COMPARING THE CAUSAL EFFECTS OF OBSERVATIONAL VERSUS ACTIVE ROLES IN HIGH-FIDELITY SIMULATION: A QUANTITATIVE STUDY

by

Bethany Dean Rose

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

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ABSTRACT

Among many of the innovative changes in nursing education, high-fidelity simulation is expanding roles and providing students with new perspectives. The purpose of this quantitative, causal-comparative, posttest only, nonexperimental, between-groups research design study was to determine whether students in active supervisor (observer) roles had an effect on associate degree nursing (ADN) students' self-perceived knowledge, skills, and attitudes in comparison to students in active participant roles. A convenience sample of second-semester nursing students and third-semester nursing students enrolled in an ADN program in the 2023 academic year was utilized for this study. Participants completed a demographic survey and the Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP) following their participation in a high-fidelity simulation scenario. The observational experiential learning theory served as the theoretical underpinning for the study as it supports the use of observational perspectives and outlines how vicarious experiential learning results in significant and meaningful education. An independent samples *t*-test determined the mean difference in a composite score of knowledge, skills, and attitudes between active supervisors (observers) and active participants. Although the results of the analysis were not statistically significant, the results suggest that active participants and active supervisors (observers) have similar self-competence scores following simulation learning experiences.

Keywords: simulation, nursing students, active supervisor, observer, knowledge, skills, attitudes

Dedication

I dedicate this project to my husband, Jeremiah Rose, who has unselfishly made a pathway for education in my life. Through work, caring for our three wonderful boys, and providing for our family, I have always felt like a priority in your life, not only my needs, but my dreams have surpassed all else. This educational journey has been made possible by you because you made my dream your reality. I will be forever grateful for the unconditional and endless love that we share. I love you and I cannot wait for the next chapter of our lives together.

To my three boys, Tyler, Jeremiah, and Steele, you have always been my "why" and my most treasured gift in life. I know you have spent the majority of your life watching mom read, write, and study; I hope you remember my every thought was for you. Although my job was to teach you perseverance, you taught me. Thank you for being incredible kids and making my life full of love and purpose.

Although this journey has required a lot of hard work, determination, and dedication, it was only made possible by the love and support of each of you.

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Thank you to the administration of the research site who never failed to ask me about my progress and did all they could to make sure I achieved my goal. A special thank you to Sunshine Wilmoth, who went above and beyond to make this research project possible. Along with the students who participated in this study, thank you.

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List of Abbreviations

Accreditation Commission for Education in Nursing (ACEN)

American Nurses Association (ANA)

Associate Degree Nursing (ADN)

Cognitive Learning Theory (CLT)

Experiential Learning Theory (ELT)

Health Science Reasoning Test (HSRT)

High-Fidelity Simulation (HFS)

Institutional Review Board (IRB)

International Nursing Association of Clinical and Simulation Learning (INACSL)

National Council of State Boards of Nursing (NCSBN)

Next-Generational National Council Licensure Examination (NCLEX)

Observational Experiential Learning (OEL)

Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP)

Social Cognitive Theory (SCT)

Social Learning Theory (SLT)

CHAPTER ONE: INTRODUCTION

Overview

Nurse educators were implementing some form of simulation-based education in the curriculum as early as 1911 (Weir, 2012). Over time, simulation has advanced to being a highly innovative teaching modality sought by nursing programs across the globe (Aebersold, 2018). The use of simulation continues to expand for several reasons including the limited hospital-based clinical opportunities, nursing faculty shortage, and the need to prepare students to care for high-acuity clients (Fawaz et al., 2018). This expansion in simulation education has led to the integration of assigning students a type of observational role, often defined as active supervisors, observers, and/or facilitators. The purpose of integrating new roles in simulation is to provide all learners with a new perspective, not only requiring hands-on training but a transformation of learning. With recent theoretical support (Johnson, 2019), this study evaluated the self-perceived knowledge, skills, and attitudes of these observational learners in direct comparison to active participants.

Background

Historical

It has never been a secret that nursing students must gain hands-on experience to become competent in critical nursing skills (Boso et al., 2021). Aebersold (2018) explained that nursing students initially began practicing skills such as medication administration and intravenous insertions on dolls and each other. The first mannequin was created in 1911 by Martha Jenkins Chase to allow nursing students to practice skills on a life-sized doll (Aebersold, 2018). These mannequins overtook laboratory space within several nursing schools and became the mainstay for simulation for several decades (Aebersold, 2018). However, the world of practicing nursing skills changed in the 1990s once companies such as Laerdal and Medical Education Technologies, Inc., began developing high-fidelity simulators that had lung sounds, pulses, and the ability to communicate. These high-fidelity simulators began changing nursing education by enhancing the ability to move simulation from strictly skills-based education to teaching critical thinking and clinical decision-making in a safe learning environment.

Societal

Nurse educators quickly came to realize there were several learning opportunities beyond skill acquisition to be learned in simulation (Koukourikos et al., 2021). This realization could not have come at a better time as technological breakthroughs were occurring at an ever-increasing rate, increasing the opportunities for nurses to achieve tasks and procedures more efficiently in a safer environment (Pepito & Locsin, 2019). Just as health care continued to evolve, nursing education continued to advance to meet societal demands. Therefore, nursing education programs around the globe began implementing simulation to introduce these complexities of healthcare to nursing students, requiring students to begin making clinical decisions for their patients and facing the consequences of their actions. High-fidelity simulation (HFS) began changing nursing education, providing a platform to help students gain the knowledge, skills, and attitudes necessary to provide safe, competent care (Almutairi, 2019).

HFS has found its place as an effective teaching modality within the nursing curricula (Arrongante et al., 2021) and has been recognized nationally. As simulation use continued to increase among nursing programs across the nation, the National Council of State Boards of Nursing (NCSBN) conducted a landmark study to acknowledge the implications surrounding simulation. The landmark study conducted in 2014 and published by the NCSBN has become the cornerstone for incorporating simulation throughout the nursing curriculum (Hayden et al., 2014). This national, multi-site, longitudinal study explored the outcomes of simulation-based education and concluded that this was an effective teaching modality that could be used to substitute traditional clinical hours. In addition, the NCSBN (2016) clearly outlined some regulations concerning this substitution including, for some states, that no more than 25% of the total required clinical hours may be substituted with simulation, and all programs must have qualified faculty, equipment, and resources. In addition, several simulation guidelines have been published by the NCSBN (2016) including faculty and student readiness checklists, simulation hour limitations, simulation to clinical replacement ratios, and the appropriate use of simulation designs.

With all this national attention on simulation-based education, different accrediting bodies began to recognize simulation as an effective substitution for clinical hours as well. However, understanding what constitutes a clinical hour, defined by accrediting bodies, is essential for educators. Accrediting bodies such as the Accreditation Commission for Education in Nursing (ACEN) defines clinical as "direct, hands-on, planned learning activities with patients across the lifespan, interaction with the interprofessional team, and interaction with the patient's family and friends that are sufficient and appropriate to achieve the program outcomes" (ACEN, 2022, Glossary, "Clinical/Practicum Learning Experiences"). The replacement of clinical hours with simulation experiences requires students to fulfill that definition. Simulation-based education has done just that, providing more opportunities for students to professionally collaborate and implement the nursing process while moving students from crowded hospital floors where quality clinical experiences are limited. This educational shift has entered students into an interactive learning environment that provides experiences directly aligned with their didactic content and ensures everyone participates in meaningful learning experiences (Ghasemi et al., 2020).

Even more attention has been given to simulation recently. In 2019, nursing education programs adopted a new clinical judgment foundation, requiring changes throughout the curriculum (Betts et al., 2019). To ensure students are prepared for the innovative nursing workforce of the 21st century, the NCSBN (2016) created an educational framework to incorporate into the curriculum, identified as the Clinical Judgment Measurement Model. This model allows nurse educators to approach teaching through the lens of clinical judgment and clinical decision making. These concepts have become the forefront of nursing education and the foundation for competent nursing practice. Therefore, HFS becomes the center of attention, yet again, considering it has historically been the teaching modality that integrates knowledge and skills to practice making clinical judgments (Koukourikos et al., 2021).

Consequently, several researchers have acknowledged the increased use of simulation all over the nation (Bradley et al., 2019; Eyikara & Baykara, 2017; Meum et al., 2020), to help incorporate these important concepts into the curriculum. Thus, nurse educators have become more flexible and creative by implementing new roles to allow more students to participate in each simulation activity (Moabi & Mtshali, 2022). Among these changes include observational roles, in which some students are chosen to watch their peers participate in the simulation while evaluating and critiquing their peers' performance (Johnson, 2019). Observational roles began being studied and research exploded over the implementation of this new role, reporting that students in observational roles are meeting learning objectives (B. Rogers et al., 2020), reporting less anxiety (Bong et al., 2017) and gaining the same level of confidence as their peers who are active participants (Norman, 2018).

However, the term *observational* is not favored by the NCSBN (2016), creating an uneasy transition for nursing programs to incorporate this role into their simulation programs. Nonetheless, with all the current observational research it is proven that several education programs incorporate some type of observational role, often identified as facilitators or active supervisors. Hence, the current terminology use of “observation” for this study, identifying students in the observational role as active supervisors. Scholars have recognized the positive reflective learning that is taking place within these roles and continue to study the implications that observation has on learners.

Theoretical

Observational roles in education have often been studied utilizing Bandura’s social learning theory (SLT) as a theoretical construct as it explains what concepts are required of students to learn in that role. Johnson (2019) integrated Bandura’s SLT and Kolb’s well-known experiential learning theory (ELT) to create the observational experiential learning theory (OEL). The OEL theory has allowed observational learning and simulation to interrelate. Johnson (2019) acknowledged that active participants are often immersed in decision making in the scenario, while the observers are in a viewing role. However, Johnson (2019) found that there were no significant differences in cognitive knowledge, retention, or application in the two groups and strongly supported observational learning. This research study was guided by the OEL theory to better understand the implications of the observer role in HFS.

Research must continue to focus on the implications of the observational type roles on students’ learning and their ability to apply information. Considering that much of the literature review in Chapter Two focuses on whether students in observational roles are meeting learning outcomes, this study investigated whether students’ competence levels were affected by observational roles. Furthermore, this study provided more evidence toward the effectiveness of observational roles in HFS.

Problem Statement

Nursing faculty are implementing new and innovative ideas to help with the increased use of simulation, including new observational role assignments (B. Rogers et al., 2020). Given the fluid nature of simulation regulations, the innovativeness substantially fluctuates throughout nursing programs. The problem is that although the primary purpose of simulation is to build knowledge, skills, and competence levels (Chernikova et al., 2020), there is a lack of understanding regarding whether observational roles are influencing students' self-perception of these skills. Although studies show that observers have been gaining the same cognitive knowledge as the active participants (B. Rogers et al., 2020), a comparison of students' personal perceptions has resulted in a variety of outcomes. For instance, a systematic review was conducted outlining nine studies where five concluded that observer roles were as good or better than hands-on roles and four documented learner satisfaction within the observer role (O'Regan et al., 2016). However, within their review O'Regan et al. (2016) found that the learners who did not value the observer role had reported them as passive and boring in comparison to the active participant roles. Xie (2021) reported that boredom and engagement are directly related: the more engaged students are, the less bored they will become. Despite the studies that continue to value the observer role in simulation, it remains unclear how observers learn in simulation and how they perceive their learning.

In addition, the new Next-Generational National Council Examination (NCLEX) that launched in April 2023 is focused on the clinical judgment model (NCSBN, 2019). Morris (2023) explained that the new test evaluates graduates' ability to critically think and make competent clinical decisions. Given the implementation of the Next-Gen NCLEX and the increase in complexity of health care, it is now more important than ever to ensure nursing students are gaining the appropriate knowledge, skills, and competence in simulation experiences. The following information depicts the plan I used to determine the differences in knowledge, skills, and attitudes among active participants and active supervisors (observers) following an HFS.

Purpose Statement

The purpose of this quantitative, causal-comparative, posttest only, nonexperimental, between-groups research design study was to compare how self-evaluations of knowledge, skills, and attitudes differ between active participants and active supervisors (observers) among associate degree nursing students after a simulation rotation is complete. The independent variables are the roles assigned during the simulation, defined as the active participants and active supervisors (observers). The active participant is "focused on error prevention, immediate feedback, and creation of an appropriate training environment, where students will feel and actually be psychologically safe, will communicate among them, and be able to review the process" (Koukourikos et al., 2021, p. 17). The active supervisor (observer) is defined as being external to the simulation where the learner will be watching and evaluating performances rather than actively participating in the simulation (O'Regan et al., 2016). The dependent variable is defined as the students' perception of their knowledge, skills, and attitudes as measured by the composite score on the Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP).

Significance of the Study

It is imperative that nurse researchers continue to study the effects of the new, innovative teaching strategies that have replaced traditional nursing education. Although simulation-based education is now embedded in nursing programs as an effective learning modality (Meum et al., 2020), there are several changes that continue to be incorporated on an individual program basis. One of the main areas of concern is the observational role (Howard, 2020). The NCBSN acknowledges that previous concerns regarding observational experiences in traditional clinical training have been addressed. The NCSBN believed that simulation could decrease the amount of time students were spending in observation at traditional clinical sites (Hayden et al., 2014). Now, students are being asked to observe in simulation as well. Although several simulation educators implement some type of observer role, the Accreditation Commission for Education in Nursing's (ACEN) definition of clinical begins with this verbiage, "direct, hands-on, planned learning activities" (ACEN, 2021, Glossary section). The ACEN's verbiage may make faculty skeptical of integrating observational roles in simulation. In addition, experts continue to voice the same concern the NCSBN asked: "Are students receiving a quality experience with simulation when nine students are observing and three are performing?" (Hayden et al., 2014, p. S4). The existing literature does not provide answers to that specific question; rather, the literature focuses heavily on meeting learning outcomes while in the observer role (Delisle et al., 2019). Therefore, it is evident there is much to be learned about observational roles. Measuring students' self-perceptions in knowledge, skills, and attitudes can adequately add substantial reasoning to whether students in observational roles are gaining the same quality experience as their peers. HFS needs to continue to be a seamless extension of clinical learning through researching evidence-based teaching practice. As nurse educators continue to exhaust all measures to ensure students are gaining a quality-based education, there will be many more questions that evolve. This work affects the entire profession of nursing education from students, staff, faculty, administration, and researchers.

Research Question

Given the recent attention to observational roles in the literature, research is needed to expand the understanding of the direct effect on students. As the need for new nurses to make competent, clinical decisions continues to be an area of concern (AlMekkawi & El Khalil, 2020), it is imperative for educators to identify the strengths and weaknesses within learning experiences. Specifically, this study provides evidence toward the effectiveness of observational roles in HFS learning experiences.

In order to determine whether self-competence differs between active participants and active supervisors (observers), this study addresses the following research question:

RQ1: How do self-evaluations for associate degree nursing students of knowledge, skills, and attitudes differ between active participants and active supervisors (observers) after a simulation rotation is complete?

Definitions

1. *Active Participant* – An active participant is "focused on error prevention, immediate feedback, and creation of an appropriate training environment, where students will feel and actually be psychologically safe, will communicate among them, and be able to review the process" (Koukourikos et al., 2021, p. 17).
2. *Active Supervisor* – A supervisor is responsible for communicating needs, overseeing performance, providing guidance and support, and professionally collaborating between members of the team (CompassPoint, 2013).
3. *Clinical Decision-Making* – "A contextual, continuous, and evolving process, where data are gathered, interpreted, and evaluated in order to select an evidence-based choice of action" (Tiffen et al., 2014, p. 1).

4. *Health Science Reasoning Test* – A health science reasoning test is an assessment of the critical thinking skills needed by health sciences students as they develop their clinical reasoning skills (Cox et al., 2013).
5. *High-Fidelity Simulation* – High-fidelity simulation uses full-scale computerized patient simulators, virtual reality, or standardized patients that are extremely realistic and provide a high level of interactivity and realism for the learner (Meakim et al., 2013).
6. *Observer* – In this role the learner is external to the simulation; the learner will be watching rather than participating in the simulation (O'Regan et al., 2016).
7. *Self-Assessment* – "A personal evaluation of one's professional attributes and abilities against a perceived norm" (Lu et al., 2021, p. 1).
8. *Simulation* – "A technique for replacing or completing real-life experiences with guided experiences, which are faithful imitation of the real world in a fully interactive way" (Koukourikos et al., 2021, p. 15).
9. *Standardized Patient* – A standardized patient is a patient trained to consistently portray a patient or other individual in a scripted scenario for the purposes of instruction, practice, or evaluation (Robinson-Smith et al., 2009).

CHAPTER TWO: LITERATURE REVIEW

Overview

In view of the ongoing practice of the observer role in high-fidelity simulation (HFS), Chapter Two focuses on studies and research accomplishments in the areas of HFS, simulation assigned roles, observational roles, implications of self-assessment, knowledge, skills, and attitudes. Literature was gathered utilizing several databases including CINAHL, ERIC, PubMed, and Academic search. The impacts of the active supervisor (observer) role on associate degree nursing students, faculty, and simulation design reveals gaps about the influence on self-perceptions of knowledge, skills, and attitudes in the existing research. Although there is a significant amount of literature on observational learning, the findings are highly controversial and the exact learning implications that are being missed are not addressed. This study investigated specifically how observational learners perceive their own learning in regard to the knowledge and skills that were gained. The theoretical underpinnings in this chapter align with the original simulation design and support the use of observational learning.

Theoretical Framework

The Observational Experiential Learning© theory introduced in 2019 by Brandon Johnson guided this study. Johnson (2019) recognized the benefits of observational learning but identified a gap in theoretical support of this type of learning in a simulation environment. Historically, Kolb’s experiential learning theory (ELT) has provided the underlying theoretical support for simulation experiences (Davitadze et al., 2022). Although Kolb’s ELT maintains a strong foundation for how learning occurs in simulation, it contains a common understanding that one must be directly experiencing something to be learning. On the other hand, Bandura’s social learning theory (SLT) and social cognitive theory (SCT) explain how observational learning can be beneficial for learners. While the SLT outlines the social learning that occurs during observational learning, the SCT helps build on how learners translate their observations into knowledge.

Experiential Learning

David Kolb's ELT originating in 1984, focuses on learning by doing, explaining the cognitive and experiential process that takes place for effective learning. Kolb (2021) outlined four stages of learning including concrete experience, reflective observation, abstract conceptualization, and active experimentation. The concrete experience stage explains how a learner must be involved in an experience to gain a new perspective. The reflective observation stage allows the learners to reflect on their new experience through allowing them to acknowledge their own strengths and weaknesses. Then, abstract conceptualization is the stage where the learner acclimates their thinking and constructs new ideas based on the previous two stages. The final stage in the learning process is active experimentation, where Kolb explains this is the learner's opportunity to apply what they learned from the experience into real-world situations. The most important learning outcomes of Kolb's theory are to gain assimilation and accommodation, which are linked to reflection (Kolb, 2021). Although this precisely explains the traditional simulation learning experience where all learners are providing bedside care, it leads to some unanswered questions regarding the learning process of observational learners, which is where the SLT and cognitive learning theory (CLT) fill in the gaps.

Social Learning

From a psychology background, Bandura emphasized the importance of "how people regulate their behavior on the basis of response consequences that they either observe or experience firsthand" (Bandura, 1977, p. 27). Although the SLT explains what social aspects are necessary to gain meaningful observational experiences, Bandura went one step further to acknowledge the details surrounding the cognitive processes with support from neurophysiological evidence, identified as the CLT. Bandura's CLT suggests that through cognitive ideas, observed behavior, and feedback for error correction, a student can translate observational knowledge into performance. In this respect, even covert reasoning and decision making become observable, acknowledging that action and errors are not required for learning to take place (Bandura, 2005).

Experiential and Social Learning Combined

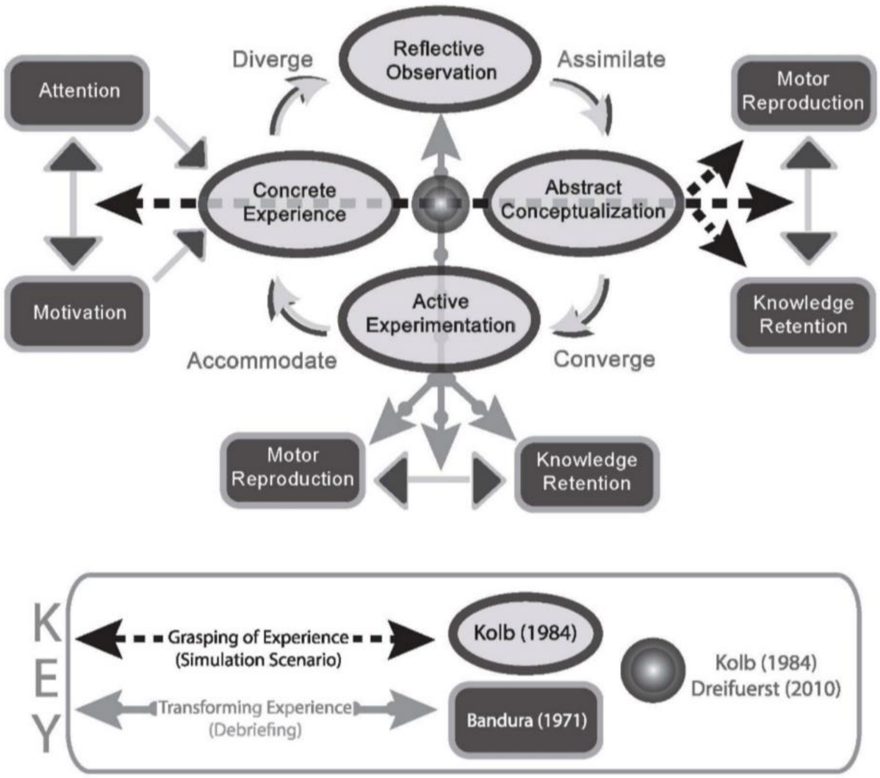
The greatest difference between social and experiential learning is that students who are directly participating are learning from their own mistakes while observers are learning from other's performances. Within the SLT and CLT, Bandura (1977) described four concepts that are necessary within observational learning including attention, knowledge retention, motor reproduction, and motivation, which all link to concepts outlined in Kolb's ELT. Certainly, whether learning is occurring from recognizing personal weaknesses or identifying others', the learner's full attention is required. Attention and the motivation to learn ensures that students are not simply mimicking their observations, but that they are actively learning from other's mistakes. Secondly, retention ensures that learners are not just paying short-term attention but that they are retaining and absorbing the experience. Retention is closely related to Kolb's reflection stage by allowing students to reflect on what is being learned to improve their practice. Lastly, motor reproduction involves learners being able to reproduce or apply what they learned; which links directly back to Kolb's ELT that implies learning by doing. Johnson (2019) has integrated experiential and social learning to strongly support observational learning in simulation settings.

Johnson's Observational Experiential Learning Theory

Johnson integrated each of these well-known theories, Kolb's ELT and Bandura's SLT and SCT, into one defined as the observational experiential learning (OEL) theory depicted in Figure 1. The OEL initial framework begins with Kolb's original four concepts from the ELT, providing a strong simulation underpinning. Bandura's SLT and SCT for observational learning are linked to Kolb's concepts, explaining what social and cognitive aspects are required during each concept for active observational learning to occur. The center circle in Figure 1 represents two purposes: (a) it merges the theories together, demonstrating that it is the tension and interaction between all four concepts that create experiential learning, and (b) it utilizes debriefing for meaningful learning to develop reasoning and higher order thinking. Johnson's OEL framework guided this study to determine whether observational role assignments had an effect on students' knowledge, skills, and attitudes in comparison to active participants.

Figure 1

Observational Experiential Learning©



Note. From "Simulation Observers Learn the Same as Participants: The Evidence," by B. K. Johnson, 2019, *Clinical Simulation in Nursing, 33*, p. 10 (https://www.nursingsimulation.org/article/S1876-1399(19)30042-8/references). Copyright 2019 by B. K. Johnson. Reprinted with permission (see Appendix A).

Related Literature

The following section examines current literature related to the increase in use of HFS, outcomes within active participant roles, observational roles, the importance of self-assessment, and common variables that influence self-competence. As the use of simulation increases, roles are expanded to expose more students to a range of clinical situations, creating a need for more evidence to ensure all students, regardless of role assignment, are gaining a quality learning experience through assessing their self-perceptions of their knowledge, skills, and attitudes.

HFS in Nursing Education

Nursing education continues to evolve and the task of providing a high-fidelity means of exposing students to a range of clinical situations is challenging and often conducted through simulation. This review of literature of HFS focuses on how its use has increased and acknowledges the reasoning behind expanding roles.

The International Association for Clinical and Simulation Learning (INACSL) defined simulation as “an educational strategy in which a particular set of conditions are created or replicated to resemble authentic situations that are possible in real life” (INACSL Standards Committee, 2016, p. S44), whereas the NCSBN (2016) defined HFS as “a technique, not a technology, to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner” (p. 5). Considering its official buy-in from professional regulating bodies, HFS has become widely accepted within the nursing curriculum over the last decade.

Simulation has allowed educators to reduce the theory-to-clinical practice gap and challenge students to gain the knowledge, skills, and attitudes to provide evidence-based care. As health care continues to evolve and patient acuity levels increase, HFS has become a highly regarded teaching modality among associate degree nursing programs. In view of the influx of positive data that have been gathered within simulation, this teaching modality is increasing within nursing education programs. Several researchers acknowledge the increase in use of simulation-based learning (Aebersold, 2018; Meum et al., 2020; Sullivan et al., 2021; Vabo et al., 2021). Specifically, Smiley (2019) conducted a survey on the use of simulation in prelicensure nursing programs for the purpose of updating the current simulation landscape and compared results between 2010 and 2017. This evaluative follow-up study of all prelicensure nursing education programs in the United States indicated HFS use has increased substantially during a 7-year period. Just recently the use of simulation has increased due to the integration of the concept-based curriculum (Baron, 2017), the Next Generation NCLEX, the flipped classroom approach, and the COVID-19 pandemic (Divjak et al., 2022). In addition, Koukourikos et al. (2021) acknowledge the increase in use of simulation due to the lack of clinical facilities, lack of professors, and also due to the increased quality of training using simulation.

As the use of simulation continues to increase, nursing students are frequently finding themselves in the simulation lab to complete clinical hour requirements and connect concepts that were learned in class while faculty are becoming creative to provide more students with a range of clinical situations. Increasing the amount of simulation experiences subsequently means increasing the number of students involved within a scenario. The amplified number of students in simulation groups and the new roles being assigned have resulted in several uncertainties among faculty. However, the evidence that could enlighten faculty on these new roles continues to be debatable, depending upon the design of the simulation as well as the level of engagement among students. In the following section, it is apparent that simulation design fluctuates between programs from assigning roles to instructing students to simply work as a group. Although mediating variables will continue to fluctuate among programs, Meum et al. (2020) explained that the purpose of increasing simulation hours is to bridge the gap between practice and education; therefore, this study examined whether students in observational roles were gaining that experience similarly to their peers who were in traditional roles.

Simulation Assigned Roles

In an HFS, students are often assigned various roles to efficiently use simulation resources. Assigned roles may consist of primary nurse, secondary nurse, other nurse, documentation nurse, communication nurse, observation nurse, and family member (Alexander, 2019). In other instances, students are not assigned roles; instead, they are instructed to work together as a team to determine priority and implement orders. Carey et al. (2018) even presented a new strategy for assigning roles in simulation that enhances collaboration, prioritization, and critical thinking. The Two-Heads-Are-Better-Than-One strategy was created to move students away from tasks such as medication administration, assessment, and documentation and more into prioritization and delegation through dividing and conquering. This innovative strategy for assigning roles in simulation is used to allow faculty a perspective for ensuring critical thinking in the simulation lab. Although experts would argue this strategy would stimulate more clinical reasoning skills, this specific strategy has not been studied in relation to critical thinking or clinical reasoning and is not utilized as a requirement among simulation. Considering the fluctuation of methodology utilized in the simulation laboratory, it is difficult to examine how each role differs; however, the following researchers attempted to do just that.

Alexander (2019) completed a randomized control trial to explore how simulation role assignments, using preferred learning styles, impacted prelicensure nursing students' clinical reasoning. This study required students to take an assessment to determine their learning style, and then they were assigned a simulation role depending upon their results. Within this trial students were placed into two separate groups: the experimental group where students were assigned roles that aligned with their learning style and a control group where students were assigned roles that were not congruent with their learning style. The study results revealed that both groups had an increase in clinical reasoning skills, exhibiting evidence that regardless of the learning style and role assignment alignment, students are gaining the same skills. However, Weiler et al. (2018) argued that role assignments do have a profound effect on students. Through their study which aimed to determine if role assignment and involvement level yielded any differences in critical thinking, situation awareness, and self-efficacy scores, they determined the more involved students are, the higher their critical thinking skills and self-efficacy. This is a substantial finding because it could be assumed that students in observational roles are not as involved as the active participants and may be missing developing critical thinking skills as well as a sense of self-efficacy. Battista (2017) agreed; although they was not comparing the different role assignments in this study, they were still able to draw conclusions related to role assignment. Battista examined student participants in a scenario-based simulation and the types of activities in which students were engaged in, specifically focusing on communication and critical patient management. She concluded that role assignments did influence the complexity of students' engagement, where she acknowledged that students learned as they engaged in the simulation. This suggests to readers that active participants were more engaged and received a higher quality of learning.

On the other hand, Zweifel et al. (2022) took a different approach and studied whether the simulation was equally as effective for students when assigned the following roles: primary nurse, secondary nurse, a direct observer, a non-directed observer, and an in-scenario observer. They argued that there were no significant differences between confidence and learning outcomes among the groups. Although this study provides evidence that learning outcomes are not being affected by role assignment, there is more to be learned from this study. The researchers found the largest response to the "do not agree" on the instrument was on the statement, “I developed a better understanding of the pathophysiology” (Zweifel et al., 2022, p. 5). This is critical considering effective clinical decision-making stems from understanding the pathophysiology and being able to intuitively know what is next to provide timely care. However, one would assume that it would be more difficult to grasp a better understanding of the pathophysiology if one is participating in a task-oriented role such as skills nurse or medication nurse. This study determined whether clinical learning differs among these task-oriented roles and observational roles, which are discussed in the following section.

Observational Role

Some experts view hands-on participation as a necessity to learning, while others value the knowledge that is gained from an observational perspective (Johnson, 2019). Nevertheless, observers, known as the participants who are engaged through observation, have recently taken hold in several HFS educational experiences. One major reason for the uncertainty surrounding this role is that the NCSBN currently states, “Observational experiences shall not be accepted toward the 400 or 500 minimum clinical hours required” (Division of Legislative Systems, Commonwealth of Virginia, 2023, para. 1). This regulation poses a major dilemma for nurse educators since all students who participate in the simulation environment cannot earn the same amount of clinical time. The NCSBN’s regulation places a stigma on observational learning, suggesting that learners are not gaining quality experiences in this role. Regardless, observational roles have been accepted among simulation leaders, highlighting that observers mirror the gains in knowledge of those in participant roles, and they apply knowledge to parallel situations similarly to participants (Johnson, 2019). Reime et al. (2017) suggested that the observer role is acceptable as long as the students are also given some opportunity for hands-on participation to become more confident in their professional roles. The studies discussed in this section weigh heavily toward promoting the use of observers; however, there continues to be opposing views, and these controversial findings could be a result of the fluid nature of simulation regulations. Regardless of the controversial viewpoints of observational learning, nursing programs across the nation continue to use observational roles of some type, creating a platform for researchers to continue to examine evidence of its effectiveness.

To understand differing faculty perspectives, one must understand the broad definition of an observer, defined as a representative that observes rather than officially participating in an activity (Merriam-Webster, n.d.). Upon understanding the definition, it is evident why so many regulating bodies question the quality of learning that will take place. However, simulation instructors are placing their own implications on the role, some transforming it into a role that may even be more beneficial than an active role, while others may simply require students to observe. The fact that every simulation center may implement different requirements is the very aspect that makes understanding the role difficult. However, the following researchers have attempted to tap into the realm of observational learning, providing some insight on what is being gained and lost within this role.

Theobald et al. (2021) performed a scoping review to explore the observer role and clinical reasoning within HFS. The researchers found that there are a variety of ways to implement the observer role, either passively or actively. In addition, although some literature in this scoping review defined the observer role, there was little explanation of the detail of the role. When specifically analyzing the development of clinical reasoning skills, the majority of the literature did not make a distinction between participants and observers; rather, they treated them as a homogenous group. Due to this undervaluing of the role, further studies are needed to tap into clinical outcomes for the observer. The researchers found that the observer role was associated with positive learning outcomes, reflection, peer review, self-evaluation, and increase in confidence. Bates et al. (2018) had similar findings when comparing active participants and observers. Within a sample of 132 prelicensure baccalaureate nursing students, there were no significant differences among anxiety, confidence, collaboration, and/or problem solving. In fact, several researchers agree that students in the observer role are reporting high levels of satisfaction, increasing student confidence, meeting learning objectives, and framing the observer as a valued team member (Johnston et al., 2021; B. Rogers et al., 2020; Tutticci et al., 2022). Bullard et al. (2018) agreed after conducting a quasi-experimental, mixed-methods study among active participants and observers. Taking a different approach to studying these groups, Bullard et al. completed a follow up assessment and a case study of both groups to determine learning outcomes, where their findings revealed that both active participation and observation improved learning and had similar performances. Reime et al. (2017) agreed that the two groups are comparable to an extent; however, they found an interesting perspective. They examined observers and active participants' self-reported learning outcomes during a simulation experience regarding non-technical skills. A mixed-method design evaluated this study through questionnaires, observations, and focus group interviews. Ultimately, learning outcomes were similarly met in both groups, establishing that observer roles are a valuable learning tool. However, qualitatively, they found that the majority of students preferred hands-on active participation. This is interesting considering most would assume that students would prefer to learn behind the scenes, where they do not experience as much pressure and anxiety as the active participants. However, Seale et al. (2020) seconded Reime et al.'s (2017) interpretation, where they found that students who observed had reported that they would have liked a more active observer role.

Howard (2020) helps to understand the differences among the roles and how opposing results may be produced depending upon the logistics surrounding the observational role. The researcher performed an evaluation of two different observer roles in simulation with a group of baccalaureate nursing students. Howard was interested in comparing several variables, including satisfaction, self-confidence, and engagement, among two groups identified as the traditional observer and the defined observer. The traditional observer group of students were instructed to report what they saw and heard in debriefing, whereas those in the defined observer roles were given more specific instructions. The defined observers were grouped into the following subsections: observer for communication, observer for infection control, observer for patient-centered care, observer for delegation, and observer for teamwork. Within this quasi-experimental comparative mixed-method design, 132 students participated. The analysis demonstrated a statistically significant difference between overall scores of the variables. Ultimately, the researcher found that student satisfaction, self-confidence, and engagement increased with the use of defined observer roles. This study provides important evidence that the use of observer roles should be more adequately defined to gain the most benefit from the role. However, this defined role would decrease students' abilities to increase their knowledge of the concept as they are primarily focused on one objective, increasing the need to study how observers are perceiving their level of competence in learning the material.

Nevertheless, Delisle et al. (2019) found evidence to the contrary, reporting that active participants learn significantly better than observers in simulation. Through conducting a systematic review and meta-analysis to compare observation versus active participation in simulation, these researchers included 13 randomized controlled trials. They identified effectiveness using Kirkpatrick's 4-level model and found no differences in reaction to training between the groups. However, they found a significant difference in learning among the groups, reporting that active participants learned significantly better. There are several mediating variables that must be considered to understand how students are gaining such different outcomes. T. Rogers et al. (2019) addressed some of those variables between the two groups, discussing the many emotions that can obscure learning. Although they could not detect a difference in learning between the two groups, differences were found. Through a self-report of emotions between active participants and observers, these researchers found that students who are active participants had higher level of both positive and negative emotional arousal in comparison to the observers. These findings could suggest the observers were not as engaged as their peers who were active participants. This risk of disengagement has led many nursing faculties to utilize additional measures such as worksheets to ensure observational students remain purposefully engaged.

Observer Worksheets

Incorporating worksheets for the student observers to complete is controversial among experts; while some agree that this additional work keeps students engaged and focusing on important concepts (Seale et al., 2020), others feel this additional work may prohibit their opportunity to fully engage and focuses their attention on paperwork (Johnson, 2019). Norman (2018) conducted a study to examine differences in learning outcomes for observer students with an observation guide in comparison to those without an observation guide. Within this quasi-experimental study, Norman did not detect any significant improvement in knowledge, self-confidence, or collaboration between the groups but did find that students using the guide were more satisfied with their learning experience. This provides evidence that students appreciate guidance to better understand what concepts are important to gain in the specific scenario.

Bethards (2014) also acknowledged that educators may struggle with providing learning experiences for observational students and provided theoretical support for this role through four component processes: attention, retention, motor reproduction, and motivation. To ensure the attention process, Bethards suggested providing worksheets/guidelines to the students to emphasize concepts and critical thinking rather than specific tasks. Bethards published an observation worksheet for public use through INACSL, which is utilized within this study. In addition, faculty have also created their own tools to enhance active learning behaviors and perceptions of clinical reasoning ability (Johnston et al., 2021), once again providing evidence toward explaining the reasoning behind different perceptions of the observational role.

Respectively, the literature above provides evidence that the observer role is benefiting some more than others, and some students may be missing out on technical skills. Therefore, researchers are tasked with determining whether these missed opportunities are tasks that can be made up in the skills lab or whether they are missing their ability to become competent in providing care, which would be much more critical to their development as a clinician. Nevertheless, observational roles are a controversial topic in HFS and much of the research about the observer role in simulation is debatable and focused on student satisfaction, meeting learning outcomes, and increasing confidence (Chernikova et al., 2020).

B. Rogers et al. (2020) conducted a scoping review to determine the learning outcomes that were gained in observer roles in nursing simulation, and the following eight categories emerged: knowledge, clinical skills, clinical judgment, teamwork/collaboration, confidence, critical thinking, insight or awareness, and conceptual thinking. Knowledge was measured objectively through comparing exam scores between the two groups; the researchers found that observers scored similarly to active participants in eight out of nine studies. Clinical skills were measured both objectively and subjectively in the obtained articles with mixed findings on whether observers obtain the same skills such as task management, assessment, professional behavior, and communication. Clinical judgment was measured differently in the literature, some measuring it by how observers respond to a clinical situation while others measured clinical decision-making scores between the two groups. The findings in relation to clinical judgment varied greatly with some studies showing increased clinical judgment skills in observational roles and others that found observers had lower decision-making scores than the active participants. According to the articles obtained in B. Rogers et al.'s (2020) scoping review, teamwork and collaboration are rated highly among students in observational roles. Each article obtained in relation to teamwork and collaboration agreed that observers demonstrate better skills in working with teams, acting professionally, and viewing their role with more meaning. Confidence was evaluated mainly through subjective findings and qualitative analysis. A student's confidence is controversial due to the underlying factors that affect their response, such as their attitude, self-efficacy, and perceived learning. The majority of articles concluded that observers had higher mean scores in confidence when compared to active participants. Findings were also consistent with critical thinking, where the majority of articles showed no difference in observers' problem-solving skills in comparison to the active participants. Insight was one variable that all the obtained articles agreed upon whether quantitative or qualitative methodologies were used; the results indicated that observers gain new insight and awareness through vicarious learning. Last, conceptual thinking resulted in three records where they concluded that observers think from a broader perspective and obtain a better sense of holistic nursing care. Considering these learning outcomes have surfaced as the emerging factors that are influenced by observers, I focused on three of these areas: knowledge, clinical skills, and professional attitudes. The following literature acknowledges that HFS in its traditional format has previously met these learning outcomes.

Knowledge

Professional knowledge is an essential aspect of effective nursing education. Gaining knowledge in simulation is often evidenced by meaningful reflections and meeting learning outcomes. HFS has widely been the teaching modality that allows students to apply their learning, which suggests to faculty that learning has occurred. La Cerra et al. (2019) found HFS has a much larger effect on knowledge and performance when compared with any other teaching method. Campanati et al. (2022) agreed after conducting a quasi-experimental study to evaluate students' knowledge after the implementation of a simulation in the nursing fundamentals discipline. In this comparison study, students who participated in the simulation had a higher knowledge gain. Although these studies did not directly include observational role perspectives, they acknowledged that HFS is often associated with knowledge acquisition.

Some researchers have found that simulation is not the best place to gain new knowledge. For instance, Norman (2018) conducted a pretest, posttest study to assess the knowledge gained following a simulation and interestingly found posttest scores were lower than pretest scores across all research sites. Another researcher attempted to explain why scores may be less following a simulation experience; Diaz-Agea et al. (2022) found that although there was knowledge gained in the simulation, the learning outcomes that correspond with the design of the scenario were not the most prevalent for students. Students learned more from the emerging elements as the scenario unfolded, suggesting to readers that more is to be learned other than specified learning objectives. For instance, the design of a simulation is created with predetermined learning objectives that faculty require students to meet. However, students are gaining experience in much more. Although incorporating hospital protocols and collaborating as a team may be the foundational learning component of the simulation, students gain experience in managing their emotions, engaging with family members, and analyzing findings to determine their next actions. All of these nursing elements unfold as the scenario progresses and allow students to realize how several factors play a significant role in caring for a patient. Therefore, it is imperative to understand whether observational students are experiencing emerging learning outcomes similar to their peers. To ensure an adequate understanding of what learning opportunities observers gain, a self-evaluation of their experience directly acknowledges what is gained or lost.

Clinical Skills

There are several clinical skills that students gain in HFS experiences which researchers want to ensure are not lost in the observational role. Although nursing tasks such as dressing changes, suctioning, and intravenous infusions are considered skills, these are learning outcomes that are most often met in a laboratory setting. In HFS experiences, enhanced clinical skills are meant to be gained such as communication and collaboration, clinical decision-making, and clinical judgment skills. The following literature discusses recent studies that outline how HFS relates to each of these key areas.

Communication and Collaboration Skills

Effective communication skills are essential for healthcare professionals to deliver high-quality care (Blackmore et al., 2018). Simulation provides a platform for acting participants to practice their communication skills with patients, physicians, family members, and several other members of the healthcare team. Frei-Landau et al. (2022) acknowledged that simulation often entails an intense conversation regarding different viewpoints where students use their verbal and nonverbal communication skills to work collaboratively and establish mutual expectations. Students who are in the observer role may not be in that direct line of communication; therefore, many experts continue to question whether these important skills are being gained. However, Bandura’s social observational learning theory suggests that students who are in observing roles do gain communication skills. Based upon this theory, Sobana et al. (2019) conducted a role play session with specific learning objectives to increase doctor–patient communication. Students were grouped into performers and observers during the session, and the researchers compared the learning and subjective outcomes of the two groups. Subjectively the two groups were equal on satisfaction except for one item identified as “promote my learning” where observers scored lower. In addition, self-confidence levels of observers were equal to performers except on “confidence in mastering the skill,” “confidence that the session covered necessary skill,” and “confidence that I know to get help,” in which they were lower. Sobana et al. concluded that although effective and equal communication outcomes were achieved between the two groups, observers specifically scored lower on the expression of empathy to patients.

Clinical Decision-Making Skills

According to Nibbelink and Brewer (2018), clinical decision-making includes gathering appropriate data to make conclusions about a patient’s status, determine a method to implement evidence-based practice, and appropriately integrate assessment findings into the plan of care. Nurses are continuously challenged to make competent clinical decisions by using quality clinical reasoning skills. Guerrero (2019) acknowledged that clinical reasoning, clinical decision making, and clinical judgment are the most essential elements in providing safe patient care. Therefore, nurse educators constantly feel tasked with providing students with opportunities to practice these skills. HFS is often the answer, being utilized as a teaching modality across the nursing curricula to influence students' critical thinking and decision-making skills. Researchers continue to provide evidence toward positive outcomes in HFS, recognizing that clinical decision making is a skill that is gained in HFS experiences. In a recent study, Ayed et al. (2021) performed a pretest/posttest control group design study to examine the effect of HFS on clinical decision-making among pediatric nursing students at an Arab American University in Palestine. One hundred fifty participants were divided equally into an intervention group and a control group. The intervention group received theory-based learning and HFS whereas the control group received theory-based learning and traditional training in the laboratory. A significant difference was found between the two groups in regard to clinical decision making, proving that HFS is effective and enhances nursing student's ability to make clinical decisions. Abdulmohdi (2017) agreed after specifically studying the outcomes of HFS on students' clinical decision-making skills using a mixed methods multiphase design. Utilizing a think aloud protocol during a simulation experience, the researcher conducted an observation and collected data through the Health Science Reasoning Test (HSRT) and follow up interviews to assess the transferability of skills to clinical practice. Data analysis was conducted to enhance understanding of subcategories including that students spent 49.7% of their cognitive processing in gathering and reviewing patient data, 10.6% on analysis, 6% on inference, 3% on diagnosing, 1.1% in pattern recognition and evaluation, and 28.6% on setting goals and acting. Overall, students were found to have an increase in HSRT scores following the simulation experience. which adds to the existing body of literature that traditional HFS experiences do increase clinical decision-making skills among healthcare students.

Svellingen et al. (2021) argued that although students may be gaining clinical decision-making skills in simulation, the amount of simulation experiences do not necessarily improve their abilities. Through a randomized controlled trial over a 3-year baccalaureate nursing program, the researchers assessed the effect of multiple simulations on students' self-reported clinical decision-making skills and self-confidence. There were two groups identified, one as the control group and the other as the intervention group. The control group had a single set of simulation scenarios, whereas the intervention group had a double set of simulation scenarios. The researchers found no significant differences between the two groups on clinical decision-making scores or self-confidence scores. Consequently, the NCSBN (2016) acknowledged that it is not the quantity of simulation experiences that students obtain but the quality of the experience that makes the difference. A quality simulation experience can be measured by an increase of knowledge, skill acquisition, and positive attitudes. Lavoie et al. (2022) provided some insight into what constitutes a quality experience in simulation such as students' ability to apply their learning. The researchers completed a scoping review to better understand the existing literature regarding learning outcomes following simulation-based education in nursing. Due to the lack of information regarding transfer of learning to clinical decision-making skills, Lavoie et al. sought to map out the current literature on the topic. Among 61 quantitative articles they found that only 11% of the studies assessed transfer to clinical practice, while the remaining 89% assessed the simulation learning outcomes. They concluded that research regarding simulation education has adherently focused on simulation learning outcomes rather than applicability of learning outcomes to practice. Although research has made a solid effort in proving the increase in clinical decision-making skills following simulation-based education, the gap in the literature exists in understanding whether students who are assigned observational roles are gaining these important skills.

Clinical Judgment Skills

Since the implementation of the NCSBN's clinical judgment model that has been adopted as the foundation of the nursing curricula, students are expected to gather, interpret, and evaluate findings much sooner than before. Connor et al. (2022) has provided an operational definition of clinical judgment within the nursing context, as "a reflective and reasoning process that draws upon all available data, is informed by an extensive knowledge base and results in the formation of a clinical conclusion" (p. 10). Furthermore, the NCSBN acknowledged that clinical judgment requires "an iterative process that uses nursing knowledge to observe and assess presenting situations, identify a prioritized client concern and generate the best possible evidence-based solutions" (NCSBN, 2019, p. 1).

Clinical judgment has been previously recognized by hospital leaders as a shortcoming among new graduate nurses (Hussein et al., 2017). In 2017, Kavanagh and Szweda (2017) studied entry-level competency and practice readiness of newly graduated nurses. This study, consisting of more than 5,000 newly graduated nurses, found that only 23% of them demonstrated entry-level competencies and practice readiness, 54% were unable to manage a clinical problem, and 23% were unable to recognize the problem. Due to these statistics, the NCSBN has implemented the Clinical Judgment Model to stimulate critical thinking, clinical decision making, and increase the ability to care for clients with increased levels of acuity. Hospital leaders and professional nursing organizations are not the only population discussing the challenge of clinical judgment; new nurses often express the transition into a work environment as challenging and stressful. Hallaran et al. (2022) uncovered themes during a cross-sectional survey that studied barriers of transition into practice, including feeling unprepared, lacking confidence, and unsupportive cultures. Unpreparedness and lacking confidence directly link to one's ability to critically think and experience in making clinical decisions. Perceptions of one's own status can determine success or failure, increasing the need for researchers to conduct studies where students can assess themselves to focus on their defined area of weakness. Tyne (2018) also found that new nurses felt unprepared to respond to patient situations, which in turn affected their self-worth and clinical competency.

AlMekkawi and El Khalil (2020) conducted a literature review to summarize an understanding of current knowledge of newly graduate nurses. Finding much of the same data among feelings of unpreparedness, they concluded that clinical experiences are the mainstay to producing confident nurses as they provided opportunities to practice nursing skills and make clinical judgments in real-life settings. However, several researchers have found that simulation is a reputable modality to teach clinical judgment skills rather than crowded hospital floors. For instance, Reid et al. (2020) compared clinical judgment scores between a simulation group and a hospital-based clinical group. The researchers concluded that there were no statistically significant differences in the clinical judgment scores between the groups, suggesting a reasonable alternative to clinical experiences. Klenke-Borgmann et al. (2020) also studied the effect of simulation education in the traditional classroom setting on clinical judgments skills utilizing the Lasater Clinical Judgment Rubric. Based upon student feedback during the debriefing session, the researchers concluded that simulation bridges the clinical-to-theory gap and encourages students to critically think. Ayed et al. (2022) agreed after evaluating the influence of HFS on clinical judgment skills among a group of baccalaureate nursing students. This quasi-experimental study consisted of 150 participants where students were randomly assigned HFS or traditional methods. The researchers concluded that HFS experiences had improved the students' clinical judgment skills more than those using traditional methods.

Salameh et al. (2020) agreed after conducting a study to assess students' clinical judgment abilities after an HFS. They found that clinical judgment skills can be greatly improved when placing students in an HFS that they would rarely experience in the clinical setting, gaining more knowledge and skill to care for complex patients. Within this complex case study, students were found to have improved clinical decision-making skills, clinical knowledge, self-confidence, and enhanced critical thinking.

Although clinical judgment is a skill that tends to come with time and experience, HFS has been a place where nurse educators strive to connect concepts, increase confidence, and engage students in clinical judgment and clinical decision-making. HFS has established its place in the nursing curriculum and its implications for practicing clinical judgments. However, the gap in literature exists as clinical judgment is not well examined for students who are assigned an observer role in the simulation experiences. The development of these clinical skills continues to be the underpinning of simulation experiences; therefore, it is important to measure whether these skills are being gained by students who are in an observational role.

Attitude

Students' attitudes toward their learning are critical to their development as a professional nurse. For students to learn to become competent practitioners, they must first gain positive reflections of their own self-efficacy and self-competence. Competence is viewed as a construct among experts in which the outcomes depend upon the specific domain being tested (Schneider, 2019). For instance, Schneider (2019) explained that competence can relate to one's ability, knowledge, and/or perception. Self-competence is often the first step into becoming a skilled healthcare professional, and the attitude and the way one views themselves weighs heavily on their success. This important concept is one that educators do not want to eliminate from the experience with new role assignment, as simulation is popularly known for increasing competence. For instance, Simoneaux (2022) found that nursing students are more likely to gain self-efficacy and self-confidence after repeated exposure to simulation and clinical settings. Each time students attended a simulation, they become more satisfied with their experience, providing evidence that these important elements take time and may be stronger among senior level students. Hung et al. (2021) agreed, and after noting the influx of benefits surrounding simulation-based education decided to explore the changes in nursing students' perceived competence, self-efficacy, and learning satisfaction after repeated exposures to simulation. Several educators could agree, when a teaching modality works, they tend to add more experiences in that area, which is precisely what Hung et al. investigated. Utilizing a repeated measurement experimental design with self-administered questionnaires, the researchers sampled 79 senior undergraduate nursing students. They found that there was a statistically significant increase in students' competence, self-efficacy, and satisfaction after repeated exposure to simulation, providing evidence that the more students are exposed to simulation, the higher their self-perceptions.

Although simulation experiences often provide the opportunity for students to practice confidence building, there are several variables that may inhibit growth in these areas, at times resulting in decreasing these important attitude elements. Therefore, experts continue to study two common variables that influence the self-perceptions that students gain in simulation: self-efficacy and anxiety. The following sections briefly discuss the current studies regarding these common variables.

Self-Efficacy

Hough et al. (2019) surveyed students' self-efficacy before and after a simulation-based experience to determine confidence in clinical skills, clinical decision-making, treatment preparation, and communication skills. The self-efficacy survey response rate varied from 77% to 96%, indicating the majority of students were very satisfied with their learning experience. Lugo et al. (2021) added that when students exhibit increased self-efficacy, their performance ratings are higher. However, Karabacak et al. (2019) found that initially student self-efficacy scores may decline after a simulation until they become exposed to several simulation scenarios. The researchers conducted a semi-experimental study with first-year nursing students to evaluate their self-efficacy perceptions after a simulation and interestingly found that self-efficacy scores dropped following the simulation. Therefore, this study's sample included second and third level nursing students.

Anxiety

Anxiety continues to be an area of concern with simulation-based education. Yockey and Henry (2019) studied simulation anxiety across the curriculum among nursing students. Through acknowledging that excessive anxiety can negatively impact students' attitudes, these researchers conducted an exploratory, sequential, mixed-methods study to identify and rank anxiety through the different components of simulation. Yockey and Henry found that students had high normal levels of anxiety that remained unchanged from first semester through the final semester. Al-Ghareeb et al. (2019) agreed by acknowledging that students will clearly experience some level of anxiety while performing in simulation; thus, they sought to study the influence of that anxiety on their performance. Through testing anxiety levels pre- and post-simulation, the researchers concluded that as students continued to perform in simulation, the less anxiety they experienced, and consequently the better clinical performance occurred. Although several researchers acknowledge the psychological and physiological responses that are produced due to simulation, Oliveira Silva et al. (2022) argued that simulation actually reduces anxiety when compared to other conventional teaching strategies. Either way, anxiety continues to be an area that needs more research. Regardless of what level of anxiety currently exists, educators should be searching for effective ways to reduce anxiety and provide meaningful, non-threatening learning experiences. Such studies enhance educators' perspectives of student anxiety during simulation and allow them to mitigate these feelings, leading to better experiences for students. Considering these are two variables that one would assume are highly influenced by role assignment, this study sought to provide a better understanding of how someone in an observational role may learn without the pressure and anxiety as well as what role is more likely to produce positive self-perception. Undoubtedly, anxiety and self-efficacy play a substantial role in how students respond to surveys and should be understood as an area of variability among all nursing programs.

Previously researchers have implemented different variables within simulation to better understand how they affect self-perceptions and anxiety. For instance, Burrell et al. (2022) studied the effect of standardized patients in simulation-based education on nursing students' confidence and competence, anxiety and self-confidence with clinical decision-making, and satisfaction and self-confidence. Focusing on the use of standardized patients, this study concluded that these patients are a positive enhancement in regard to nursing students' self-confidence and reducing anxiety with clinical decision-making. Because the change from a simulator to a live person can deter levels of anxiety and self-competence, there must be other variables that can be implemented to make students feel more accomplished. Therefore, this study determined whether the variable of observational role assignment affected self-competence, which is directly associated with their knowledge, skills, and attitudes.

Implications of Self-Assessment

Students are constantly performing a self-assessment of themselves, whether formally or informally, to better understand their performance and areas for improvement. These assessments can also be analyzed by experts to understand what experiences are beneficial to their specific learning needs. Harris and Brown (2018) believe the power of self-assessment allows students to “gain a much better understanding of what quality work and performance is within a domain and understand more accurately how their work compares with external standards” (p. 11). However, introducing students to a self-assessment rubric may have skewed results depending upon their level of accountability and personal standards. For instance, Blândul and Bradea (2022) acknowledged the link between self-efficacy and its direct influence on self-evaluation. After testing the relationship among self-assessment and self-efficacy scores, they found that students with a high level of self-efficacy objectively under-evaluated themselves, although they had superior academic performance. Yan and Carless (2021) agreed, acknowledging that the process of self-assessment needs further review. These researchers conducted in-depth interviews of 17 undergraduate students to directly understand students’ reactions to self-assessment rubrics. The majority of participants viewed self-assessments on two themes: some viewed it as an opportunity to self-reflect while others viewed it as a tool to gain feedback from their instructor. Blândul and Bradea suggested that it is the responsibility of the educator to prevent students from using it as a tool to gain feedback through ensuring that students are gaining experiences that allow them to demonstrate their abilities and to encourage students to remain as objective as possible.

Karpen (2018) sought to describe the psychological mechanisms that lay the foundation for biased self-assessments and concluded with techniques to avoid them. These psychological traits include the ability to more likely remember self-enhancing information, chronically overestimate abilities, and most commonly the human nature of being self-serving. To demonstrate less positive bias, the researcher suggested two strategies when using self-assessment in education, including requiring students to evaluate themselves on a specific, measurable tool and provide non-threatening feedback that promotes student improvement. Piper et al. (2019), on the other hand, did not find that positive bias was a major issue; rather, they found that students were often underestimating their grade. Støve (2020) agreed after conducting a study to determine the accuracy of self-assessment among a group of healthcare students. A self-assessment questionnaire was given to 142 second-semester students to determine self-assessment ability and whether any differences existed among self-assessment and gender. According to the results of this study, students reported low to moderate self-assessment scores when compared with their performance, demonstrating this sample was more likely to underestimate their abilities. Notably, there were no gender differences found among the self-assessment and performance results.

Although biases may result in some exaggerated or underestimated responses, self-assessments have predominantly been a strong resource in educational studies. Blândul and Bradea (2021) acknowledged that self-assessments allow students to make valuable judgments about their own academic performance. When students are engaged with the self-assessment process, their work improves, and they perceive their feedback as more meaningful. Taylor et al. (2021) agreed after conducting a study to describe and analyze advance practice nursing students' self-assessment of their clinical competence and to analyze the predictive variables within their self-assessment. Their cross-sectional design study surveyed 99 nursing students from three universities where correlation and regression analyses were completed. Ultimately, Taylor et al. concluded that self-assessment is appropriate for nursing students to allow them to identify their own learning gaps, giving them more determination to meet their goals. Max et al. (2022), whose focus was to examine the consistency of self-assessment and discuss the applicability of self-assessment scales to self-regulated learning, concluded that self-assessments provide support for students to structure their own work. They suggested continuous improvement in self-assessment scales to ensure a reliable reflection of the students' learning process.

Although the primary purpose of self-assessment is to allow students to use the information gained to remain competent and understand their professional development needs, it can also provide substantial feedback on the learning experience itself. If assigned learning experiences are not providing students with an opportunity to enhance their knowledge and self-perception, the quality of the experience may be deficient. Considering students are the central purpose in providing meaningful learning experiences, their perceptions are critical. To provide evidence toward whether quality exists in the observational role, students completed a self-assessment regarding their experience.

Summary

In summary, the increase in the use of HFS among nursing programs has created an environment that demands faculty to maneuver the design of a simulation. The most common change in the design of simulations has been to add more students in each simulation rotation, which requires the addition of new observational roles. Due to the fluid nature of the simulation regulations and the uncertainty surrounding what an observer does in simulation, nursing programs have differing viewpoints of this role. Johnson's OEL theory acknowledges that role assignment does affect student learning during a simulation experience and therefore provides evidence of the need for further understanding of the role. The review above acknowledges that although knowledge, skills, and professional attitudes have been evaluated in simulation, the literature tends to emphasize the active participant roles and less is known about what is in it for the observers (Frei-Landau et al., 2022). Through a self-assessment, utilizing knowledge, skills, and attitudes as a composite score, this study evaluated how those perceptions differed between active participants and observational roles. The findings of this study provide evidence toward the effectiveness and ineffectiveness of the observational role within important aspects of nursing education: the development of knowledge, skills, and professional attitudes.

CHAPTER THREE: METHODS

Overview

Chapter Three addresses the methods that were utilized to conduct this study, which investigated the differences in knowledge, skills, and attitudes among active participants and observational roles in high-fidelity simulation (HFS). Johnson (2019) previously acknowledged how observational perspectives have profound benefits on nursing students' learning. However, as outlined in Chapter Two, the literature continues to debate whether quality learning experiences are being gained while performing in observational type roles. Although quality learning experiences may be defined differently among experts, simulation-based education has been the foundational teaching strategy that allows students to gain a holistic approach to learning through gaining knowledge, skills, and effective attitudes in one experience. Therefore, the design, setting, and instrument utilized in this study provide a clearer understanding of how knowledge, skills, and attitudes differ between these roles. Details related to the instrument, data collection, research procedures, and data analysis conclude the chapter.

Design

A quantitative, causal-comparative, posttest only, nonexperimental, between-groups research design was utilized to examine differences among the study variables of active participants and active supervisors (observers). A comparative research design was the most appropriate design for this study as Gall et al. (2007) explained the purpose of causal-comparative research is to identify a cause-and-effect relationship between two groups of individuals to determine their effect on the dependent variable. The independent variables identified as active participants and active supervisors (observers) were measured in the form of categories on a nominal scale to allow for appropriate data analysis. An experimental design was not adopted for this study to ensure the student's original learning and experiences remain uninterrupted. To restrain from manipulating student assignments, a nonexperimental design was utilized to measure the variables as they naturally occur. Thus, a comparative design was most appropriate for this study to compare the independent variables' effect on students' self-perception of their knowledge, skills, and attitudes.

The independent variables in this study are identified as the active supervisor (observer) group of nursing students and a comparison group consisting of active participants. The dependent variable is the self-perceptions of knowledge, skills, and attitudes among students, measured by the composite score on the Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP) scale. A posttest was given to both groups for comparison of the outcomes among active participants and active supervisors (observers). Although this design explains the differences between the students' mean results, it does not directly define the causation of variances between scores (Gall et al., 2007). Students were not given a pretest, threatening internal validity as suggested by Gall et al. (2007).

In addition, a causal-comparative design recognizes the possibility of having unmatched and unequal groups considering nonrandomization and the lack of a control group. The associate degree nursing students participating in this study were assigned their simulation roles by their instructor before the study began. Students were randomly assigned roles by their simulation instructor. Simulation experiences were not manipulated as a part of this study; the researcher did not have control over role assignments and control groups were not established, resulting in unequal groups.

Research Question

The research question was derived from the problem and purpose statement. To determine whether self-competence differs between active participants and active supervisors (observers), this study addressed the following research question:

RQ1: How do self-evaluations for associate degree nursing students of knowledge, skills, and attitudes differ between active participants and active supervisors (observers) after a simulation rotation is complete?

Hypothesis

Considering the large variances between the two learning styles, the direct hypothesis is that active supervisors (observers) will gain more knowledge, skills, and attitudes in comparison to the active participants. The related literature acknowledges anxiety and self-efficacy as two variables that limit student's ability to learn in HFS experiences (Yockey & Henry, 2019). Therefore, the supervisor (observer) role may allow students to focus on the content rather than the pressure to perform. The null hypothesis for this study is as follows:

$H_0$1: There is no statistically significant difference in self-evaluations for associate degree nursing students of knowledge, skills, and attitudes between active participants and active supervisors (observers) after a simulation rotation is complete.

Participants and Setting

The participants for this study were drawn from a convenience sample of associate degree nursing students located in Virginia during the 2023 academic year. A convenience sampling method allows researchers to conduct studies that are convenient in relation to location, position, and/or familiarity (Gall et al., 2007). A convenience sampling method was utilized for this study due to the suitability of the geographical location and acquaintance. The majority of students are local from neighboring counties with some coming from out of state for education, resulting in a variety of backgrounds. The sample was selected from one community college in the district, where all second and third semester nursing students were invited to participate. This target population was appropriate to address the study problem as other associate degree nursing education programs throughout the United States participate in HFS as part of the program requirements for graduation.

A power analysis was performed utilizing the G*Power statistics calculator to determine the appropriate number of participants needed for the study. The accessible population was comprised of the total number of second and third semester students in the nursing program during the 2023 academic year and consisted of 52 students. Sample size was calculated using a 95% confidence level ($\alpha = .05$), a large effect size ($d = 0.8$), and a desired statistical power of 0.8. Utilizing these values, the G*Power statistical sample size calculator resulted in a total sample size of 42 with 21 students in each group (Buchner et al., 2023). The 95% confidence level and the 80% statistical power are the commonly accepted levels among most research experts (Brydges, 2019), which implies that the study will correctly reject the null hypothesis 80% of the time. However, the large effect size will only detect large differences between the two groups and may affect the significance of the results. Brydges (2019) acknowledged Cohen's guidelines appear to overestimate effect sizes when applied to different areas of research, and larger effect sizes can yield beneficial results especially when estimates specific to the research area of interest are unknown. Although research in the traditional field of simulation-based education has resulted in grounded simulation theories, the Observational Experiential Learning (OEL) theoretical framework utilized for this study has only recently been established (Johnson, 2019), creating a new construct of research. Utilizing a large effect size will ensure that any differences found in the data may pose a need for change. Because the purpose of simulation is to ensure everyone is receiving the same quality learning experience, a large effect size is used to detect large differences between the groups, as small differences are not as applicable to practice (Gall et al., 2007). In addition, the globally known nursing shortage filters through to nursing education programs (Machitidze, 2022), resulting in shortages among nursing faculty and students. The shortage of nurse educators limits the number of students admitted to nursing programs, and the COVID-19 pandemic has only exacerbated this problem (Machitidze, 2022). Therefore, this study utilized these values to determine whether there was a large difference between the two groups while testing the new theoretical framework during a time where nursing student enrollment is less than ideal.

Instrumentation

Two instruments were utilized for this study: A Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP) and the demographic data form. Upon interest in utilizing the SES-SLP scale within this study, permissions were requested and received by the original publishers (see Appendix B). Survey research was chosen for this study as Creswell and Creswell (2018) explained that survey research provides a quantitative description of trends, attitudes, or opinions of a population and the primary purpose is to answer questions about variables.

Demographic Survey

Data collection initially included gathering demographic information and current level of nursing from each participant utilizing a demographic survey (see Appendix C). I created the demographic data form for this study; it contained four demographic questions asking assigned role, current level of nursing student, gender, and ethnicity.

A Self-Evaluation Scale for Simulation Laboratory Practices

The SES-SLP competency scale (see Appendix D) was published to allow undergraduate nursing students to measure their professional knowledge, skills, and attitudes following a simulation experience (Toruner et al., 2021). Prior to creating the scale items, Toruner et al. (2021) conducted a quantitative study consisting of 54 baccalaureate nursing students enrolled in a pediatric nursing course to determine the students' views of simulation trainings and their expectations. The analysis of these results created the framework for the SES-SLP instrument. Utilizing a 5-point Likert scale, each item has five options, 0 = "I do not agree," 1= "I agree a little," 2 = "I am undecided," 3 = "I agree," and 4 = "I completely agree." The minimum score is 0 and the maximum score is 92; a high score indicates that the individual's perspectives about their professional knowledge, skills, and attitudes have increased following the experience. Initially the instrument contained 57 items, but five study members reviewed them and reduced the items to 27 statements. The 27 items were sent to 10 experts including four associate professors, three assistant professors in pediatric nursing, one associate professor in nursing education and managements, and two assistant professors in women's health nursing, where they reduced the items to 23 after conducting validity and reliability measures. The 23 items are calculated as a composite score to evaluate their knowledge, skills, and attitudes utilizing one value. Items with negative expressions are reverse coded. If the composite score is high, then the students have developed a positive perspective towards their professional knowledge, skills, and attitudes due to the experience.

Reliability of the Scale

The total mean score of the SES-SLP scale was 68.85 and the standard deviation was 15.22. All items had a statistically significant correlation with a significance value of < 0.01. To evaluate the scale's two factors' time consistency the test-retest procedure was performed by retesting 90 nursing students 2 weeks after the first application. In addition, Pearson correlation coefficients were calculated to evaluate the instrument's time consistency with values of 0.99 for the developing factors, 0.47 for the challenging factors, and an overall 0.54 for the total scores, which demonstrates internal consistency and continuity of the instrument. The Cronbach's alpha reliability coefficient was 0.94 for the whole scale, 0.96 for the developing factors sub-dimension, and 0.73 for the challenging factors sub-dimension (Toruner et al., 2021).

Validity of the Scale

The SES-SLP was tested for construct validity utilizing Kaiser-Meyer-Olkin (KMO), with a test result of 0.94 and the Bartlett's Test of Sphericity resulting in a significance value of < 0.001. ProMax rotation was measured for the principal component analysis on the 23 items, while separating for Factor 1 (developing situations) and Factor 2 (challenging situations). The explained variance for Factor 1 was 50.7% and the internal consistency was 0.96. For Factor 2 the explained variance was 8.7% and the internal consistency was 0.73. Ten expert opinions were obtained with one item excluded due to the low score of < 0.80. The remaining items scores ranged from 0.80 to 0.94, demonstrating sufficient content validity. Given the information, this is a valid and reliable scale that measures students' self-evaluations for simulation practices; as Gall et al. (2007) acknowledged, tests that yield scores with a reliability of .80 or higher are sufficiently reliable for research purposes. The SES-SLP survey was uploaded to Qualtrics software to allow students to take the survey online and to ensure their anonymity and organization of the data. The survey was given to students immediately at the end of the simulation rotation to ensure they remembered their experience clearly.

Procedures

Prior to the implementation of this research, a meeting was initiated with the Director of the Associate Degree Nursing program, where the study plans were discussed. Following this meeting, a discussion was held with the simulation instructor to ensure study demographics were available such as active supervisor (observer) and active participant roles and to respond to all concerns. Upon preapproval of the Director and simulation instructor, official approval was obtained from the Dean of Health Technologies at the chosen site (Appendix E).

I completed Collaborative Institutional Training Initiative (see Appendix F) to ensure the confidentiality of each subject was protected throughout the data collection process. To ensure all the possible risks had been considered and deemed acceptable, I requested approval from the Liberty University Institutional Review Board (IRB) and ethics committee (see Appendix G). Once approval was granted, the study was introduced to undergraduate nursing students following their next scheduled simulation experience. A recruitment letter was sent via email (see Appendix H) to the students as they completed a simulation experience and within that email students there was the option of scanning the QR code with their phone or clicking on the direct link. Participants agreed to the informed consent in Qualtrics that detailed the purpose, their roles and expectations, timeline, and the right to withdraw from the study without penalty (see Appendix I). The researcher was available if the participant had any questions prior to agreeing to participate. Students' grades were not affected by their choice of whether or not to participate.

Procedure for Data Collection

On the assigned simulation day, students were scheduled for a simulation scenario in groups of five to six, where all students were required to submit the same preparation work prior to participation. Upon arrival, the simulation instructor assigned them accordingly, creating a group of active participants and a group of active supervisors (observers). The active supervisors (observers) watched the scenario unfold from an audiovisual room with synchronous viewing. The researcher did not manipulate the assigned roles and wished to keep the experience as natural as possible. The active supervisors (observers) had access to a low fidelity mannequin, all the medications, and access to the same supplies as their peers who were active participants. While the active supervisors (observers) were watching and taking note of their peers' strengths and weaknesses on an observation guide, they were expected to remain engaged and prepared to provide an analysis of the situation.

At the conclusion of the simulation, the simulation instructor led the debriefing session with all students including the active participants and the active supervisors (observers). Upon completion of the debriefing session, students who agreed were asked to complete two surveys: the demographic data form and the SES-SLP scale. Each instrument used Qualtrics software and was presented in one online survey to students. I was available to answer any questions from participants. The Qualtrics software was used to safely secure confidential information and transfer data into IBM-SPSS Statistics (Version 29) for analysis purposes.

Scenario Selection and Requirements

The scenarios chosen for this study include a pediatric diabetic ketoacidosis simulation and an acute myeloid leukemia simulation. Second semester nursing students completed a pediatric diabetic ketoacidosis simulation with the following learning objectives: (a) evaluate assessment findings of a diabetic ketoacidosis pediatric client to determine priority, (b) collaborate with the team to determine important care concepts, priority nursing actions, and to support clinical decision-making, (c) employ teaching strategies aimed to improve patient and family knowledge about the patient's current treatment plan, (d) maintain a safe environment of care, (e) incorporate all the rights of medication administration, and (f) collaborate with all members of the healthcare team as appropriate. The acute myeloid leukemia simulation consisted of the following learning objectives: (a) evaluate assessment findings of an acute myeloid leukemia client to determine priority, (b) collaborate with the team to determine important care concepts, priority nursing actions, and to support clinical decision-making, (c) employ teaching strategies aimed to improve patient and family knowledge about the patient's current treatment plan, (d) maintain a safe environment of care, (e) incorporate all the rights of medication administration, and (f) collaborate with all members of the healthcare team as appropriate.

Second semester students completed the pediatric diabetic ketoacidosis simulation and third semester students completed the acute myeloid leukemia simulation over the course of the summer and fall semester. Within this population, each active participant group consisted of two to three students assigned the following roles: charge nurse, medication nurse, and/or skills nurse. The charge nurse begins the simulation with an assessment then collaborates with the team to determine priorities. Thereafter, the medication nurse administers medications, and the skills nurse intervenes with the appropriate need such as intravenous insertions, Foley catheters, suctioning needs, etc. The charge nurse is responsible for utilizing the appropriate resources, such as supervisors, physicians, and pharmacists, to manage patient care.

The students who were assigned to participate within the observational role as active supervisors were also in groups of two to three. Students within this role were viewing the simulation live in another classroom, with access to teleconference and the same medications and supplies. The following requirements were outlined for students within this role:

- All preparation work is the same among all students regardless of the assigned role.

- Students watch the simulation and their peers from another room via a live link. The room must include a low-fidelity mannequin, access to the same medications, and access to supplies utilized in the simulation.
- Students are required to complete an observation guide of their peer's performance (see Appendix J).
- When the active participants need assistance, they are permitted to call the active supervisor team for clarification of prioritization and/or dosage calculations.
- When the active participants need to utilize any resources such as the pharmacist, physician, or supervisor, they may call the active supervisor team who provides orders and suggestions to their peers. The supervisors are also permitted to call in to the room if they feel their peers are making harmful decisions.
- Students assist in facilitation of debriefing sessions. They are expected to share their perspective, taking note of the teams' strengths and weaknesses.
- Students who identify a medication/skill/communication error will perform that nursing action during debrief for team review.

It is important to note that a trained simulation instructor was in the room with the active supervisors (observers) to facilitate their engagement.

Data Analysis

Following data collection, the following research question was analyzed: How do self-evaluations for associate degree nursing students of knowledge, skills, and attitudes differ between active participants and active supervisors (observers) after a simulation rotation is complete? I sought to understand the influence that the independent variable had on the dependent variable using a comparison group for standardization. IBM-SPSS Statistics (Version

29) was used to manage all the statistical analyses. Gall et al. (2007) suggested the first step in causal-comparative research is to conduct an exploratory data analysis and computer descriptive statistics for each group. Therefore, descriptive statistics were used to analyze demographic data. The groups are comparable and homogenous to minimize the selection threat to validity inherent to the causal-comparative design that was chosen for this study. The analysis compared the differences between the two groups on one dependent variable: composite score on the SES-SLP competency survey.

Research Question Analysis

An independent samples *t*-test was conducted using IBM-SPSS Statistics (Version 29) to address the research question and hypothesis. The independent samples *t*-test allowed for comparison between means and is considered appropriate when both groups are independent (Gall et al., 2007), as in this research study. The independent samples *t*-test was used to determine the differences in the dependent variable of the SES-SLP composite score of knowledge, skills, and attitudes for the independent variable of role assignment, which has two groups. The null hypothesis states that there is no statistically significant difference in self-evaluations for associate degree nursing students of knowledge, skills, and attitudes between active participants and active supervisors (observers) after a simulation rotation is complete.

The independent variables were measured on a categorical, nominal scale. Gall et al. (2007) suggested that a critical feature of casual-comparative research is that the independent variable is measured in the form of categories, often defined on a nominal scale. Using the categories of active participant and active supervisor (observer), numbers were assigned to represent categories, but the numbers had no order or quantitative meaning. To determine frequency of categories, Gall et al. (2007) suggested utilizing frequency distributions in which the dependent variable was measured on a continuous, interval scale. An interval scale allows for the difference between two adjacent points to be the same and lacks a true zero point (Gall et al., 2007) and, therefore, was used to analyze the dependent variable data. Descriptive statistics were conducted on the demographic data to describe the sample population such as gender and race/ethnicity. Once the data had been checked for errors, reverse coding was performed on four of the survey questions to adequately enter final scores into SPSS. Initially, the assumptions were tested to ensure an independent samples *t*-test was an appropriate test for the data.

Assumptions

When conducting a *t*-test, assumptions are made to validify the results (Kim, 2019). An independent samples *t*-test requires the following assumptions to be met:

1. Dependent variable: One continuous dependent variable will be measured, identified as the SES-SLP composite score of knowledge, skills, and attitudes. An interval scale allows for the difference between two adjacent points to be the same and lacks a true zero point (Gall et al., 2007) and, therefore, was used to analyze the dependent variable data.
2. Independent variables: Using the categories of active participant and active supervisor (observer), numbers were assigned to represent categories, but the numbers had no order or quantitative meaning. The scale of measurement utilized in this data analysis includes interval data as it is comparing two independent categorical groups, which may appear on a linear line (Gall et al., 2007).
3. Independence of observations: Independence of observations testing ensures that a relationship does not exist between the two groups (Laerd Statistics, 2015). One way

to ensure this independent value is to ensure each group has different participants, as in this study.

4. Outliers: The measure of central tendency was calculated to describe the mean or average of the entire set of scores (Gall et al., 2007). Outliers in the data were sorted and evaluated for extreme inconsistencies, which were demonstrated in a box-and-whisker plot and replaced with the mean value to avoid any bias in the analysis. To measure the extent to which scores deviate from the mean, the standard deviation is reported as outlined in Table 3.
5. Normal distribution: Initially, a basic assumption is made in relation to normal distribution, it is assumed the distribution of the population is not significantly different from normal distribution (Kim, 2019). The test of normality and homogeneity of variance evaluated this assumption. Normality was examined using a Shapiro-Wilk test. The Shapiro-Wilk test may be used to determine whether a sample size fits a normal distribution and is commonly used for small samples of less than 50 per group (Mishra et al., 2019).
6. Homogeneity of variances: To assess the assumption that variances are equal across the two groups, the Levene's test was conducted to evaluate the homogeneity of variance. If the significance value is less than .05, this assumption will be violated. If the scores substantially deviate from the normal distribution and assumptions are not met, a nonparametric test, the Mann-Whitney *U* test, is used to evaluate whether differences in the dependent variable exist between two independent groups as suggested by Gall et al. (2007).

Summary

The quantitative causal-comparative research design was the appropriate choice for the purpose of this study. This design allowed for comparison of two groups of students as they relate to the knowledge, skills, and attitudes gained in high-fidelity simulation. Thus, the independent variables and dependent variable were appropriately analyzed to determine the differences between the two groups.

CHAPTER FOUR: FINDINGS

Overview

The study of associate degree nursing students' self-competence levels as determined by the SES-SLP survey utilized a causal-comparative research design to determine the implications of role assignment following a high-fidelity simulation (HFS) experience. The independent variables were presented in two categorical groups: active participant and active supervisor (observer). The dependent variable was a composite score of self-competence in knowledge, skills, and attitudes on the SES-SLP survey. This chapter includes the research question, hypothesis, results of analysis, assumption tests, and descriptive statistics as produced utilizing IBM-SPSS Statistics (Version 29).

Research Question

RQ1: How do self-evaluations for associate degree nursing students of knowledge, skills, and attitudes differ between active participants and active supervisors (observers) after a simulation rotation is complete?

Null Hypothesis

$H_0$1: There is no statistically significant difference in self-evaluations for associate degree nursing students of knowledge, skills, and attitudes between active participants and active supervisors (observers) after a simulation rotation is complete.

Descriptive Statistics

The researcher invited 52 individuals to participate in the study. Of these, 1 was incomplete and was removed from the statistical analysis, leaving 51 total responses. Participants were selected based upon convenience sampling from the current nursing cohort of second and third semester associate degree nursing (ADN) students, which was appropriate for the purpose of this research (Gall et al., 2007). The sample size (*N* = 51) was adequate to produce the desired large effect size and to generate results that could potentially identify the need for change in simulation role assignment. Of the 51 participants who completed the SES-SLP survey, 26 were active participants and 25 were active supervisors (observers). Students were assigned their role by their simulation instructor (see Table 1). Statistical significance for this study was identified as an alpha level of .05 and statistical power of 0.8.

Table 1

Simulation Role Assignments

Simulation Group	*n*	Frequency
Active Participant	26	51.0%
Active Supervisor (Observer)	25	49.0%

Note. *N* = 51 resulting in slightly unequal groups.

The initial queries in the online survey contained the demographic questions as outlined in Appendix C. The completed data sample included 10 second semester nursing students, and 41 third semester nursing students, for a total of 51 participants. Of the 51 participants, 86.3% were female, 98% were White, and 1% were Black or African American (see Table 2).

Table 2

Demographic Data for Sample

Demographic	Second Semester	Third Semester	Total	Percentage
Gender				
Female	10	34	44	86.3%
Male	0	7	7	13.7%
Ethnicity				
Black or African American	0	1	1	2.0%
White	10	40	50	98.0%

Note. $N = 51$. The majority of participants were White females in their third semester of nursing school.

The SES-SLP instrument consists of 23 Likert-scale items measured on a 4-point scale. The minimum score is 0 and the maximum score is 92. The overall scores of the self-competence levels ranged from 61 to 91. Descriptive statistics (Table 3) for the dependent variable reveal a difference of 1.49 points between the mean of the active participant role ($M = 78.73$) and the mean of the active supervisor (observer) role ($M = 77.24$). The measure of variability of the mean difference was determined by using 95% confidence intervals.

Table 3

Descriptive Statistics for Self-Competence Scores on the SES-SLP Survey

Self-Competence	Role Assignment	*M*	*SD*
	Active Participant	78.73	7.912
	Active Supervisor (Observer)	77.24	8.338

Note. The mean and standard deviation results refer to the relationship between two categorical groups on the self-competence variable.

Data Screening

I conducted data screening on each group's composite score, sorting the data and scanning for inconsistencies. No data errors or inconsistencies were identified and assumption testing began.

Assumption Tests

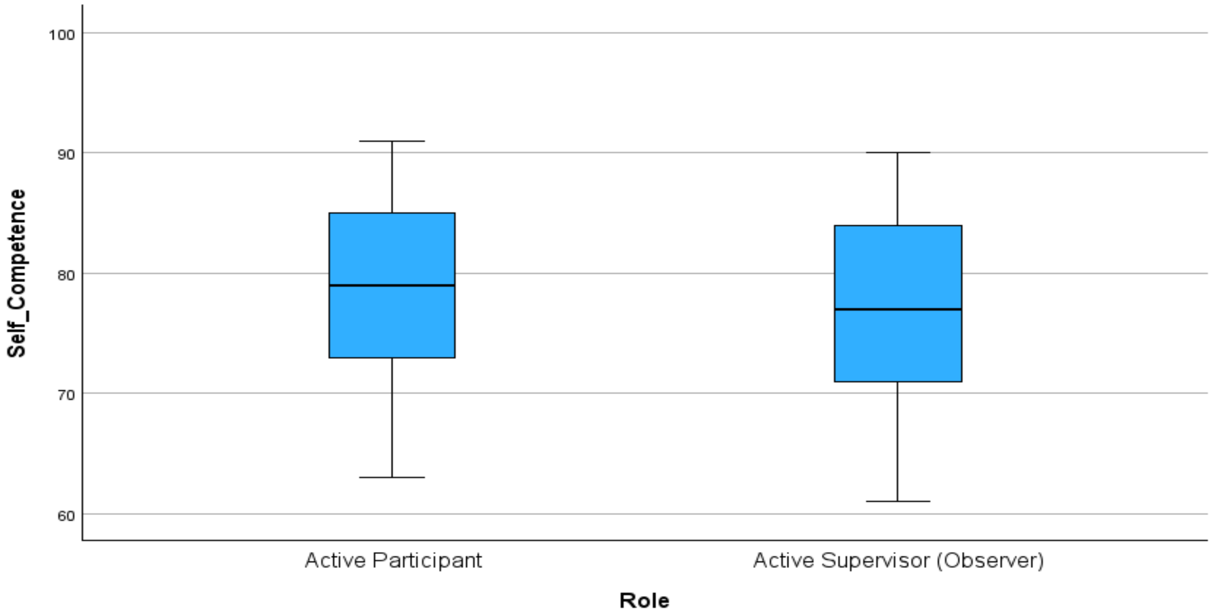
As previously mentioned in Chapter Three, there are six assumptions that must be met to conduct an independent sample *t*-test. The first three assumptions are identified as (a) using one continuous dependent variable, (b) using two categorical independent variables on an interval scale, and (c) ensuring that no relationship exists between the two groups or independence of observations. The one continuous dependent variable in this study was the composite score of knowledge, skills, and attitudes. The two categorical variables were the active supervisor (observer) and the active participant, where the groups were independent of one another and no relationship existed between the two. The first three assumptions are directly related to the research design of causal-comparative studies, and this study therefore met those three assumptions. The following three assumptions identified as (d) no outliers in the data, (e) normal distribution of the data, and (f) homogeneity of variance required testing following data collection.

Initially the SES-SLP survey had four items that had to be reverse coded, where the following changes occurred for Questions 3, 6, 10, and 19. Selected "0" responses were reverse coded to be given a value of "4", "1" responses were coded as "3," "2" remained "2", "3" responses were coded as "1," and "4" responses were coded as "0" and vice versa. Following the reverse coding procedure, the sum of each individual item resulted in one composite score. Each data set was then entered into SPSS to begin testing the final three assumptions.

IBM-SPSS Statistics (Version 29) was used to test for outliers and was evaluated using a box-and-whisker plot (see Figure 2). There were no outliers in the data, as assessed by inspection of a boxplot. Assumption of no outliers was met.

Figure 2

Box-and-Whisker Plot for Self-Competence Scores on SES-SLP Survey



Note. The box-and-whisker plot demonstrates the highest, lowest, and average scores for each group.

The assumption of normality of variances was tested using the Shapiro-Wilk statistic considering the sample size in each group was small ($n < 50$). Self-competence scores for each group were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). The assumption of normality of variance was met, as the significance was great than .05 for both groups (active participant: $p = .337$; active supervisor [observer]: $p = .458$; see Table 4). Combining with visual inspection of the boxplot and Q-Q plots, the distributions for active participants and active supervisor (observers) were deemed normal, as shown in Table 4 and Figures 3 and 4.

Table 4

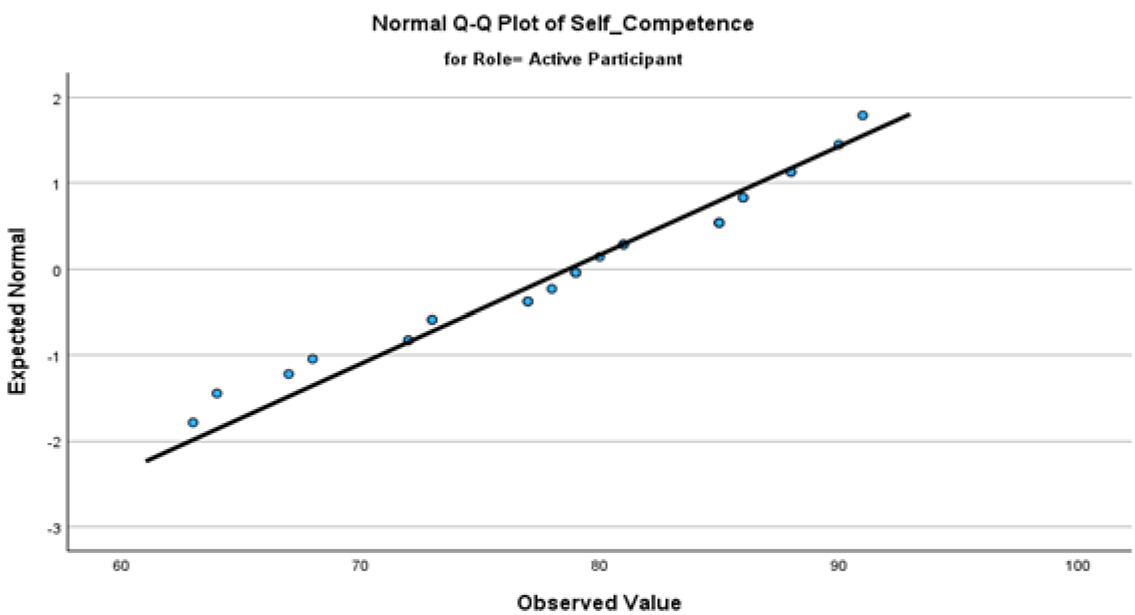
Shapiro-Wilk Tests of Normality by Assigned Roles for SES-SLP Survey

	Shapiro-Wilk		
Assigned Role	Statistic	*df*	*p*
Active Participant	.957	26	.337
Active Supervisor (Observer)	.962	25	.458

Note. Self-competence scores were normally distributed among groups.

Figure 3

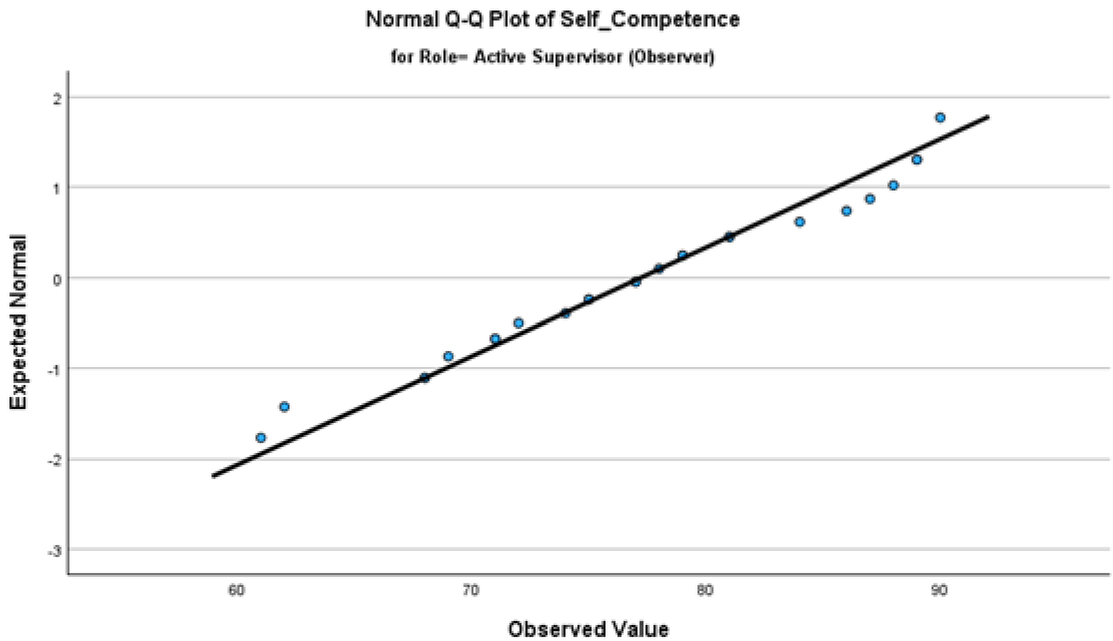
Normal Q-Q Plot of Self-Competence for Active Participants



Note. The Q-Q plot provides visual evidence of linearity between self-competence scores among active participants.

Figure 4

Normal Q-Q Plot of Self-Competence for Active Supervisors (Observers)



Note. The Q-Q plot provides visual evidence of linearity between self-competence scores among active supervisors (observers).

The assumption of homogeneity of variances for self-competence scores for active participants and active supervisors (observers) was met as assessed by Levene's test for equality of variances (F = .103; p = .750) as shown in Table 5. Therefore, the Mann-Whitney U test was not indicated for this study.

Hypothesis

The null hypothesis for this study stated, "There is no statistically significant difference in self-evaluations for associate degree nursing students of knowledge, skills, and attitudes between active participants and active supervisors (observers) after a simulation rotation is complete." This null hypothesis was tested by analyzing a composite score of knowledge, skills, and attitudes using the SES-SLP survey with a group of second and third semester ADN students who were divided into two groups as part of their simulation curriculum requirements.

Results

According to the independent sample *t*-test results, there was not a statistically significant difference between means ($p > .05$; Laerd Statistics, 2015). I concluded that there is a very small difference between the two categorical variables ($d = 0.184$). Therefore, I failed to reject the null hypothesis; there was not a statistically significant difference in self-competence scores found between active participant and active supervisor (observer) groups ($t[49] = .655$, $p = 515$; see Figure 5). Although the difference was not significant, there was a small difference in the self-competence scores between the active participant ($M = 78.73$) and active supervisor (observer) groups ($M = 77.24$), where the active participant group was 1.49 points higher. This finding warrants further investigation especially given the small sample size ($N = 51$).

Table 5

Independent Samples Test

	Levene's Test for Equality of Variances		*t*-test for Equality of Means							
					Significance		Mean Difference	Std. Error Difference	95% CI of the Difference	
Self-Competence	*F*	Sig.	*t*	*df*	One-sided *p*	Two-sided *p*			Lower	Upper
Equal variances assumed	.103	.750	.655	49	.258	.515	1.491	2.276	–3.082	6.064
Equal variances not assumed			.654	48.586	.258	.516	1.491	2.278	–3.088	6.069

Note. Levene's Test for Equality provides evidence of homogeneity of variance ($p = .750$). Active participants scored higher than active supervisors (observers), with a mean difference of 1.49 (95% CI, –3.08 to 6.06, $t[49] = .655$, $p = .515$).

Summary

The purpose of this quantitative, causal-comparative, posttest only, nonexperimental, between-groups research design study was to compare how self-evaluations of knowledge, skills, and attitudes differ between active participants and active supervisors (observers) among ADN students after a simulation rotation is complete. To determine the differences between the two groups, I focused on a small sample size of 51 students to identify whether large learning differences existed. The research question for this study asked, “How do self-evaluations for associate degree nursing students of knowledge, skills, and attitudes differ between active participants and active supervisors (observers) after a simulation rotation is complete?” The following null hypothesis was answered: “There is no statistically significant difference in self-evaluations for associate degree nursing students of knowledge, skills, and attitudes between active participants and active supervisors (observers) after a simulation rotation is complete.” After reverse coding for the negative expression items, all assumptions for an independent samples *t*-test were tested and met. Finally, I failed to reject the null hypothesis following analysis of the composite scores of the SES-SLP survey. Although the findings were not statistically significant ($t[49] = .655$, $p = .515$), several implications and recommendations have been derived from the results. The following chapter discusses the implications, limitations, and recommendations for future research studies for student role assignment in high-fidelity simulation experiences.

CHAPTER FIVE: CONCLUSIONS

Overview

Chapter Five discusses the findings of this causal-comparative study that was implemented to determine the differences in self-competence levels between active participants and active supervisors (observers) following a high-fidelity simulation (HFS) experience. The chapter also includes implications of the findings, limitations within the study, and recommendations for future research studies.

Discussion

Nursing education is constantly evolving to meet the needs of the next generation students and to ensure they are prepared to meet today's demands of the increased complexity of healthcare. Several curriculum changes have recently occurred at this research site, including the concept-based curriculum (2018), the new clinical judgment model (2021), and the next generation NCLEX (2023). Since the implementation of these changes, HFS has become a critical component within the nursing curriculum, and the amount of time students are spending in simulation activities is increasing (Koukourikos et al., 2021).

Simulation education is intended to provide students with hands-on learning (ACEN, 2022) where they directly implement physician orders, make clinical decisions, and learn to critically think at the bedside. To meet the learning demands, students are attending simulation experiences in larger groups. Subsequently, some students are being assigned to observe their peers during simulation experiences. The NCSBN asks the question, "Are students receiving a quality experience with simulation when nine students are observing and three are performing?" (Hayden et al., 2014, p. S4). Several researchers set out to answer this question, which has resulted in an influx of literature that is highly controversial (Delisle et al., 2019; B. Rogers et al., 2020; Seale et al., 2020; & Theobald et al., 2021). Nevertheless, the current regulation set forth by the NCSBN states, “Observational experiences shall not be accepted toward the 400 or 500 minimum clinical hours required” (Division of Legislative Systems, Commonwealth of Virginia, 2023, para. 1).

The purpose of this quantitative, causal-comparative, posttest only, nonexperimental, between-groups research design study was to compare how self-evaluations of knowledge, skills, and attitudes differ between active participants and active supervisors (observers) among associate degree nursing students after a simulation rotation is complete. The results of this study, though not statistically significant, support the use of observational-type roles in HFS. Utilizing an independent samples *t*-test, mean scores of the active participants (M = 78.73) were compared with the mean scores of the active supervisors (observers; M = 77.24) to determine the differences in self-competence between the groups. Although, the mean score of the active participant group was 1.49 points higher than the active supervisor (observer) group, the null hypothesis failed to be rejected because there was no statistically significant difference in self-evaluations for associate degree nursing students of knowledge, skills, and attitudes between active participants and active supervisors (observers) after a simulation rotation. The direct hypothesis was that active supervisors (observers) would gain more knowledge, skills, and attitudes in comparison to the active participants due to the common understanding that students in observational roles would have less anxiety without the pressure to perform. Although the hypothesis was intended to provide evidence of the increased quality of learning that takes place in observational roles, the outcome of this research study is ideal and supports the OEL theoretical framework. This study’s findings suggested that all students, regardless of role assignment, are gaining comparable learning experiences.

Theoretical Framework

The findings of this study support Johnson's OEL theory. Johnson (2019) stated, "Observers and participants both grasp and transform experiences in simulation and debriefing" (p. 11). The OEL theory acknowledges that although students learn differently in each role, observers' learning experiences align with their peers' learning experiences. The results of the statistical analysis of this study support this idea. The mean difference between active participants and active supervisors (observers) differed by less than 2 points on a 0–92-point scale, providing evidence that the two groups were highly comparable in self-competence scores in relation to the knowledge, skills, and attitudes gained during the HFS experience, which directly supports the use of the OEL theory in simulation. Given the OEL theory is relatively new to simulation education, this research study moves the theory forward by providing evidence in direct support of its initiative. As more experts continue to study the differences between participants and observers, the OEL theory may become the commonly used simulation theory, allowing educators to decide when observational roles are beneficial in simulation experiences.

Findings Related to Literature

Although the previous studies had a variety of outcomes in relation to the effect of role assignment, these research findings were supported by researchers. Bates et al. (2018) and Zweifel et al. (2022) had similar findings, reporting no significant differences among anxiety, confidence, collaboration, and/or problem solving between the groups. In addition, Bullard et al.'s (2018) findings aligned with this study's findings, revealing that both groups had improved learning and similar performances.

Although the overall findings in this study were not significant and aligned directly with the studies listed above, this study also supports Weiler et al. (2018) and Battista's (2017) research findings that found differences between the groups. Weiler et al. (2018) had determined active participants had higher critical thinking skills and self-efficacy levels. Additionally, Battista (2017) suggested that students learn more as they engage in the situation. Correspondingly, this research study found that active supervisors (observers) scored the lowest on the following item: "Made me see my lack of knowledge." Johnson's OEL theory acknowledges that learners can see their lack of knowledge through observation; therefore, this finding could be related to the disengagement, as Battista (2017) suggested. In previous studies, students who were observing reported that they prefer a more active observer role (Seale et al., 2020). The student's preferred "active observer role" is a way of suggesting a means of higher engagement. Regardless of the reasoning, students must be able to clearly identify personal areas of improvement to learn and gain self-efficacy. The low score on this item by active supervisors (observers) is an important finding for this study and aligns with previous researchers' findings. It is imperative for simulation educators to understand this is a shortcoming of observational-type roles in comparison to the students who are actively participating.

The findings of this study also align with Johnston et al. (2021), B. Rogers et al. (2020), and Tutticci et al. (2022), who found that students in the observer role reported high levels of satisfaction and an increase in student confidence; they also met learning objectives and framed the observer as a valued team member. For instance, on average, observers scored higher on the item that states "Improved my self-confidence" in comparison to the active participants. This finding also directly aligns with Theobald et al.'s (2021) study, which found that the observer role was associated with positive learning outcomes, reflection, peer review, self-evaluation, and increase in confidence. Because the active participants are the ones making the mistakes at the bedside, one can see where their self-confidence may be lower than the participants who are learning from watching their peers perform.

Implications

The purpose of this study was to support the effectiveness of observational-type roles in HFS. Though the findings did not suggest that observers learn significantly better, the study did have preferable outcomes. The insignificant statistical findings for this study are preferable, suggesting that there is a small difference in knowledge, skills, and attitudes between the two groups. Considering there is a small learning difference among the groups, this study provides evidence toward policy change to allow simulation faculty to incorporate the new observational type role with their students.

This study adds to the existing literature by providing evidence of quality learning experiences and building evidence toward effectively answering the NCSBN's question of quality learning in the observing role. As the NCSBN continues to gather a sufficient amount of research evidence that values the observer role, simulation education will continue to expand. Providing evidence that observers learn similarly to their peers who are actively participating benefits students, faculty, and the future of simulation education. Allowing students to be "observers" in simulation increases the amount of time, experiences, and resources that can be utilized in HFS, which has already been proven to be a great asset to learners.

Simulation education was originally intended to provide students with hands-on learning (ACEN, 2022) where they directly implement physician orders, make clinical decisions, and learn to critically think at the bedside. However, HFS has evolved since its original purpose to provide students with hands on-learning experiences. This study implies that there is much to be gained from roles where students are not hands-on. The American Nurses Association (ANA) has outlined the professional nursing scope of practice and standards of practice. Among these standards, the ANA (2015) acknowledged that associate degree nurses have several responsibilities outside of hands-on application of clinical skills, including the ability to demonstrate principles of collaborative practice, foster mutual respect, and evaluate one's own and others' nursing practice. Incorporating observational-type roles allows educators to assess students' abilities to collaborate, communicate, and evaluate others' nursing practice in a respectful manner. Advancing simulation education to meet these ANA standards of practice of collaboration and evaluation can be established through observational experiences.

As simulation experiences continue to expand and teaching continues to evolve into an increased level of application, educators must have confidence in their chosen teaching modalities. Because HFS has such broad regulations, simulation educators often have several unanswered questions in relation to what is most effective for students. One important implication that simulation educators strictly agree upon is to make the learning experience as equal as possible for all students. . The findings of this study provide evidence that students not only learn in observational-type roles but gain competence levels that are highly comparable to the traditional active participants. As educators continue to do all they can to minimize anxiety and promote self-efficacy, observational roles can help support this initiative.

Limitations

Limitations within a research study are known as factors that are out of the researcher's control but may have a significant impact on the generalizability and representation of the data (Theofanidis & Fountouki, 2019). The greatest limitation of this study was its small sample size. Small sample sizes may limit the generalizability of the data and may result in less significant findings (Gall et al., 2007). Additionally, this study was performed at one site, providing limited perspectives.

In addition, internal validity could be questioned due to the researcher being a faculty member. Though participants were encouraged to be honest and precise, their results may have still been affected. This could have prompted students to skew their results to appear more pleasing. In addition, technology differed among students, where some students chose to scan the QR code with their cellphones and other students clicked on the direct link on their laptops. Formatting of the scale was slightly different depending upon which device they decided to use, forcing students who used their cellphones to click on each item prior to it being visible and scrolling in left and right directions to find their answer choice.

Recommendations for Future Research

Following reflection of the purpose of the study and the outcome of the data analysis, I offer the following recommendations for future research studies on the topic.

To enhance the generalizability of the research findings, I suggest utilizing a similar study design but with multiple sites, which could provide findings that were more generalizable. Utilizing multiple sites may produce a larger variety of perspectives and greater demographical differences, which would increase the practicality of the findings. Considering HFS is utilized in nursing programs across the nation, it is important for future studies to consider how the results can apply to a broad group of people, which can be accomplished through multi-site data collection.

A correlational design could further this research by providing more insight into the relationship between observational-type roles and multiple learning outcomes. This design could allow the same students to take the survey twice, once after being assigned an active participant and again after being assigned an active supervisor (observer) to determine specific differences within the roles. If the same student is taking the survey following each experience, the results would be more definite, making inferences about relationships between the outcomes of each role more credible. A correlational study could also enable future researchers to analyze the relationship of observational-type roles among several variables such as learning outcomes, clinical judgment, and/or clinical decision-making.

There are several instruments that can be utilized in simulation education research; the SES-SLP survey was chosen due to its ability to be analyzed as one dependent variable. The SES-SLP survey was originally intended to provide one composite score of student's knowledge, skills, and attitudes. Therefore, reliability testing was completed for the overall score; the Cronbach's alpha reliability coefficient was 0.94 for the whole scale (Toruner et al., 2021). However, there is much more to be gained from this scale. Future researchers could modify the instrument to break down the survey questions into dimensions such as knowledge, skills, and attitudes as separate scores. An instrument modification would require the researcher to perform reliability testing prior to its use in research. Thereafter, researchers could conduct other analyses such as a Multivariate Analysis of Variance (MANOVA) test to determine which specific component students are identifying as strengths and weaknesses. This breakdown of the knowledge, skills, and attitude variables would provide evidence of which component needs more attention in observational-type roles.

Summary

Although HFS is common among several programs across the nation, specific regulations such as role assignment are not outlined and left to the discretion of faculty. This study's findings are intended to provide educators with clarity and confidence in the quality of learning that takes place in observational-type roles. Although there are several inferences that can be made from this research study as well as other expert studies in the field, the data provide evidence of consistency in learning between the groups. As researchers continue to study factors that affect students' learning in simulation, experts will continue to build policy to better equip future nurses with valuable learning experiences. In light of the recent OEL theoretical support and research studies that continue to value the observer role, upcoming policy changes could be warranted.

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APPENDICES

Appendix A: Permission to Utilize OEL Figure

From: Johnson, Kyle [redacted]
To: Rose, Bethany

Hi Bethany,
I’m thrilled to hear more and more researchers in nursing education are looking into exploring observational learning. It is a fascinating area with a ton of potential.
You absolutely have permission.
Please note that it is copyrighted (and I hold the copyright—so no additional permissions are needed). You’ll just need to type it out as Observational Experiential Learning© the first time, but then OEL can be used.
And yes, I would love to read your work once completed!
Attached are the two copies, one in color and one in black and white, based on your need. Please reach out if you have any questions!

I see the (c) at the end of your name….congratulations on entering into candidacy! Stay focused!

Best wishes!
Kyle

Appendix B: Permission to Utilize SES-SLP

From: Tuba ARPACI <[redacted]>
Sent: Wednesday, December 14, 2022 2:06 AM
To: Rose, Bethany <[redacted]>
Subject: [External] Re: Permission to Use SES-SLP Instrument

Dear Rose,

We kindly give you a permission to use the SES-SLP in your dissertation. Please see the attached scale file in turkish and english version of the scale.

Best wishes
On behalf of all authors
Assos. Prof. Tuba ARPACI

Kimden: "Rose, Bethany" <[redacted]>
Kime: [redacted]
Kk: "Blackwood, Shelley (Nursing)" <[redacted]>
Gönderilenler: 11 Aralık Pazar 2022 19:20:16
Konu: Permission to Use SES-SLP Instrument

Dear Tuba Arpaci,

I am a doctoral student in the School of Nursing at Liberty University in Lynchburg, Virginia, USA completing a dissertation on simulation experiences among undergraduate nursing students. The purpose of this letter is to request access to the entire 23-item Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP) and to request permission to use the instrument in my dissertation research.

I am seeking your permission to reproduce the SES-SLP for each of the study participants to complete in a secure, online format. I am also asking for permission to publish the survey verbatim in the text of my dissertation. The instrument will not be altered and will be used in its entirety. Participants will be asked to complete a demographic questionnaire, which will allow for appropriate data analysis. Certainly, you and your research partners will be cited accordingly.

Your research inspired me to study students' self-perceptions of their competence in simulation-based education. I appreciate your consideration of my request and I await your response.

[redacted]

Appendix C: Demographic Survey to Accompany SES-SLP Survey

1. What type of role were you assigned for your simulation experience?

___ Active participant
___ Active supervisor (observer)

2. Please select the current semester in which you are enrolled.

___ Second
___ Third

3. Please select your gender.

___ Female
___ Male
___ Non-binary / third gender
___ Prefer not to answer

4. Please select your ethnicity.

___ American Indian or Alaska Native
___ Asian
___ Black or African American
___ Hispanic or Latino
___ Native Hawaiian or Other Pacific Islander
___ White
___ Prefer not to answer

Appendix D: Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP)

The Self-Evaluation Scale for Simulation Laboratory Practices (SES-SLP)

On the below are statements about the effects of simulation laboratory practices on your professional knowledge, skills and attitudes. Regarding each statement please tick the appropriate option for you from 0-"I do not agree," 1-"I agree a little," 2-"I am undecided," 3-"I agree," and 4-"I completely agree."

Items	0 (I do not agree)	1 (I agree a little)	2 (I am undecided)	3 (I agree)	4 (I completely agree)
1. Increased my level of knowledge					
2. Increased my motivation					
3. Made it hard for me to learn					
4. Made me realize my mistakes					
5. Improved my self-confidence					
6. Made me feel inadequate					
7. Developed my skill					
8. Increased my attention					
9. Reinforced my knowledge					
10. Caused me to live in fear					
11. Increased my level of satisfaction					
12. Developed my communication skills					
13. Increased my readiness					
14. Developed my collaboration skills					
15. Developed my observation skills					
16. Made me see my lack of knowledge					
17. Increased my assessment skills					
18. Strengthened my professional values					
19. Caused me to experience stress					
20. Developed my decision making skills					
21. Made me control my excitement					
22. Increased my awareness					
23. Increased my ability to work with the team					

Appendix E: Letter of Permission from Research Site

[redacted]

12/15/2022

[redacted]

Dear Bethany Rose,

After careful review of your research proposal entitled Comparing Knowledge, Skills, and Attitudes Among Associate Degree Nursing Students: The Effect of Observational Roles Versus Active Participant Roles in High Fidelity Simulation, I/we have decided to grant you permission to conduct your study at [redacted]

Check the following boxes, as applicable:

☐ I/We will provide our membership list to Bethany Rose, and Bethany may use the list to contact our members to invite them to participate in her research study.

☑ I/We grant permission for Bethany Rose to contact associate degree nursing students to invite them to participate in her research study.

☐ I/We will not provide potential participant information to Bethany Rose, but we agree to provide her study information to associate degree nursing students on her behalf.

Check the option below if desired.

☑ I/We are requesting a copy of the results upon study completion and/or publication.

Sincerely,

[redacted]

Appendix F: Collaborative Institutional Training Initiative

CITI PROGRAM

Completion Date 31-Mar-2022
Expiration Date 30-Mar-2025
Record ID 48188858

This is to certify that:

Bethany Rose

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Social & Behavioral Research - Basic/Refresher
(Curriculum Group)
Social & Behavioral Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Liberty University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w9d99eff3-79eb-40a0-acc9-9577299a7d04-48188858

Appendix G: IRB Approval

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

June 19, 2023

Bethany Rose
Shelley Blackwood

Re: IRB Exemption - IRB-FY22-23-1559 Comparing Knowledge, Skills, and Attitudes Among Associate Degree Nursing Students: The Effect of Observational Versus Active Participant Roles in High Fidelity Simulation

Dear Bethany Rose, Shelley Blackwood,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,
G. Michele Baker, PhD, CIP
Administrative Chair
Research Ethics Office

Appendix H: Nursing Student Recruitment Email

Dear Nursing Student:

As a graduate student in the School of Nursing at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to determine whether students in active supervisor (observer) roles have an effect on associate degree nursing students' self-perceived knowledge, skills, and attitudes in comparison to students in active participant roles, and I am writing to invite eligible participants to join my study.

Participants must be 18 years of age or older and in the second or third semester of an associate degree nursing program. Participants, if willing, will be asked to complete a survey following a simulation rotation. It should take approximately 15 minutes to complete the survey. Participation will be completely anonymous, and no personal, identifying information will be collected.

To participate, please scan the QR code below or click here to complete the survey. The results will automatically be sent to the researcher.

A consent document is provided as the first page of the survey. The consent document contains additional information about my research. After you have read the consent form, please click the "Yes" button to proceed to the survey. Doing so will indicate that you have read the consent information and would like to take part in the survey.

Sincerely,

Bethany D. Rose
Doctoral Student, Liberty University School of Nursing
[redacted]

Appendix I: Participant Consent Form

Title of the Project: Comparing the Causal Effects of Observational Versus Active Roles in High-Fidelity Simulation: A Quantitative Study

Principal Investigator: Bethany Rose, Doctoral Candidate, School of Nursing, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be 18 years of age or older and an associate degree nursing student in your second or third semester. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to determine whether active supervisor (observer) roles have an effect on associate degree nursing students' self-perceived knowledge, skills, and attitudes in comparison to active participants.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following:

1. Participate in an online survey that will take no more than 15 minutes at the conclusion of your assigned simulation scenario.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include providing evidence toward simulation-based education best practices for the future of nursing students.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to everyday life as a nursing student participating in educational activities.

How will personal information be protected?

The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be anonymous.
- Data will be stored on a password-locked computer. After three years, all electronic records will be deleted and/or all hardcopy records will be shredded.

Is the researcher in a position of authority over participants, or does the researcher have a financial conflict of interest?

The researcher serves as an assistant professor at [redacted]. To limit potential or perceived conflicts, data collection will be anonymous, so the researcher will not know who participated. This disclosure is made so that you can decide if this relationship will affect your willingness to participate in this study. No action will be taken against an individual based on his or her decision to participate or not participate in this study.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University or [redacted]. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Bethany Rose. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [redacted] or [redacted]

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, [redacted], Lynchburg, VA, 24515; our phone number is [redacted] our email address is [redacted]

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers *are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.*

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You will be given a copy of this document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

☐ Yes
☐ No

Appendix J: Observation Guide

While observing the simulation, make notes about how the team implemented the following concepts during the scenario. Be prepared to lead the debriefing discussion.

Team Members: ____________________________________ ____________________________________

____________________________________ ____________________________________

Concept	Examples of Effective Implementation	Suggestions/Questions for the Team