application of problem-solving skills related to the situation. For example, a beginner student may not have learned how to insert an IV, but could prioritize the need for oxygen when the patient's oxygen saturation decreases. Student support addresses the facilitator's role in providing cues for students participating in the simulation. Cues such as a comment made by the mannequin, a phone call, or lab report can be used to realistically guide students without interrupting the learning process. Finally, an important factor in the simulation-based learning experience is the period of reflective thinking following a simulation. The

nurse educator should guide this session to discuss positive outcomes and provide constructive comments. Nurse educators often use a set of questions that allow students to think about the different aspects of the simulation and what the priority was in each situation (Jeffries, 2007, pp. 27 – 30).

The effectiveness and extent of knowledge gained by students are important to understand when evaluating outcomes. Teamwork, problem-solving application, confidence level, and skill performance should be measured to determine how to improve the simulation experience. With use of this framework, faculty can best provide a valuable learning experience for students (Jeffries, 2007, pp. 30 – 31).

Summary

As students prepare to enter the work force, experiences during their education can play a large role in their confidence and competence. While nursing is team-oriented and new graduate nurses are normally assigned a preceptor during their first few months, new nurses must be able to apply their nursing knowledge to the many situations they face. Simulation-based learning experiences provide a great opportunity for students to experience situations or care for patients with conditions they may not have seen during their clinical rotations. While nurse educators are not able to demonstrate all conditions the future nurse will come into contact with, these simulation-based learning experiences teach students how to think critically, communicate, and work as a team. These skills can then be utilized as nurses care for their own patients.

Using the theoretialc framework created by Pamela Jeffries can help provide the best learning environment for students. When nurse educators create a safe learning space to practice problem-solving skills, while accommodating the many different learning styles,

10

students are able to best fulfill their roles. High performance standards and impartial corrective criticism allows the student to grow into a more competent and confident nurse. This study explores feedback from participants to show the effectiveness of this educational experience.

Chapter II: Literature Review

Even with the increase in popularity of simulation-based learning, there is still much to discover and many ways to improve this alternative learning style. This literature review was conducted to further identify other research related to simulation in nursing education. Sources were investigated to discover other studies that support the incorporation of simulation in nursing education. Several electronic databases were used, including: Cumulative Index to Nursing and Allied Health Literature (CINAHL) Plus, PubMed, ProQuest, and ClincalKey.

Literature Related to Problem Statement

Abdo and Ravert (2006) used a 19-item satisfaction survey to evaluate the satisfaction of Bachelor of Science in Nursing (BSN) students with simulation experiences in their first medical-surgical course. Realistic scenarios incorporated the many different conditions the students had learned about, and participants were able to use critical thinking and problem-solving skills when caring for the patient. Following five, one-hour sessions with a patient simulator, 17 nursing students agreed to participate in the study. The survey, created by Feingold, Calaluce, and Kallen, included items such as "the scenario used with the patient simulator recreates real-life situations" and "overall the simulator experience enhanced my learning" to evaluate student satisfaction. A 4-point Likert scale allowed participants to rate their opinion of the statements. A consent form was signed, and the demographic data and satisfaction survey were analyzed. The results showed that participants felt the simulation experiences were overall realistic, prepared them for the clinical setting, and tested their skills. Some felt the simulation could improve with a more realistic time-frame, but the majority felt prepared for the simulation and valued the experience. The study was limited in

that the sample was a small percentage of the class (17 out of 48), and the results could not accurately interpret the perception of the class as a whole.

Eighty undergraduate junior nursing students at a large land grant university in the Midwest of the United States were evaluated to determine their opinion of the effect of high-fidelity simulations on the development of obstetric skills. These students completed a course in obstetric nursing as well as completed several simulations. For this study, students were randomly divided into groups of three and participated in three obstetrical simulations. Simulations were approximately 15 minutes each and were followed by 20 minutes of structured debriefing. After completing the simulation session, students completed the two research instruments. The High Fidelity Simulation Evaluation Form included 18 "yes" or "no" questions and seven statements that used a 5-point Likert scale to collect demographic data and determine student perception of the simulation experiences. A semi-structured interview form with 12 open-ended questions was also used. The results showed overall satisfaction with the simulations and participants felt it contributed to the development of their nursing skills. Some associated the high-fidelity simulation model with stress. The majority indicated an increase of overall knowledge and skills, but only 60% reported that the simulation improved their cooperation and communication skills. Overall, students felt that the simulations were effective on self-confidence, obstetric skills, and problem-solving abilities (Ardic & Barker, 2016).

A quasi-experimental, pretest-posttest design was used to assess the impact of a simulated intervention on attitudes of undergraduate nursing and medical students towards end of life care provision. Research was conducted using the Frommelt Attitudes Towards Care of the Dying (FATCOD) Part B scale, which measured non-family caregiver's attitudes

toward the care of terminally ill patients and their families. Fifteen third year nursing students and four fourth year medical students from a large higher education institution in the United Kingdom completed the FATCOD scale before and after the simulation experience. A five-point scale allowed participants to rate their opinion of the 30 statements. Each student participated in and observed a simulation that incorporated the process of informing the patient of a terminal illness to the patient's death. Simulations were approximately 25 minutes and were followed by debriefing. Results showed an increase in satisfaction following the simulation, especially noted in item 3, "I would be uncomfortable talking about impending death with a dying person." This study verified the continued research of simulations as a good substitute for clinical experiences (Lewis, Reid, McLernon, Ingham, & Traynor, 2016).

Ninety-five senior undergraduate nursing students from a university in South Korea were evaluated using a one-group, pretest and posttest design to determine the effectiveness of an integrated pediatric nursing simulation courseware. The Jeffries' Simulation Framework and Tanner's Clinical Judgment Model were used to create the simulation courseware. The major components of the courseware incorporated a pre-learning activity, simulation scenarios, evaluation tools, and scripts for standard patients and students. The scenarios included rapport-building, febrile infant care, and emergency measures for a high-risk newborn presenting with apnea. A modified version of Yoon's critical thinking tool was given prior to simulations. Over three weeks students participated in three simulations, followed by a time of debriefing. Students were evaluated by instructors using the Lasater Clinical Judgment Rubric (LCJR), an assessment tool that allows instructors to rate participants with a 4-point Likert scale. Student satisfaction was also assessed using the

Simulation Effectiveness Tool, and a post-critical thinking test was completed. Results showed a slight increase of overall self-confidence and a significant increase in five of the seven categories of critical thinking following the simulations. Further analysis showed a positive relationship between critical thinking and student clinical judgment. Overall, the majority were satisfied with the experience (Shin & Kim, 2014).

Leonard, Shuhaibar, and Chen (2010) created an opportunity for nursing students to participate in a simulation with other students in different levels of the nursing program. Forty-eight undergraduate nursing students of different classes split into groups of less than five and were given the option of an adult simulation, pediatric simulation, or both. Each simulation lasted 15 – 30 minutes, and students were told to only perform skills they had acquired based on their current education level in the nursing program. Following the simulations, students attended a debriefing session and were asked to complete the satisfaction survey and respond to 10 open-ended questions regarding their perception of intraprofessional team education using high-fidelity simulation. Results showed an increase in comfort and confidence when working with others, and students felt better interacting with other nursing students instead of other healthcare professions. It provided an opportunity for upperclassmen to incorporate delegation and provide guidance for students at a lower level. This experience was also beneficial to first year students who were able to see what they would be able to do in the future. Overall, students felt the simulation was valuable learning experience as they were able to recognize their own strengths, adapt to an interprofessional team, and learn to support each other to provide quality care to their patient.

Forty-nine second year nursing students and 64 third year nursing students from a nursing school in Macao were evaluated using a quasi-experimental study to assess nusing

students' clinical judgment in high-fidelity simulation-based learning using observational measures. Researchers used Tanner's Clinical Judgment Model to create a single group repeated-measures design using purposive sampling. Students participated in five simulation sessions, followed by a time of debriefing. The LCJR was used to evaluate the clinical judgment of participants following each of the five simulations. The LCJR rates clinical judgment on the basis of four main items: noticing, interpreting, responding, and reflecting. Researchers used the repeated measures analysis of variance (RM-ANOVA) to determine differences between the groups, and independent sample t-tests to compare results between second and third-year nursing students. Results showed an increase in clinical judgement from the first simulation to the last, with second-year students scoring higher than the third-year students. Participants felt the simulations helped them use critical thinking to identify the main problem with the patients and prioritize interventions. The students also viewed the realistic scenarios as essential to growth in their ability to notice, interpret, and respond to emergency situations. The results of this research supports the proposition that simulation-based learning improves clinical judgment (Yuan, Williams, & Man, 2014).

One hundred and four baccalaureate nursing students, enrolled in a medical-surgical course, participated in a study to test how simulation experiences affected scores on an examination of course content covered in the simulation. Students were randomly divided into groups of three to five and completed two individual simulations on a pulmonary embolism (PE) and gastrointestinal (GI) bleed. Students had been tested on the material of both simulation subjects prior to this study. Grades from the class exam were averaged using the traditional four-point grading scale and results showed an overall average of 2.64. During the next class meeting, students were given two 10-item post-simulation tests that

covered material on PE and GI bleeds using NCLEX-style questions. The questions were created so participation in the simulation was not necessary, and examinations were scored using a scale of 1 to 10. Results showed an overall mean of 6.89 for the PE test and 4.92 for the GI bleed test. The material was analyzed using ANOVA and hierarchical multiple regression techniques. The findings showed a higher mean score on the PE exam for students participating in the PE simulation than those in the GI simulation. Those in the GI simulation also scored higher on the GI bleed exam than students who participated in the PE simulation. The increase of student scores on the post-simulation tests were equivalent to an average increase of 8 percentage points on the original examination. Overall, the evidence supported the hypothesis that high-fidelity simulations lead to an enhanced knowledge and should encourage the use of this alternative learning style in nursing education (Gates, Parr, & Hughen, 2012).

Alfes (2011) used a quasi-experimental study to evaluate the use of simulation with beginning nursing students. Sixty-three first semester BSN students were divided into two groups: one participated in the traditional skills lab while the other participated in a simulation. A time of debriefing followed each scenario, and students were asked to complete the National League for Nursing's Student Satisfaction and Self-Confidence in Learning questionnaire. Students rated their opinion of satisfaction and self-confidence on a scale of 1 to 5, and results were analyzed using an independent samples *t* test. Both groups showed satisfaction in learning, but those who participated in the simulation showed higher scores of confidence. There was also a positive correlation between self-confidence and satisfaction. These findings not only show student satisfaction, but should encourage nursing

educators to incorporate simulation-based learning with beginning students and throughout the learning process.

Research was conducted by Baptista et al. (2016) to compare nursing students' perception of medium-fidelity simulations versus high-fidelity simulations (HFS). Eighty-four senior BSN students were divided into groups of four and participated in eight different scenarios. Following the simulations, students were asked to complete three questionnaires: Questionnaire of sociodemographic characterization, Satisfaction Scale for simulated clinical experiences, and Scale of Gains perceived with HFS. The Satisfaction Scale measured students' opinion of the simulation while the Scale of Gains evaluated students' perception of how well they did. Overall, students were very satisfied with the simulations they participated in; however, those who used the high-fidelity mannequins had a higher score than those who with the medium-fidelity mannequin. Similarly, those who participated in HFS reported higher gains than those in MFS. Students generally felt they had improved with the simulation, but results of the high-fidelity simulation showed higher scores in the areas of recognition and decision. These findings suggest that HFS provides a better opportunity for students to assess signs and symptoms, which increases their ability to diagnose and think critically when providing care to their patient.

Kunst, Mitchell, and Johnston (2017) conducted research to determine whether simulations provided effective education to improve student's perception of self-confidence, knowledge, and ability to care for mental health patients. Forty-four undergraduate nursing students at an Australian university participated in the study. These students, in their final semester of the Bachelor of Science in Nursing program, had previously completed 80 clinical hours at a mental healthcare facility. Researchers understood the importance that all

nurses be prepared to treat patients with mental health issues, whether the student chose to specialize in mental health or not. An online survey was distributed prior to simulation to collect pre-test data. Students participated in a high-fidelity simulation involving acute emergency nursing practice and acute mental health intervention. This provided participants the opportunity to effectively communicate with mental health patients. Following the simulation, students completed the Mental Health Related Learning Needs of Emergency Department (ED) Nurses survey, and 22 students participated in focus groups. Students reported an increased knowledge of mental health conditions, as well as a better understanding of nursing assessment and patient's perspective in mental healthcare. Results showed an increased confidence in simulation, but students noted they were still hesitant to care for mental health patients in clinical settings. Participants also reported high satisfaction with realism and quality of simulation.

Sixty-one undergraduate students in their second semester of nursing school at a liberal arts college in the Unites States participated in a study to determine their perception of satisfaction and self-confidence in medium-fidelity simulations regarding community/non-acute setting scenarios. Lubbers and Rossman (2017) used a quasi-experimental design to evaluate students following a 5-week pediatric community-based simulation course. Students were divided into groups of four and participated in five scenarios where they acted as the role of a school nurse, parish nurse, and a clinic nurse. The settings were realistic in that students did not have access to equipment like monitors and patients did not have IVs. A period of debriefing followed each simulation, and students were asked to answer survey questions using a 5-point likert scale. Results showed an overall mean of 4.18 for the National League of Nursing's 16-item Educational Practices Questionnaire and 4.04 for the

12-item Self-Confidence in Learning Questionnaire. Students also reported a positive mean of 4.19 after completing the 20-item Simulation Design Scale. Overall the medium fidelity simulation increased novice students' self-confidence and satisfaction with simulation.

Strengths and Limitations of Literature

This literature review showed the variety of research that has been conducted concerning student's perception of simulation-based learning. While all data is valuable, there were several strengths and weaknesses of this literature review.

Multiple tools were used to collect data concerning student's perception of satisfaction and confidence with simulation-based learning, as well as effectiveness of this alternative learning style. This literature review has proven that simulation-based learning increases both satisfaction and self-confidence of students.

When researching studies on the use of simulations in nursing education, there was little variation of sample. Most participants in the studies were female nursing students in a Bachelor of Science in Nursing program. There is little information about associate degree nursing programs and other healthcare professionals. Research was often performed at one university and did not contain data from other facilities. There was also no comparison of data after students had completed clinical hours.

Summary

With increased use of simulation-based learning in place of clinical experience, educators must evaluate student perception and knowledge to determine the success of this alternative learning style. This literature review prooved that students from all over and in a variety of simulation settings were both satisfied and grew in self-confidence following the simulation. While there is little information comparing student perception of simulation

versus clinical hours, research data has shown that this learning style provides an opportunity for students to apply nursing knowledge and perform skills in a controlled environment. These skills can then be used in the clinical setting.

Chapter III: Methodology

As nursing students prepare to enter the nursing field, it is important for them to experience situations in which they can apply nursing knowledge. While clinical rotations are a great opportunity to participate in hands-on learning, there are not always circumstances that pertain to what the student has learned. Simulation-based learning is a great way for nursing students to practice skills and utilize the information they have learned in a controlled environment. This study was conducted to evaluate the perception of students who participated in simulation-based learning experiences. The impact these experiences had on students' self-confidence was also assessed. Students participated in ten simulations then completed a survey about their experience.

Research Design

A non-experimental, quantitative research design was used to conduct this study.

Setting

This study took place at a small, liberal arts university in the Foothills of the Blue Ridge Mountains. The university offers a variety of degrees, including a Bachelor of Science in Nursing. Along with general education and nursing courses, this program provides the opportunity for students to learn hands on through simulation-based experiences.

The School of Nursing offers four simulation rooms with control booths for nurse educators to supervise the simulation. Each room is fully stocked with supplies, and the medium fidelity mannequins are able to simulate real-life symptoms and conditions. Cameras display the live simulation in another room where other students are able to observe and take notes. There are also two practice labs with 10 beds each for students to practice various skills and ask questions.

Sample

All senior BSN students (n=30) enrolled in an Adult Health II course were invited to participate in this study. Participants were all Caucausian females.

Protection of Human Subjects

Permission was granted by the University's Institutional Review Board. The research project was explained to all, and students were asked to sign an informed consent (Appendix A) prior to participating. Participants were told the questionnaire was completely anonymous and would have no impact on their grade. All results were kept confidential in a locked office.

Instruments

The Student Satisfaction and Self-Confidence in Learning tool (Appendix B), a 13-item survey created by the National League of Nursing, was used in this study. The 13 statements were used to measure students' perceptions of their satisfaction and self-confidence in simulation-based learning experiences. Five items measured student satisfaction with the simulation activity and eight items measured self-confidence in learning. A five-point likert scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree) was used to measure students' perceptions. Internal consistency was measured using Cronbach's alpha. The Cronbach's alpha for satisfaction = 0.94; self-confidence = 0.87 (National League for Nursing, 2016).

Data Collection Procedure

During the Adult Health II course, students participated in eight simulations and observed two simulations. A total of four simulations were graded. When participating in simulations, there were assigned one of three nursing roles. Each week students rotated

between primary nurse, secondary nurse, and recorder. Instructors used medium fidelity

mannequins to simulate realistic symptoms related to medical conditions learned in class.

The syllabus given at the beginning of the semester included the main focus of each

simulation so students were able to prepare.

At the end of the semester, students were asked to complete the Student Satisfaction

and Self-Confidence in Learning tool by rating their satisfaction with the simulation activity

and self-confidence in learning using a five-point scale. Students who agreed to participate

were given an informed consent to sign. The reason for the research was explained and all

were reminded that participation in the study was completely anonymous. The survey was

then distributed. The researcher left the room and an empty envelop and debriefing

statement (Appendix C) were left at the front of the classroom for participants to

anonymously turn in their surveys. After approximately 15 minutes, the researcher returned

to collect the materials.

Data Analysis

Data was analyzed using the Statistical Packages of the Social Science (SPSS)

version 23 and an excel spreadsheet for descriptive statistics.

Summary

There are as many different teaching styles, as there are learning styles. Educators

must consider the ways they deliver material to best reach their target audience. Feedback

from learners is one of the most reliable sources to determine the success of their instruction.

This provided valuable input from students concerning simulation-based learning

experiences. Data collected from a questionnaire given to senior BSN students helped

evaluate their perception of satisfaction and self-confidence with this alternative learning

style. Results could potentially help nurse educators at a small, liberal arts college evaluate

their use of simulation in nursing education.

Chapter IV: Results

Of the 30 surveys that were distributed to the senior BSN students enrolled in an

Adult Health II course, all 30 were returned completed. Data analysis was performed, and

results showed a total mean of 51.37 out of 65 possible points. These findings were

evaluated to determine areas students perceived as high or low in satisfaction and self-

confidence in simulation-based learning experiences.

Sample Characteristics

Thirty (n = 30) caucasian females, enrolled in their final year of the Bachelor of

Science in Nursing program, participated in this study. Students participated in eight

simulations and observed two simulations during the Adult Health II course.

Major Findings

The first five items of the Student Satisfaction and Self-Confidence in Learning tool

were used to measure student satisfaction with current learning during the simulation

activity. Most students agreed that the simulation provided a variety of learning materials and

activities to promote learning (M=4.07, SD=0.83), as well as high satisfaction with how the

instructor taught the simulation (M=4.03, SD=0.93). Results also showed lower satisfaction

scores with effectiveness and motivation of teaching materials (M=3.8, SD=0.89) and

compatibility of teaching techniques with students' styles of learning (M=3.7, SD=0.99). Of

the possible 25 points, the mean score was 19.53. The results can be found in Table 1.

Table 1

Student Satisfaction with Current Learning

Question	*M*	*SD*
The teaching methods used in this simulation were helpful and effective.	3.93	.944
The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum.	4.07	.828
I enjoyed how my instructor taught the simulation.	4.03	.928
The teaching materials used in this simulation were motivating and helped me to learn.	3.80	.887
The way my instructor(s) taught the simulation was suitable to the way I learn.	3.70	.998

Eight items were used to measure students' perceptions of their self-confidence in simulation-based learning experiences. Students felt most confident that it was their responsibility to learn from the simulation (M=4.2, SD=0.81), and they knew how to get help if they did not understand the concepts of the simulation (M=4.1, SD=0.78). Eighty percent of participants agreed or strongly agreed that it was the instructor's responsibility to communicate what content the student should learn from the stimulation activity (M=4.03, SD=0.93). Results showed high confidence in the student's ability to use simulation activities to learn critical aspects of nursing skills (M=3.97, SD=0.72), and that the simulation covered critical content necessary for the mastery of the medical surgical curriculum (M=3.97, SD=0.72). Participants also felt confident that instructors used helpful resources to teach the simulation (M=3.9, SD=0.76). Many students considered themselves less confident in their ability to master the content of the simulation activity (M=3.9,

SD=0.78), and 13% disagreed with the statement, "I am confident that I am developing the

skills and obtaining the required knowledge from this simulation to perform necessary tasks

in a clinical setting" (M=3.8, SD=1.01). Of the possible 40 points, the mean score was

31.84. Results are shown in Table 2.

Table 2

Student Self-Confidence in Learning

Question	M	SD
I am confident that I am mastering the content of the simulation activity that my instructors presented to me.	3.87	.776
I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum.	3.97	.718
I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting.	3.77	1.006
My instructors used helpful resources to teach the simulation.	3.90	.759
It is my responsibility as the student to learn what I need to know from this simulation activity.	4.20	.805
I know how to get help when I do not understand the concepts covered in the simulation.	4.13	.776
I know how to use simulation activities to learn critical aspects of these skills.	3.97	.718
It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time.	4.03	.928

Chapter V: Discussion

As nurse educators work to prepare future nurses, they must consider insight from learners. There is a relationship between student satisfaction with the simulation and their level of performance.

Implication of Findings

The author did not provide specific ranges of scores to determine satisfaction of learners. According to a 2014 study of 2,200 novice nurses enrolled in a BSN program at a liberal arts university, results of the National League of Nursing's Student Satisfaction and Self-Confidence in Learning tool were higher. Results of satisfaction with current learning showed the mean score of 21.76 out of 25 possible points, compared to the 19.53 mean score of this study (Franklin, Burns, & Lee, 2014). Similar findings were found at a Midwestern university with 50 senior BSN students enrolled in a Leadership and Management course. The mean score of this study was 22.39 out of 25 possible points (Ma, 2013).

Data from research conducted during this study showed students were least satisfied with teaching material being helpful and motivating. While most agreed that they enjoyed the way the instructor taught the simulation, most participants felt it was a suitable excerise for their learning styles. Additional comments would be beneficial to help understand how instructors can best meet additional student needs. Students were most satisfied with the variety of materials and activities related to their course of study. This shows how simulation can be used to incorporate class material into actual healthcare scenarios. As learners are able to apply what they have learned to nursing skills, they are more likely to recall the information.

According to Franklin et al. (2014), the results of their study showed a mean of 34.01 out of 40 possible points concerning student self-confidence in learning. Research conducted by Xiaoying Ma (2013) also presented a high mean of 35.38 compared to the 31.84 mean of this study. Data showed lowest self-confidence with ability to master the content of the simulation activity and obtain the knowledge and skills necessary to perform in the clinical setting.

Students participating in this study reported high confidence in the ability to obtain resources to help when they did not understand concepts covered during the simulation. This is encouraging to nurse educators that they are approachable enough that students feel comfortable coming to them with questions. Many participants agreed that is was both their responsibility to to learn from the simulation as well as the instructor's duty to inform students what content is important to understand. While this seems a bit contradictory, it can also be viewed as a good balance. Nurse educators must challenge students to think critically and learn how to apply their knowledge, but standards should be realistic to allow students to grow. During reflection instructors can lead discussion and provide insight about important content from the simulation. Students felt least confident with their ability to master the content of the simulation and develop the skills and knowledge required in the clinical setting. While this is the opinion of students, instructors must take into consideration the anxiety and uncertainty newly graduated nurses face as they prepare to enter the work force. Corrective criticism is important for student development, but nurse educators should be sensitive to the needs of students and provide supportive feedback as well. Instructors must remember to encourage the strengths and abilities of learners as they work to build their confidence.

Results showed an overall mean of 51.37 out of 65 possible points. While these scores are lower than other studies, there are many comparison factors, including size of study, simulation theme and contents, faculty and student level of education, and prior experience. Overall, these finding indicate that learners gained valuable skills and knowledge from this educational experience.

<div align="center">**Application to Theoretical/Conceptual Framework**</div>

The National Education Simulation Framework, created by Pamela Jeffries, contains five concepts: teacher factors, student factors, educational practices that need to be incorporated into the instruction, simulation design characteristics, and expected student outcomes (Jeffries, 2007, p. 22). Simulations are complex and challenging for both educator and learner, but use of a framework can help ensure a quality educational experience.

As students actively participate in simulations, they are challenged to think critically and apply their knowledge to an actual medical issue. Nurse educators must be sensitive to different learning styles and provide opportunities for students to engage and learn in their own way. Feedback is also essential for learners to understand purpose and priority, as well as reflect on their decisions. Students should be held to a high standard that pushes them to perform their best, yet they should feel safe to make mistakes and ask questions about the situation (Jeffries, 2007, p. 25 – 27).

Simulation design incorporates many factors when evaluating use of simulation in nursing education. The level of fidelity, or how realistic the simulation reflects actual healthcare environment and scenarios, contributes to satisfaction of learners. A simple mannequin that cannot interact with students will provide a different learning environment than that of a more technologically advanced mannequin that can talk and perform realistic

functions. Beginner students will also experience different scenarios and objectives than advanced learners (Jeffries, 2007, pp. 27 – 30).

The use of simulation-based learning in nursing education has proved to increase undergraduate nursing student's perception of satisfaction and self-confidence. While each simulation is unique, use of an established framework can increase effectiveness of this educational activity. Student reflection, both about rationale and the events of the scenario, can also help educators adjust simulations to best fit the needs of their students.

Limitations

There were several limitations in this study. Research was conducted at one university, and the sample size was specific, including only one group of students in an Adult Health II course. Because the number of participants was small, data collected was limited and results cannot be generalized to all students.

Implications for Nursing

While most nursing education involves lectures and seminars, faculty are challenged to create additional methods to prepare students to care for patients in the healthcare setting (Jeffries, 2007, p. 124). Nurse educators must work to design, teach, and evaluate alternative learning strategies. With the increase in technology, simulation-based learning has become one of the most popular forms of learning experiences used to create careful, intelligent, and competent nurses. Simulation-based learning experiences challenge students to not only practice nursing skills, but to develop skills that can be used in everyday life such as teamwork, critical thinking, prioritization, delegation, and time management. As nursing education moves toward a more student-centered environment, nurse educators must continue to employ active learning strategies to enhance student education.

Recommendations

After evaluation of the data, further research is recommended. This study could be expanded to include other courses and levels of education. A demographic survey could be completed to determine the effects age, gender, ethnicity, and previous experience. Comparison of the Associate Degree of Nursing program to the Bachelor of Science in Nursing program would be insightful to understand difference in confidence level. Students could also be evaluated following their clinical rotation to determine representation of simulation to the clinical setting. Evaluation of the nurse educators and their perception of simulation and level of training would also be valuable.

Conclusion

A strong educational foundation and learning experiences are essential to the development of confident and competent nurses. Increased use of simulation-based learning in nursing education is both exciting and beneficial. Simulations provide a unique opportunity for students to utilize their skills in a safe and controlled environment. This hands-on experience not only improves skills, but helps students retain the information they have learned. Insight from learners can provide valuable information about the effectiveness and satisfaction with simulation use. Overall results of this study showed an increase in learner satisfaction and self-confidence with simulation-based learning experiences. The findings of this study can encourage nurse educators to incorporate more use of this learning experience.

References

Abdo, A., & Ravert, P. (2006). Student satisfaction with simulation experiences. *Clinical Simulation in Nursing Education, 2,* 13-16. doi:http://dx.doi.org/10.1016/j.ecns.2009.05.009

Alfes, C. (2011). Evaluating the use of simulation with beginning nursing students. *Journal of Nursing Education, 50*(2), 89-93. doi:http://dx.doi.org/10.3928/01484834-20101230-03

Ardic, M., & Barker, E. (2016). Undergraduate nursing students' perceptions of obstetric skills following high-fidelity simulation experience. *ARC Journal of Gynecology and Obstetrics, 1*, 19 − 25. doi:http://dx.doi.org/10.20431/2456-0561.0102005

Baptista, R. C., Paiva, L. A., Goncalves, R. F., Oliveira, L. M., Pereira, M. F., & Martins, J. C. (2016). Satisfaction and gains perceived by nursing students with medium and high-fidelity simulation: A randomized controlled trial. *Nurse Education Today, 46*, 127-132. Retrieved from https://www.clinicalkey.com/nursing/#!/content/journal/1-s2.0-S0260691716301745

Franklin, A. E., Burns, P., & Lee, C. S. (2014). Psychometric testing on the NLN Student Satisfaction and Self-Confidence in Learning, Simulation Design Scale, and Educational Practices Questionnaire using a sample of pre-licensure novice nurses. *Nurse Education Today, 34*(10), 1298-1304. doi:10.1016/j.nedt.2014.06.011

Gates, M., Parr, M., & Hughen, J. (2012). Enhancing nursing knowledge using high-fidelity

  simulation. *Journal of Nursing Education, 51*(1), 9-15.

  doi:http://dx.doi.org/10.3928/01484834-20111116-01

Jeffries, P. (2007). *Simulation in nursing education: From conceptualization to evaluation*.

  New York, NY: National League for Nursing.

Kunst, E. L., Mitchell, M., & Johnston, A. N. (2017). Using simulation to improve the

  capability of undergraduate nursing students in mental health care. *Nurse Education*

  Today, 50, 29-35. doi:10.1016/j.nedt.2016.12.012

Leonard, B., Shuhaibar, E., & Chen, R. (2010). Nursing student perceptions of

  intraprofessional team education using high-fidelity simulation. *Journal of Nursing*

  Education, 49(11), 628-631. doi:http://dx.doi.org/10.3928/01484834-20100730-06

Lewis, C., Reid, J., McLernon, Z., Ingham, R., & Traynor, M. (2016). The impact of a

  simulated intervention on attitudes of undergraduate nursing and medical students

  towards end of life care provision. *BMC Palliative Care*, *15*, 67.

  http://doi.org/10.1186/s12904-016-0143-2

Lubbers, J., & Rossman, C. (2017). Satisfaction and self-confidence with nursing clinical

  simulation: Novice learners, medium-fidelity, and community settings. *Nurse*

  Education Today, 48, 140-144. doi:10.1016/j.nedt.2016.10.010

National League for Nursing. (2016). *Description of available tools*. Retrieved from

  http://www.nln.org/professional-development-programs/research/tools-and-

  instruments/descriptions-of-available-instruments

Shin, H., & Kim, M. J. (2014). Evaluation of an integrated simulation courseware in a

     pediatric nursing practicum. *Journal of Nursing Education, 53*(10), 589-94.

     doi:http://dx.doi.org/10.3928/01484834-20140922-05

Ma, X. (2013). *BSN students' perception of satisfaction and self-confidence after a simulated*

     mock code experience: A descriptive study. (Unpublished master's thesis). Cedarville

     University, Cedarville, Ohio.

Yuan, H., Williams, B., & Man, C. (2014). Nursing students' clinical judgment in high-

     fidelity simulation-based learning: A quasi-experimental study. *Journal of Nursing*

     Education and Practice, 4, 7 – 15. doi:10.5430/jnep.v4n5p7

APPENDIX A

Informed Consent
BSN Students' Satisfaction and Self-Confidence in Simulation-based Learning
This research is being conducted by Aubrey Winum, a Bachelor of Science in Nursing
student at Gardner-Webb University. Before agreeing to participate in this study, please read
the following explanation of purpose and procedure.

PURPOSE: This study is being conducted to determine the effect simulation-based learning
has on students' perception of satisfaction and self-confidence.

PROCEDURE: You are invited to participate in this study by completing the Student
Satisfaction and Self-Confidence in Learning survey. This survey contains 13 questions and
should take approximately 15 minutes. The researcher will provide further instructions
before distributing the survey.

VOLUNTARY PARTICIPATION: The decision to participate is completely voluntary.
You have the right to not participate at all or to not answer any of the items on the survey.
Participants will not receive any compensation and there will be no consequences if you
choose not to participate. If you do not want to participate you may place a blank survey in
the collection envelope.

CONFIDENTIALITY: This survey is intended to be completely anonymous. Please do not
include any personal or identifying information. The researcher and professor will leave the
room while the surveys are being completed. You will be asked to place all survey materials
in an envelope before leaving the room. All research data will be stored by Gardner-Webb
University Hunt School of Nursing and any electronic information on the researchers'
computer will be password protected. Surveys will be kept for 3 years in a secured location.

RISKS & BENEFITS: There is minimal risk associated with participation in this study.
There are also no direct benefits associated with participation in this study; however, your
participation may provide insight to the Hunt School of Nursing on how to improve
simulation-based learning experiences for students.

If you have questions, want more information or have suggestions, please contact Aubrey
Winum, who may be reached at (540) 244-6956 or awinum@gardner-webb.edu. You may
also contact my thesis advisor, Dr. Tracy Arnold at 704-406-4359 or at tarnold@gardner-
webb.edu.

If you have any concerns about your rights, how you are being treated, or complaints regarding
this study, benefits, or risks associated with being in this study please contact the Institutional
Review Board at 704-406-4724.

CONSENT TO PARTICIPATE:

Participation in this survey indicates you agree to above information. By completing this
survey, you are voluntarily consenting to participate in this research study. If you choose not
to participate in this study, please place a blank copy of the survey in the collection envelope.

APPENDIX B

Student Satisfaction and Self-Confidence in Learning

The survey you are about to take consists of questions related to your satisfaction and self-confidence in learning as it relates to simulation. The questions are worded to reflect your participation in one simulation; however, when answering these questions please reflect on your experiences with all simulations you have participated in during your Adult Health II lab course this semester.

Student Satisfaction and Self-Confidence in Learning

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

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

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

APPENDIX C

Debriefing Statement

This study was conducted to evaluate students' perception of self-confidence and satisfaction with simulation-based learning experiences. Data was collected using the Student Satisfaction and Self-Confidence in Learning tool.

Your participation provides data that could aid the Gardner-Webb Hunt School of Nursing's use of simulations in education. Please contact Aubrey Winum at awinum@gardner-webb.edu or Dr. Arnold at tarnold@gardner-webb.edu with any questions or concerns. If you would like a copy of the results, please contact the investigator, Aubrey Winum, at awinum@gardner-webb.edu following the end of the 2017 spring semester.