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Recent Graduates' Perspective on the Efficacy of Nursing Simulation Laboratory Experiences

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COLLEGE OF EDUCATION

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Holli Sowerby

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2015

Abstract

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Experiences

by

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MSN, Weber State University, 2011

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Doctoral Study Submitted in

Partial Fulfillment

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Abstract

It has become progressively difficult to find suitable clinical placement for nursing students. To help meet this need, local schools of nursing are turning to high-fidelity simulation manikins to substitute for clinical experience. There is a lack of research that explores recently graduated nurses' perceptions about the efficacy of simulation experiences. Guided by the constructivist theory, this qualitative case study identified how recent RN graduates viewed simulation experiences and whether associate's-degree RN program graduates and bachelor's-program RN graduates viewed simulation differently. Nine recent graduates participated in individual face-to-face interviews. The data were coded and grouped into 5 major themes in order of frequency: (a) environmental and technical factors, which included factors such as equipment working and videotaping; (b) preparation for nursing tasks, referred to assessments, procedures, and emergency situations; (c) human factors, such as the importance of the instructor, other students participation, and working in groups; (d) communication, which included communication with doctors and patients among others; and (e) caliber of the equipment, which was referred to by the level of fidelity of the manikin. On comparison of the codes and themes, the perceptions of the bachelor's- degree participants were similar to the perception of the associate's-degree participants. A white paper, that identified the items the recent RN graduates perceived as valuable, was created. This white paper can be used to begin dialogue that may allow schools of nursing to increase the effectiveness of the simulation experience or validate its applicability in the real world setting. This study may contribute to positive social change by inspiring faculty of local schools of nursing to re-evaluate their simulation laboratory experiences for efficacy and applicability to real world nursing.

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Section 1: The Problem

Introduction

The nursing profession has been teaching with simulation for over 100 years. In 1911, Hartford Training School placed one of the earliest known human patient simulators (HPS) into service. The manikin was named Mrs. Chase, and she exhibited such features as jointed hips, elbows, and knees. Improvements were made and a few years later she also featured a wig, more realistic skin, and multiple body orifices (Nickerson & Pollard, 2010). An early version of the simulation laboratory, called the *demonstration room*, was documented in 1916 (Bloomfield, 1916), and in 1932, documentation shows that the skills laboratory at the Indiana University Training School for Nurses was used to train students, and they were allowed to give hypodermics to the manikins and practice various treatments on each other (Davis, 1932). The use of simulation provides a way for students to practice nursing tasks. Simulation use has continued to increase and improve over the past 100 years.

Early in the 1960s, the Laerdal company began to market a manikin design to teach the skill of cardiopulmonary resuscitation (CPR), and modern day use of simulation manikins began. This simulation manikin, named Resusci© Anne, had inflatable lungs and a spring that mimicked the feel of chest compressions (Nickerson & Pollard, 2010). These innovations allowed for more realistic simulation of CPR. Since then, manikins have become more sophisticated and simulation has become an integral part of most nursing programs.

In the past decade many nursing schools have invested significant resources in manikins that mimic real-world patients. These manikins are some of the most complex HPS ever seen. They are identified in terms of fidelity: low-fidelity, medium-fidelity, and high-fidelity. *Fidelity* is defined as, "the extent to which appearance and behavior of the simulation/simulator match the appearance and behavior of the real world" (Nickerson & Pollard, 2010, p. 102). Mrs. Chase, noted above, would be a low-fidelity HPS, a task trainer suitable for teaching basic psychomotor skills such as the insertion of various medical devices. A medium-fidelity HPS offers a more realistic patient on which to learn new and increasingly complex skills that require some feedback from the patient; for instance, lung, cardiac, or bowel sounds can be listened to on a medium-fidelity HPS. High-fidelity HPS allow for responses from the patient to the student's actions. These highly complex computer-controlled machines can cry, speak, and exhibit symptoms of disease that require intervention from the student. Some specifically designed high-fidelity HPS even give birth. Major advances in technology have made a dramatic difference in how simulation is used today.

The problem that motivated this study was the increasing use of high-fidelity laboratory simulation using HPS in the place of actual hands-on clinical experiences, and the lack of evidence that the recent nursing school graduate perceives such training as effective when taken in real-world context. While a consensus has not been reached, many state boards of nursing allow nursing students to spend a percentage of their nursing program's required clinical hours in the nursing laboratory participating in high-fidelity simulation (National Council of State Boards of Nursing [NCSBN], 2014). Using

high-fidelity training manikins has become the gold standard for training students in many health-science professions (Okuda et al., 2009). These computerized manikins can be programmed to speak, and many physiological responses can be controlled such as heart rate, respirations, and blood pressure. They are also anatomically correct and designed so that the student can practice a variety of nursing tasks including injections, wound care, catheterization, and intravenous needle insertion. The cost of manikins is significant and substantial training is required to successfully run a simulation experience (Garrett, MacPhee, & Jackson, 2010). The estimated cost of setting up a simulation laboratory is approaching $1 million, with ongoing fixed operating costs of over $300,000 annually (McIntosh, Macario, Flanangan, & Gaba, 2005). After this substantial investment, high-fidelity HPS sometimes end up being mere bed weights without knowledgeable personnel who have the ability to interact with the technology and the students (Schiavento, 2009). The use of simulation in nursing education is increasing without research indicating that recent graduates feel that it prepared them for real world nursing.

The ability to facilitate a simulation involves more than just programming the manikin. The scenario needs to address the learning objectives, the equipment needs to be prepared, and the students need a briefing, debriefing, and evaluation to assure that the objectives are being met. The best simulations allow the student to blur the line between reality and simulation (Brewer, 2011; Okuda et al., 2009). Schiavento (2009) stated, "Less is known about simulation in nursing than is implied by its seemingly universal adoption" (p. 388). The fact that simulation has been almost universally incorporated into

nursing education, without clear research that supports the value to the recent graduate, was the catalyst for this research study. This local problem is addressed in the following section. An outline of how the problem impacts the local environment and supporting evidence from the literature are presented. The rationale for selection of this problem is discussed, terminology is defined, research questions are proposed, and a review of the literature is presented in the following pages.

Definition of the Problem

The demand for more nurses has created an opportunity for schools of nursing to increase enrollments to meet the need for licensed nurses. In addition to existing programs increasing enrollments, many new programs have opened. Each nursing student must complete several hundred hours of clinical training. Because of this increase, it has become progressively more difficult to find suitable clinical placement for nursing students. In spite of the clinical placement difficulties, and in response to the well documented nursing shortage (Egenes, 2012; MacIntyre, Murray, Teel, & Karshmer, 2009), nursing programs continue to expand programs, and new schools are opened. Each student enrolled in a new or expanded nursing program must complete the required clinical training hours.

To help meet the need for clinical experiences, schools of nursing are increasingly turning to high-fidelity HPS to substitute for clinical experience. Some research exists that supports the effectiveness of these simulation experiences relative to exam results and student learning outcomes, but there is a lack of research that explores recently graduated nurse's perceptions about the efficacy of simulation experiences. With an

understanding of recent graduates' perception of what is beneficial in the simulation laboratory, simulation experiences can be redesigned for maximum effectiveness.

Rationale

Evidence of the Problem at the Local Level

Many state boards of nursing allow students to spend a portion of a nursing program's required clinical hours in the nursing laboratory participating in high-fidelity simulation using HPS. This topic is one of great interest to the NCSBN and state boards of nursing. As stated, consensus has not been reached nationally but the state where the research took place is one of the states that allows for 25% of the total clinical hours to be spent in simulation training (Utah Department of Professional and Occupational Licensing, 2014).

Local hospitals in a Utah community have student nurses on every shift 6 or 7 days a week. The community is fortunate to have a very well regarded children's hospital nearby and 700 students a month rotate through this facility (V. Tuttle, personal communication, July 20, 2011). There are no more clinical placement spaces for students, yet nursing programs continue to expand programs, and new schools are opened. An institution near where the study was conducted is among the top nursing schools in the state, and its staff still struggles to find adequate placement for all their nursing students. At the present time, simulation is used as an addition to clinical experience and not as a substitute, but substitution is a possibility in the near future. In this study, recently graduated nurses who had been out of school no more than 2 years, were interviewed about their experiences with high-fidelity simulation in nursing school.

In documenting their perceptions about the efficacy of those simulation experiences, information was obtained that may be used by schools of nursing to increase the effectiveness of the simulation experience or validate its applicability in the real world setting.

Evidence of the Problem From the Professional Literature

To teach a nursing student how to take care of people, there is no substitute for hands-on patient care in the clinical setting. The student must first gain the empirical knowledge and then have the opportunity to apply it in the clinical setting. Finding suitable placements for nursing students has been a difficult task for many years and is increasingly so as new nursing schools are entering the arena. The National Council of State Boards of Nursing (NCSBN) oversees the testing and certification of newly graduated nursing students. In the 5 years between 2005 and 2010, the number of candidates for testing increased from 99,187 to 140,889, a substantial increase (Smyer & Colosimo, 2011). All of these graduates had to complete clinical hours. This dramatic increase has created a situation that has many schools of nursing competing for limited placement slots for an ever expanding number of students. To understand whether the investment of fiscal resources and faculty time really pays-off, the recent graduate must validate the application of simulation laboratory experiences in the real world setting.

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Definition of Key Terms

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The terms that are used throughout the project study are defined as they apply to the profession of nursing:

Clinical: For the purpose of this study it is understood that *clinical* refers to the time a student spends in a hospital, long-term-care facility, clinic, or other direct patient care setting, doing hands-on patient care. The student is working under the direct supervision of a staff nurse with a professional nurse educator on the premises overseeing the student's experience (Cederbaum & Klusaritz, 2009).

Fidelity: Maran and Glavin (2003) defined fidelity as the degree of similarity between the appearance and action of the simulation and the real situation it is replacing. They further explained that "engineering, or physical fidelity is the degree to which the training device replicates the physical characteristics of the real task" (p. 23).

High-fidelity simulation: The degree of fidelity varies according to the ability of the manikin to provide a life-like simulation. According to Yaeger et al. (2004), simulators that allow the participant to become fully immersed in the scenario and that are capable of cues that allow for full immersion are high fidelity.

Human Patient Simulator (HPS): Shinnick, Woo, and Mentes (2011) defined a human patient simulator (HPS) as a teaching modality that is both cost and labor intensive. An experience with a simulator, often as a mock clinical event with a life-like manikin, is followed by a debriefing session that allows the students to reflect on their experience. One benefit of simulation is that it allows the student time to think and process information in a safe environment.

Low-fidelity simulation: Simulators that are considered low fidelity are sometimes referred to as *task trainers*. They allow the student to practice single skills repeatedly

until proficiency is gained. This practice is often accomplished individually (Yaeger et al., 2004).

Medical education: Medical education refers to the education of physicians (Okuda et al., 2009).

Medium-fidelity simulation: Medium-fidelity simulators are able to provide some cues to the learner but they do not have the ability to respond at a level that allows the learner to become fully immersed in the simulation (Yaeger et al., 2004).

National Council of State Boards of Nursing (NCSBN): A nonprofit organization that meets to discuss issues regarding the safety, welfare, and health of the public. It is also tasked with developing national licensing exams (NCSBN, 2014).

Nursing education: In the Medical Dictionary for Health Professions and Nursing, Stedman (2012) defined nursing education as a curriculum that is planned and includes clinical experiences that serve to prepare student nurses (Stedman, 2012).

Simulation: According to Gaba (2004), simulation is a "technique, not a technology, to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion" (p. i2).

Significance of the Problem

The lack of clinical placement sites has caused in increase in the use of simulation laboratory experiences to replace clinical time spent with real patients. Simulation is being incorporated into nursing education at a rapid rate even though there is sparse evidence that it is a superior method of education (Schiavenato, 2009). Due to the

difficulty in securing appropriate clinical placement, it is even being used as a substitute for hands-on clinical experience for students (NCBSN, 2014). Students have indicated that they enjoy simulation experiences and that the safe environment of the simulation laboratory is conducive to learning (Blum, Borglund, & Parcells, 2010; Kaplan & Ura, 2010). While students perceive that the simulation experience is beneficial, literature regarding the perception of the recently graduated RN is scarce. Another area that has not been significantly researched is the applicability of the skills learned in the lab to real-world nursing after graduation.

It is important to determine whether the skills learned in the simulation laboratory transfer to the real-world of patient care for nurses. Handley and Dodge (2013) highlighted the reality that there is no clear method for incorporating or evaluating the effectiveness of simulation in nursing education. Likewise, there is no established method to evaluate "its effect on student competency within clinical practice" (p. 529). Okuda et al. (2009) determined that while there is evidence to support the claim that simulation is an effective method for teaching skills, few studies link simulation with an improvement in patient outcomes. In fact, Finan et al. (2011) found that simulation training did not translate into improved performance in the clinical setting when evaluating medical students learning the procedures for intubating a newborn. Finan et al. (2011) researched the reasons for this and found that participants felt increased anxiety in the clinical setting versus the simulation laboratory. If the goal of simulation is to prepare students for practice in the real world, the efficacy of simulation needs to be validated through study and research.

Significance of the Study

While schools of nursing have increased in number, the number of local hospitals has not. In the state where the study took place there are 18 schools of nursing within 75 miles of each other. Each nursing student must complete several hundred hours of clinical training. Because of this increase, it has become progressively difficult to find suitable clinical placement for nursing students. To help meet this need, schools of nursing are increasingly turning to high-fidelity simulation manikins to substitute for clinical experience.

This study may contribute to positive social change by inspiring decision makers in local schools of nursing to re-evaluate their simulation laboratory experiences for efficacy. By comparing the data gathered from recent graduates about what types of simulation experiences were effective with their own simulation experiences, leaders in schools of nursing can make changes that will increase the effectiveness of simulation experiences. When efforts are made to improve simulation experiences, recently graduated RNs may be better prepared for similar experiences in real life.

The Research Questions

A review of the literature suggested that more research needed to be done relative to the use of simulation in nursing education. Several sources identified a lack of research on many aspects of simulation in nursing education. Some of the aspects that need more research include evaluation, education for faculty on implementation, standardization after identification of best practice, and the acceptable amount of substitution of

simulation for clinical placement. The problem that prompted this study, the application of simulation to practice, was also identified as an area that needed more research.

The specific research questions for this study were as follows:

1. How do recent graduates of registered nurse (RN) education programs view the simulation lab experiences from nursing school?
2. In what ways do the perceptions of simulation experiences differ between associate-degree RN program graduates and bachelor's-program RN graduates?

A key topic in the literature is the fact that simulation has been widely implemented without evidence to support it as a teaching methodology. The technology is being incorporated into nursing programs and used a substitute for clinical experiences without the evidence to support its use. In one study a false sense of confidence was instilled as simulation students felt more prepared to face a similar situation in real life than they actually were. Other researchers reported that students who participated in a simulation were no more prepared than their counterparts without simulation experience. The use of simulation has progressed more rapidly than the research to support its use. More research is needed to fully understand the positive and negative implications of using simulation in nursing education.

While simulation can be effective in preparing students for performing skills and for performance on assessment, there is a lack of literature addressing recent graduates' perception of simulation. Also lacking is research indicating that simulation is

comparable to real-life experiences or that it prepared recent graduates for real life experiences. The following literature review contains a sample of the current research on the history of simulation, the effect of simulation, the role of the instructor, and the application of simulation to education.

Review of the Literature

A review of the literature relative to the recent RN graduate's perception of the value of simulation was conducted. The terms used in various combinations were; *nursing graduates perception simulation, nursing simulation, nursing simulation laboratory experience,* and *nursing simulation efficacy.* Also explored were *simulation* in generic terms not specific to nursing, and *simulation* modified with the terms *real world* or *real life.* The main focus of the articles generated by this search was simulation in education from the students' perspective. The recent graduates' perspective is largely unstudied and therefore represents a gap in the literature that needs to be explored.

The data bases used for this literature search were, EBSCO, MEDLINE, CINAHL, ERIC, ProQuest, and Education Research Complete. The Walden University online library, various nursing journals, and websites were used and the health professions librarian at a local university was also consulted for further assistance. After an exhaustive search, saturation was reached when the entries among data bases became repetitious. The information is presented in the following sections: History of Simulation in Nursing, Simulation in Other Health Professions, The Effects of Simulation, The Role of the Instructor, Application in Education, Research Theory, and Summary.

History of Simulation in Nursing

The history of simulation in nursing education was detailed by Egenes (2012), and Nickerson and Pollard (2010). Both sources provide information about the early use of simulation in nursing education and the use of simulation as it continues today. The shortage of nurses, which precipitated the rapid growth in the establishment of nursing programs, that in turn has created the shortage of clinical placement for nursing students, has been well documented (American Association of Colleges of Nursing [AACN], 2013; Egenes, 2012; Macintyre, Murray, Teel, & Karshmer, 2009; NCSBN, 2007). The number of nursing graduates taking the licensure exam has increased dramatically (NCSBN, 2011). This rapid growth has created many difficulties for state boards of nursing, among which is the allocation of clinical resources, and it has become necessary to seek alternatives to clinical placement (Smyer & Colosimo, 2011). One solution to the clinical placement shortage has been the increased use of high-fidelity HPS not only as an adjunct to, but in place of, clinical experience (NCSBN, 2007). Easing the transition from student to RN is the topic of an article by Duchscher (2009). The author noted that there is a definite role adjustment for new nurses and a need for education in nursing school to deal with this phenomenon. One method of addressing the issue is the use of HPS.

Simulation in Other Health Professions

Simulation is used in many other health-science-related professions. Simulation in nursing claims ties to simulation used in the flight industry. Referring to Page (n.d.), "The origins of the simulation industry were generated from the use of flight training devices" (p. 1). According to Okuda et al. (2009), the use of simulation is implemented

increasingly in medical education. These authors reviewed the evidence regarding simulation in medical education. They concluded that the evidence supports the claim that simulation is an effective method for teaching skills; however, there are few studies that link simulation with an improvement in patient outcomes. The conclusion is that as the use of simulation as an instructional method continues to grow, more research is needed to maximize the benefits (Okuda et al., 2009).

Respiratory therapy educators use simulation to train respiratory therapists who often work in high pressure environments. They have found that the controlled environment of the simulation laboratory provides an arena where it is okay to make mistakes and learning takes place (Frey, 2012). Simulation is also used to assess the performance of practicing paramedics. An observational study, that collected quantitative data compared the participants' cognitive ability (as determined by the licensing exam score) with field performance in an emergency situation using high fidelity simulation. The authors concluded that there was a correlation between passing the cognitive exam and success on the field simulation. This type of research allows stakeholders to tailor education to meet their needs (Studneck et al., 2011).

Using collaborative simulations is also seen as beneficial in providing nursing students with the opportunity to work with students of medicine and other medical care providers. The items measured by the research conducted by Reese, Jeffries, and Engum (2010) were simulation design features, student satisfaction, and self-confidence. The results from both medical and nursing student groups were positive. Some of the simulation items that were identified as important by both groups were feedback and

guided reflection. The data suggest that simulations involving both medical and nursing students are beneficial for both groups (Reese, Jeffries, & Engum, 2010).

The Effects of Simulation

Some research shows that simulation can have a positive effect on confidence and decision making. Stirling, Smith, and Hogg (2012), showed that simulation experiences early in a nurse's career can have positive effects. Similarly, Kaddoura (2010) found that new graduates reported that simulation helped them to make good clinical decisions in the care of critically ill patients. The perception of an increase in self-confidence and competence was noted by students in several studies (Blum, Borglund, & Parcells, 2010; Kaplan & Ura, 2010; Partin, Payne, & Slemmons, 2011; Reid-Searl, Eaton, Vieth, & Happell, 2011). Students often have positive perceptions of simulation, but recent graduates are a group that has not been adequately studied regarding perceptions of simulation. Helping students take the knowledge gained from the simulation laboratory into the clinical setting is a challenge faced by schools of nursing.

Transferring knowledge to practice was one of the areas that Blum, Borglund, and Parcells (2010) concluded needed more research. Kaplan and Ura (2010), found that "the student clinical experience is rich, yet challenges arise in providing experiences where leadership skills can be developed and used in nursing practice" (p. 371). Evaluation of what is learned from simulation can also be difficult. Alinier, Hunt, Gordon, and Harwood (2006) generated a quantitative study about the effectiveness of simulation as measured by an examination, and results showed that test scores improved. Clinical education is vital to nursing education, and simulation experience can improve test

scores. The difficulty is in connecting simulation to the real world so that simulation experiences improve critical thinking and decision making in clinical practice.

Critical thinking is another area that showed possible improvements from simulation. Goodstone et al. (2013) concluded that students using high-fidelity simulation improve, over time, on tests evaluating critical thinking. Critical thinking requires the student to look at all of the variables of a situation which is a skill that can be practiced in the controlled environment of the simulation laboratory. Sometimes the simulation laboratory is the only place in which the student will encounter less common patient problems.

Some experiences that students need to be prepared for, both for licensure and everyday practice, are difficult to provide in the clinical setting. Using simulation for these experiences has been perceived to be a good solution to a growing problem. This problem led Smith, Klaussen, Witt, Zimmerman, and Cheng (2012) to implement a learning experience in which students participated in a high-fidelity human simulation (HFHS) scenario and applied the concepts they learned in class to legal and ethical dilemmas presented in the scenario. An initial evaluation was done comparing the HFHS experience with the face-to-face and the online student experiences. Both faculty and students identified HFHS as the best approach for implementing a learning experience regarding legal and ethical content. Pediatric experiences are another area that is often lacking in a student's clinical rotations. Richard (2009) demonstrated that students were highly satisfied with a pediatric asthma simulation. Regarding simulation as an active learning method, students perceived that they were able to experience rare patient

problems in a controlled, safe learning environment. The use of simulation was found to be effective as long as students remained flexible and faculty had the time and resources required to support simulation in the nursing curriculum.

Despite the best efforts of instructors, it may not be possible to transfer the lessons learned in the simulation laboratory to the clinical setting. Finan et al. (2012) compared the success rate of two groups of residents related to infant intubation. One group participated in simulation exercises, and the other did not. While the simulation group was more proficient in the posttest performance, their proficiency diminished quickly. At the end of 8 weeks, there was no significant difference in the two groups' success rate. Conclusions were made that while immediate skill may improve in the simulation environment, these skills may not transfer to the clinical setting. The literature regarding the students' perspective often shows that students like the simulation experience but more research is needed to validate the transfer of this experience to the clinical setting. Students identified "transient feelings of confusion" (Wotton, Davis, Button, & Kelton, 2010, p. 632) but perceived that, hypothetically, they could apply the knowledge from the simulation to actual events. The actual transfer of knowledge gained in simulation to the clinical setting is an area that has not been fully researched.

In the only study located that evaluated student skill on actual patients, Kirkman (2013) followed 42 nursing students conducting respiratory assessments. Their skill was evaluated on actual patients before the lecture was given, after the lecture, and again after the simulation experience. Results showed significant improved at each evaluation. This research concludes that students are able to effectively apply their learning from

simulation experiences in the clinical setting. One factor in the application of skills learned in simulation is the skill of the simulation instructor.

Role of the Instructor

A commonality in the literature reviewed was the fact that much of the success of a HPS experience was dependent on the skill of the instructor. Inch (2013) outlined the application of Benner's novice-to-expert model, prevalent in nursing research, to simulated learning environments. In Benner's (1984) model, a person moves through stages from novice to expert. At the novice stage, the person lacks discretionary judgment and must follow rules to make decisions. When the people reach the expert stage, they are able to make decisions independently based on critical thinking and experience. Benner proposed that an individual must work in the same capacity for 2 or 3 years to progress to expert status. Maslow's hierarchy of needs is also aligned with this teaching method as a social experience (Inch, 2013). The conclusion is that by careful planning of the experience, and thorough debriefing afterward, learners can experience increased confidence in their ability to perform in situations similar to the simulation (Inch, 2013). Garrett, MacPhee, and Jackson (2010) are also proponents of the importance of a thorough reflective debriefing. Debriefing is a common area that is mentioned often in the literature. Guimond, Sole, and Salas, (2011) proposed that pretraining is a vital component in successful simulation. This article proposes that pretraining would improve the quality of simulation experiences. By incorporating evidence-based teaching strategies, a method for improving the simulation experience for the participant by use of a pretraining analysis check-list was developed. The conclusion of the article is that

simulation is often skills driven but appropriate pretraining and preparation can result in a greater use of critical thinking.

Exploratory research on 21 first-year graduates and nursing students was conducted by Reid-Searl, Eaton, Vieth, and Happell (2011) with participants who had engaged in a type of simulation that involved the instructor assuming the characteristics of the patient, complete with appropriate clothing and mask. The two themes that emerged were the realistic portrayal of the patient and the skill of the instructor. Conclusions were that more research is needed to identify appropriate uses and outcomes of the differing types of simulation. Students found the experience to be fun and educational. Handley and Dodge (2013) sought to explore broad, complex problems and identify practice gaps. Simulation was found to have a great deal of support, but there is little guidance on the best methods of implementation. Simulation implementation strategies need to be developed to ensure best practice in the incorporation of simulation in the curriculum. One of the areas to be addressed is the preparation of the instructor.

Brewer (2011) found that while HPS can be a valuable tool in nursing education, the instructor's skill and technique are important factors in the success of the technique as a learning tool. An important component of evaluation was emphasized, and more research was recommended to identify what makes up successful simulation. Adamson and Kardong-Edgren (2012) also discussed the importance of evaluation in their article. Their quantitative study documented the reliability of three tools designed to evaluate student performance in simulation scenarios. Twenty-nine faculty participants from across the United States viewed video-archives of nursing students engaged in simulation

activities. The conclusion was that analysis of student performance is becoming increasingly important as the use of simulation grows, and the use of the technique in this article is one way to test validity of the instrument used for evaluation.

Application in Education

As important as evaluation of the effectiveness of simulation is, another important factor is the standardization and accreditation of simulation. Fernandez et al. (2010) analyzed the need for accreditation in the realm of emergency medical education. The authors researched the current bench marks, the structure of simulation programs, and a proposed model for simulation accreditation. The recommendations were to continue the use of existing support while creating new processes for accreditation in the emergency medicine field with applicability to other simulation-using professions. A key component of accreditation is evaluation.

If an educational activity does not meet the learning objectives of a course, it needs to be evaluated as to its relevance and effectiveness as a learning tool. Evaluation of simulation use should be accomplished to determine if it is meeting the course objectives. Schiavenato (2009) called for reevaluating why simulation is being used in nursing education; if the use is justified, Schiavenato stated, a broader application throughout the curriculum should be considered. Evaluation of simulation needs to be implemented at all levels, from the decision to use simulation by administrators down to student performance before and after simulation experiences.

In a review of the literature, Norman (2012) concluded that while some literature supports the use of simulation in nursing education, there is, "a gap in the literature

pertaining to the transfer of these outcomes to the clinical setting" (p. 26). There are many unanswered questions with regard to the use of simulation in nursing education. Norman called for more research to be done regarding the transfer of the skills gained in simulation to the clinical setting. There is consensus in the literature that more research needs to be done regarding simulation.

Constructivist Theory

The conceptual framework for this study was constructivist theory. The "constructivist stance maintains that learning is a process of constructing meaning: it is how people make sense of their experience" (Merriam, Cafarella, & Baumgartner, 2007, p. 291). This process of experience and reflection is a dynamic process that changes as the learner internalizes the experience. By constructing their own concept of a learning experience, and reflecting on that experience, students create a personal interpretation of the learning experience (Vygotsky, 1978). There are many perspectives that are defined as constructivist in nature. The greatest area of discussion seems to be whether this process is an individual process or a social process. Proponents of the individual process base the discussion on the early work of Piaget (1972). As learning happens, the individual identifies meaning between the current material and previously held beliefs. The social constructivist perspective states that social interaction around the topic, through discussion or activity, facilitates the acquisition of knowledge. Vygotsky (1978) receives credit for foundational research as he proposed that learning is accomplished with others socially and through the language and symbols of their culture. He stated "learning is a necessary and universal aspect of the process of developing culturally organized,

specifically human psychological function" (p. 190). Vygotsky's constructivist stance applied to the research questions shows that through the social interaction of simulation experiences, learners will internalize simulation experiences and use them as a guide to regulate performance. This process of learning and internalizing, then using the internalized information to act in a future circumstance that is similar to the internalized information is an example of constructivist theory. Compatible with constructivist theory is the adult learning theory of Mezirow (1981).

How adults learn is an important consideration when making decisions about learning activities such as simulation. Mezirow (1981) identified an adult learning theory proposing that adults learn by constructing meaning both individually and socially. During the learning process adults experience transformation in perspective and meaning that can cause them to undergo radical change in the way they perceive experiences. This learning theory, identified as transformational, is highly compatible with the constructivist framework of the study.

It is universally agreed that constructivism is an active learning process (Merriam, Caffarella, & Baumgartner, 2007). By constructing their own concept of a learning experience, and reflecting on that experience, students create a personal interpretation of the learning experience. Gordon (2009) maintains that learning occurs when an individual makes new knowledge intelligible to oneself, and verifies it in practice that is accomplished with simulation scenarios. This theory aligns perfectly with this project study as it is that personal interpretation of the learning experience of simulation that was the subject of the study.

Summary of the Literature

Simulation has been used in other professions both medical and aviation and simulation has a long history of use in nursing education. As technology has improved, the use of simulation has increased, and the current guidelines allow many states to substitute clinical experiences for simulation laboratory experiences. Simulation has been shown to increase perceptions of confidence but it has also been shown to cause increased confusion. The role of the instructor was found to be a key factor in the success of simulation experiences. The current research mainly addressed the perception of students' and the impact of simulation on test scores. One difficulty that appeared repeatedly in the research is the problem of applying what is learned in a simulation experience to clinical practice with patients. Little research exists that addressed the question of efficacy of simulation as perceived by the recent graduate. The outcome of this project is data that addressed the question of simulation efficacy as perceived by recent graduates.

Implications

The study explored the lived experience of the recent RN graduate and how they perceive simulation impacts their experience as a new nurse. The findings were used to evaluate efficacy of simulation experiences and determine what simulation experiences are most applicable in the new graduates' experience of real-world nursing. This information could benefit other nursing programs, the larger educational community, and effect positive social change. The information could be shared as a white paper. At a recommended length of 6-12 pages, a white paper is a concise method for sharing

information. Academic white papers provide a way to disseminate current research that can benefit the entire learning community and affect social change. A series of workshops, designed to disseminate the findings of the research study, would also be a possible method of sharing the research. Both of these methods could be used, in conjunction, to disseminate the research; first as a white paper mailed to schools of nursing and then, if requested, as a workshop for interested parties. The outcome of the research determined the actual deliverable.

Summary

Simulation is widely used in the healthcare profession. It has been used in nursing for over 100 years. The problem that motivated this study is the increasing use of simulation, in the absence of evidence that recent graduates find it prepared them for the real-world of nursing. The increasing difficulty of obtaining clinical placement for students compels nursing schools to use the substitution, allowed by the state boards of nursing, for simulation instead of real-world clinical experience. A review of the current literature showed a lack of substantial evidence supporting the efficacy of simulation to prepare the new RN for similar situations in the real-world. By using case study research, and interviewing recently graduated RNs about their perceptions of simulation, insight was gained which will allow decision makers at schools of nursing to increase the effectiveness of simulation laboratory experiences. In section two, I will discuss data collection and analysis. In section three the method chosen to present the material is identified and section four contains the reflections and lessons learned from the process.

Section 2: The Methodology

Introduction

The shortage of clinical placement sites experienced by schools of nursing has caused an increase in the use of simulation laboratory experiences with high-fidelity HPS, also called manikins, as a substitute. This method of nursing education may be effective, but research on recent graduates' perception of its efficacy is lacking.

The two research questions that were identified were as follows:

1. How do recent graduates of registered nurse (RN) education programs view the simulation lab experiences from nursing school?
2. In what ways do the perceptions of simulation experiences differ between associate-degree RN program graduates and bachelor's-program RN graduates?

A qualitative research design was used, and the case study method was found to be the most effective method for gathering the type of information needed to answer the research questions. Merriam (2009) stated that qualitative case study research is a method to discover understanding and meaning about a topic. Case study research involves studying a single unit that is intrinsically bounded. To meet the criteria for case study research, there cannot be an infinite number of potential participants or an infinite amount of time in which to conduct the research. Case study research is not limited to any particular type of data collection method (Merriam, 2009). The data collection method employed for this research was the one-on-one interview.

The participants in the study were recent graduates who agreed to share information and ideas. The one-on-one interview is a popular method in educational research (Creswell, 2009). There were nine participants who were interviewed individually. Interviews concluded when saturation of themes was reached. The participants were purposefully selected from the recently graduated RNs in a new graduate residency program at a local hospital system. One-on-one interviews were conducted, and the data were analyzed and coded to identify themes (Creswell, 2009).

In the following section the research design and its application to the research problem are established. The method of selection of the participants is outlined, and the number of participants identified. The method for gaining access to the participants and steps taken to protect the identities of the participants and information gathered are described. Also outlined are the role of the researcher, data collection, analysis, and credibility.

<div align="center">**Research Design and Approach**</div>

Research Design

A qualitative research design was used for this study. The objective of qualitative research is to understand how people interpret experiences. While quantitative research seeks to determine cause and effect with supportive data and statistics, qualitative research focuses on the *why* of an experience by asking questions to gain an understanding about experiences (Merriam, 2009). Bogdan and Biklen (2007) identified five features of qualitative research: naturalistic, descriptive data, concern with process, inductive, and meaning.

Naturalistic refers to the concept that the research has an actual setting as a data source. In this case, the setting was the hospital or clinic where application of the information learned in simulation took place. The *descriptive data* in qualitative research are the words or pictures that are gathered from the research, rather than the numbers and statistics provided by quantitative research. In this study, the *descriptive data* were the transcripts from the participant interviews. Being concerned with how people find meaning is the *concern with process* that is a hallmark of qualitative research. The focus of the *concern with process* of this research was how the recent RN graduates perceived the efficacy of simulation. Qualitative research does not involve seeking out data to prove or disprove a hypothesis. It is *inductive* in nature and involves examining the data and "constructing a picture that takes shape as you collect and examine the parts" (Bogdan & Biklen, 2007, p. 6). *Meaning* refers to the qualitative approach of discovering how people make sense of the experience being studied. *Meaning* was discovered through the research questions:

1. How do recent graduates of registered nurse (RN) education programs view the simulation lab experiences from nursing school?

2. In what ways do the perceptions of simulation experiences differ between associate degree RN program graduates and bachelors program RN graduates?

The research was conducted with the five features of qualitative research: naturalistic, descriptive data, concern with process, inductive, and meaning presented by Bogdan and Biklen (2007) as a guide.

Research Approach

Case study was the qualitative approach selected for the research. A case study was defined by Bogdan and Biklen (2007) as, "a detailed examination of one setting, or a single subject, a single depository of documents, or one particular event" (p. 59). The focus of the research was the perception of the efficacy of simulation. Lodico, Spaulding, and Voegtle (2010) further defined case study research as examination of a bounded system, meaning that there is a finite number of people who could be interviewed. In this case, the bounded system was recent graduates of nursing school. Stake (2005) further divided case studies into three types: intrinsic, instrumental, and collective. The appropriate type for the study was instrumental, as insight into an issue was the goal of the research.

The other qualitative approaches, ethnography, phenomenological research, and grounded theory research as outlined by Lodico, Spaulding, and Voegtle (2010), were not appropriate for this study. *Ethnography* is concerned with culture and knowledge embedded in a community. The culture and knowledge of a community were not the focus of the study. *Phenomenological* research requires extended observation and multiple interviews of each participant to expand on what was learned from earlier interviews. Conducting multiple interviews over an extended period of time was not the intent of the study. The intent of this study was not to develop a theory that was grounded in research, as would be the case in *grounded theory* research. After determining that case study research was the appropriate research approach for this study, a group of potential participants was located.

Participants

Qualitative research requires purposeful selection of individuals to explore a specific central phenomenon. Purposeful sampling, was the method used for this study. It is important to select individuals who can provide detailed and useful information for a study (Creswell, 2012). Individuals were selected who could provide detailed information about the simulation experiences they encountered in nursing school and their perception of the applicability of those experiences to their experience of nursing in the real-world environment. Personal interviews were conducted with the purposefully selected participants. It was anticipated that eight to 10 participants would be required to reach saturation in the developing themes. In working through the education office of a local hospital, it was possible to gain access to current and recent participants in a RN residency program. This is a residency training program for newly graduated RNs. There are three or four groups that go through the program each year. Participants in the residency program are graduates from a variety of nursing schools. Using this particular group allowed access to a more diverse group of graduates than would have been possible by interviewing graduates of one particular program. In total, nine interviews were conducted.

Selection of Participants

Creswell (2012) stated, "Maximal variation sampling is a purposeful sampling strategy in which the researcher samples cases or individuals that differ on some characteristic or trait" (pp. 207-208). By selecting participants for the study from a nurse residency program for newly graduated RNs, I was able to select a diverse group for

interviews. According to Stedman (2012), a nursing graduate is someone who has completed all of the coursework of a nurses' training program. For the purpose of this study, *recent* was determined to be within 2 years of graduation.

The residency participants were graduates of different schools of nursing and had various simulation experiences. The residency program coordinator forwarded an invitation to participate in the research study to all the residency participants for the past 18 months (Appendix B). The time period of 18 months ensured that the participants were within the first 2 years of their nursing career. The residency participants who were willing to participate in the research contacted me directly. An interview time that was mutually convenient was arranged. The invitation to participate was sent three times and there were nine total volunteers. The interviews varied in length from 25 minutes at the longest to 7 minutes at the shortest. Of the nine participants, two were male and seven were female, two held bachelor's-degrees and seven held associate's-degrees, and were three different nursing school programs were represented. All the participants who volunteered were interviewed, and the results are included in this study. Demographics of the participants appear in Table 1.

Table 1

Demographics of Research Participants

	N (%)
N	9
Gender	
Male	2(22)
Female	7(78)
Degree	
Associate's degree	7(78)
Bachelor's degree	2(22)
School of nursing	
School A	6(67)
School B	2(22)
School C	1(11)

Information was obtained by interviewing recent graduates who had been out of school for no more than 2 years about their experiences with high-fidelity simulation in nursing school. According to Benner (1984), it takes at least 2 years for a person to move through the stages of novice to expert. People at the novice stage must rely on rules and procedures to make decisions as they lack discretionary judgment. In interviewing participants with less 2 two years of experience, the experience of nursing school was still recent and the participants were still in the early stages of Benner's novice-to-expert model.

Gaining Access to the Participants

A letter of intent was mailed to the hospital education department (Appendix C) where the proposed research took place. The letter outlined the nature of the research, the potential benefits, and steps that were taken to maintain confidentiality. Approval to

proceed was granted, and the steps to be taken were outlined (Appendix D). The hospital would not release contact information to persons outside of its organization. Personnel did, however, forward an invitation to participate and my contact information to the participants of the residency program. The residency program coordinator forwarded an invitation to participate letter (Appendix B) to all of the residency participants from the past 18 months. The invitation letter instructed those RNs willing to participate to contact me directly via email. Upon receiving an email from a potential participant, I verified the individual's contact information and years as an RN to ensure that all participants were RNs with less than 2 years of experience as a nurse, and an interview was arranged. I was contacted by four individuals who were willing to participate within the first week after the invitation was sent, and interviews were scheduled. A reminder was sent 2 weeks after the initial invitation to participate was sent, and two more individuals responded. The invitation to participate was resent 3 weeks after the reminder and three more individuals responded and were interviewed, for a total of nine participants.

Ethical Protection of Participants

After being made aware of the research, the participants contacted me if interested in participation. This step helped to ensure voluntary participation in the research. When the participants arrived for the interview, they were asked to read and sign a consent form informing them that all identities would be kept confidential and that they would not be compensated for participation. They were given a copy of the consent form for their records. Each participant's interview transcript was identified by a number instead of the participant's name. The participants were informed that they could drop out of the

research study at any time. They were also informed that there would be no disclosure of confidential information. A peer reviewer assisted by reviewing the research. She signed a confidentiality agreement (Appendix E). There were no risks identified for participation in the study and I had no connection, past or present, to the institution where the research took place. The electronic data are stored on a password-protected computer and backed up on an external hard drive that is also password-protected. Hardcopies of the interviews are stored in a locked filing cabinet. All data will be destroyed in 5 years per university policy.

Data Collection Methods

Institutional review board (IRB Number 11-04-14-0337530) approval from Walden University was received before any data collection took place. The institution where the research participant pool was located did not require IRB approval. Data collection was guided by the proposed research problem and research questions. Individual interviews were the only data collection method. Selected participants were RNs who had been out of school for no more than 2 years and who participated in simulation experiences in nursing school. The first nine participants who volunteered comprised the sample. Open ended questions were used to elicit responses from participants who provided in-depth descriptions of their experiences (Appendix F). A total of nine interviews were conducted, and saturation of themes was reached. The data were collected and stored on a password-protected personal computer. As agreed to in the informed consent document, interviews were voice recorded and audio files were

transcribed verbatim by me. Transcripts and the original recordings were stored on the above-mentioned computer.

One-on-One Interviews

Interviewing is most common method of data collection when the researcher wants to find out what the thoughts and feelings of another person are. Interviewing is common to all types of qualitative research. Merriam (2009), when referring to qualitative research stated, "some and occasionally all of the data are collected through interviews" (p. 87). An interview with each participant provides the method to capture the perceptions of the participants. These are data that cannot be obtained through any other means than by speaking directly to the person.

Interviews can be categorized by both type and structure. The structure for the interviews in the study was semistructured and the type was face-to-face. The questions were open ended with some specific data gathered from all participants (Merriam, 2009). The interviews were conducted using an interview protocol guide composed of 10 questions (Appendix F). They were conducted at one of two meeting places: a diner in close proximity to the institution where the participant worked, or my office at the university, which was also in close proximity to the institution where the participants worked. Providing two options to choose from increased the convenience for the participant. A 1 hour block of time was scheduled for the interview, which was more than adequate, as the interviews ranged from 7 to 25 minutes. When the participant arrived he or she was greeted and thanked for his or her willingness to participate. The informed consent document was then read and signed by the participant. Participants were also

given a blank copy of the consent form to keep. After the participant read and signed the consent document and agreed to audio recording as outlined in the informed consent document, the recording device was turned on. The participant was asked the open-ended questions on the interview protocol guide (Appendix F). I asked 10 open-ended questions. They were evaluated by my peer reviewer, and revisions were made both before and after they were evaluated by my university research reviewer. The final question was "What additional information might you provide to assist in better understanding your experience with simulation as a nurse?" This question encouraged participants to add any thoughts they might have regarding simulation that I did not cover. The audio recording device was then stopped, and participant told that he or she would receive a copy of the transcript with preliminary analysis via email in 10 to 14 days to accomplish the member checking that would increase the credibility of the study. Because of the holiday season, some transcripts were returned for member checking approximately 2 to 3 weeks later than anticipated. The questions asked during the interview are located in Appendix F. A list of the dates and locations of the interviews can be found in Table 2.

Table 2

Interview Dates and Locations

Date of interview	Number conducted	Location
December 2nd, 2014	1	Office
December 5th, 2014	1	Diner
December 8th, 2014	1	Diner
December 9th, 2014	1	Office
December 10th, 2014	1	Office
December 17th, 2014	1	Office
January 13th, 2015	2	Office/Diner
January 14th, 2015	1	Office

The time allotted was 1 hour. This time allotment proved to be too great, as the

interviews ranged from 7 to 25 minutes. At the end of the interview, the final question

asked for any additional information the participant might want to add. Only one

participant had nothing more to add. Of the nine participants interviewed, three stated

again that the instructor was an important factor in the success of the simulation. After

concluding the interview, the recording device was turned off and the participants were

reminded that the interview transcript, along initial coding would be sent to them via

email for their review and response. Participants were told that if they did not respond,

agreement with the transcription and initial coding would be implied. The participants

were thanked again for their participation. Audio taped interviews were then transcribed

within 3 to 4 days of the interview. There was no incentive given for participation.

Member Checks

To ensure that biases of the researcher are not influencing the portrayal of the

data, Lodico, Spaulding, and Voegtle (2010) recommend the use of member checks. To

accomplish this step towards credibility, transcripts of the audio recorded interviews were

forwarded to the participants via email. Merriam (2009) described the process of member

checking as a method to solicit feedback on initial findings. After the interviews were

conducted, the recorded data were transcribed by me for analysis. The transcript of the

data gathered from the interview, along with preliminary categorization and

interpretation, were returned to the participant. The participants should then either agree

with the interpretation, or offer suggestions to clarify their interpretation of the interview

(Merriam, 2009). Participants had the opportunity to review his or her own data, and add

any comments or additional information as appropriate. Of the nine participants, five

responded to the email that was sent with a copy of the individual interview transcript.

Only participant three (P3) wished to clarify a response. The participant stated, regarding

question one "My response during the interview: I think we did like twice, we did like a

mid-semester and then we did like a final. For this question, I would like to clarify that

we used manikin's every week to practice our skills, and then actually did a simulation

for midsemester and then one at the end of the semester for a final. When I read the

question, I wasn't sure if it was asking for how often we used manikins, or how often we

did an actual simulation during the semester" (P3). The other four participants that

responded for member checking confirmed that the transcription was accurate, and they

had nothing more to add.

Managing Collected Data

A table was created to enter the participants name, the location and time of the

interview, and the assigned number. This information was accessible only by me and was

stored on a password-protected computer. The amount of data collected were relatively small, so the coding and analysis were done by hand using a color coding system for organization. Large margins were used on the printed copies of the transcripts to allow for handwritten notes in the margins, and interviews were transcribed by me as they were completed (Creswell, 2012). By doing the transcription of data personally and promptly, I was able to record my thoughts and insight that might have been lost if the transcription was done by a third party (Merriam, 2009). A reflective journal was kept to record emerging understanding during the coding process.

Paper copies of the transcripts were used for the initial review of the data collected. These were organized into individual file folders with an assigned number as an identifier for each interview. A reflective journal was kept, and new ideas and understanding were recorded chronologically, to aid in final analysis of the data. As information was gathered and coded, it was entered into a matrix stored electronically. The physical copies of the data were stored in a locked file cabinet when not in use, and the electronic copies were stored on a password protected computer and backed-up on an external hard-drive that is also password-protected. At the conclusion of the research the physical copies were shredded and the electronic copies are stored securely for 5 years as required by the university until they can be destroyed.

Role of the Researcher

I am a full-time, tenure track, nursing faculty member at a large public university. I have been employed in this position for two years. I teach students in both the associate and bachelor's-degree programs, and I am the course chair for a nursing course. I am not

now, and have never been, associated with the hospital system where the participants for the research were accessed. Prior to working for this university, I was a faculty member and associate-dean of nursing for a small nursing program at a local proprietary school. I was employed by that institution for nearly four years. I have 9 years of experience as a nurse, primarily in the area of home-health and 6 years in the education field. I began my nursing career as a licensed practical nurse. I continued my education to receive my associate RN degree, a bachelor's-of-science in nursing degree, and a master-of-science degree in nursing education. In addition to working in higher education, the areas where I have worked include long-term care, home health and secondary education.

One of the greatest challenges I have encountered in my nursing education career has been the difficulty in obtaining clinical placement, and the question of substitution of simulation for required clinical training hours. I am concerned that decision makers in schools of nursing are using the option provided by the State to substitute HPS for clinical without adequate evidence of the efficacy of that type of training. During data analysis, I remained objective, and I have presented the data as it was collected. All the participants that volunteered were interviewed, and all the data that were gathered are presented in this paper. This research provided information about the recent graduates' perception of the value of simulation. This information will allow decision makers at my institution, and at other schools of nursing, to evaluate and redesign, if necessary, the simulation experiences provided to students. This information, gained from the research, could result in social change in my work environment, and potentially in nursing education.

Data Analysis

Creswell (2012) identified six steps to analyzing data. In the first step the data are collected by the researcher. After the data are collected, the researcher then prepared the data for analysis. The third step required the researcher to read through the data. This step required reading the data many times. While reading the data multiple times, the data are coded, and then descriptions, to be used in the text, are identified. In the sixth step, the themes were identified that were used in the research report. The six steps are not always sequential, but they represent a method for managing the data that was employed in the research. As suggested by Creswell, a matrix was developed to organize the source material, and all data were stored on a personal-computer and backed up on an external hard-drive. The transcription of the data was ongoing as the interviewing progressed, with each interview transcribed as soon as possible after the interview took place. Following Creswell's suggestion, the transcribed document was formatted with two-inch margins for note taking, and all interview questions were highlighted. The transcripts were read through in their entirety, multiple times, to allow me to become immersed in the data before beginning to break it down. During the multiple readings, words or phrases emerged that became the coding categories. Transcripts with preliminary analysis were returned to participants for their feedback, this step is member checking.

As the transcripts were read and reread, new codes were added, and data were reexamined to assure that nothing was missed or coded incorrectly (Bogdan & Biklen, 2007). After the coded data were further organized into categories the main themes began to emerge. Merriam (2009) stated that data collection is done in conjunction with data

analysis with a shift toward more analysis as the research progresses. If data had been identified that did not fit the emerging themes, such discrepant cases would have been analyzed further and the identified patterns would have been reworked to better fit emerging themes as suggested by Freeman, deMarrias, Preissle, Roulston, and St. Pierre (2009). There were no discrepant cases identified, so this step was not necessary. When data analysis revealed no new themes, saturation was achieved. The projected number of interviews was eight to 10, and a total of nine interviews were conducted. The data collection was then considered complete and data analysis continued until it was completed.

After an interview was transcribed, it was read and reread to determine the emerging codes that were present. These codes were then entered into a matrix, and reviewed after data from each interview was transcribed. As the interviews progressed, over the course of approximately 6 weeks, themes began to emerge regarding the participants perceptions of simulation.

Evidence of Quality

Creswell (2012) and Merriam (2009) identified some common strategies for validating the accuracy of qualitative research. The strategies that were used in this study include: adequate engagement, rich, thick descriptions, member checking, and peer reviewer. To achieve *adequate engagement,* time must be spent collecting data to achieve saturation. By interviewing nine participants, saturation of themes was achieved. Providing readers with enough information, and *rich, thick descriptions*, allowed the reader to compare their experience with the research findings. This comparison is part of

the transferability of the findings that is the goal of research. To accomplish *member checking,* participants were given the opportunity to review his or her data after transcription and analysis, to assure that it was representative and fair. A copy of the transcript and preliminary interpretation was sent to the participants for feedback to ensure accurate representation of the conducted interviews. A peer, which is outside the study, was asked to serve as a *peer reviewer* to review and evaluate the research and provide feedback. She signed a confidentiality agreement (Appendix E). This person is a colleague with 40 years of experience as a nurse, and 22 of those years were spent in nursing education. She has served as a university program director, interim dean, and a site reviewer for the National League for Nursing Accreditation Commission (now the Accrediting Commission for Education in Nursing or ACEN). She has also been on the ACEN evaluation committee, and currently serves on the appeals panel for doctorate, masters, and baccalaureate clinical education programs with ACEN. Using these strategies served to validate the accuracy of the research.

Limitations

Limitations to this study include the small sample size that is characteristic of qualitative research, and limits the generalizability of the study. Other difficulties that were encountered, and should be mentioned, were the restricted access to the participants, and the time frame that resulted in trying to complete interviews during the winter holiday season. The participants were all part of a residency program for newly graduated RNs. The institution where these participants worked would not allow me access to their contact information. I was obligated to wait for potential participants to contact me. I also

had to rely on the institution to send out the invitation to participate, and the reminders that were required to elicit responses from the participants. This was frustrating at times as I was eager to complete the research, but had to wait for contact to come from my participants. The initial proposal called for eight to 10 participants, which is a reasonable size for a qualitative study, and nine interviews were conducted. More research needs to be done to validate the findings of this research. Lastly, because everything took longer than I had hoped, the interviews were done during the busy winter holiday season, which may have impacted the number of volunteers willing to participate, as everyone seems busier during that time of the year. Conducting interviews during that time also resulted in a longer than anticipated time to get the interviews completed, and returned to the participants for member checking. The goal of returning transcripts for member checking within two weeks, turned into a reality of closer to 4 weeks. These items are things I will consider when planning and implementing future research.

Findings

The purpose of this project study was to explore the perceptions of recently graduated RNs about their experience with simulation. The research questions were:

1. How do recent graduates of registered nurse (RN) education programs view the simulation lab experiences from nursing school?

2. In what ways do the perceptions of simulation experiences differ between associate degree RN program graduates and bachelors program RN graduates?

The method of data collection used was the face-to-face interview. For this study, nine participants were interviewed. All participants that volunteered were interviewed. In addition to reaching saturation, the participants were graduates of three different schools of nursing and were graduates of both associate's and bachelor's-degree programs. Seven participants held associate's-degrees and two held bachelor's-degrees. This provided a sample with a wide range of experiences to improve validity of the research. The findings are discussed in the following section.

Face-to-Face Interviews

Face-to-face interviews were conducted with nine participants to generate responses to the interview questions that would, in turn, answer the research questions. Prior to completing the established interview questions the participants were asked how long he or she had been a nurse to verify that he or she had been a nurse for less than two years. Participants were also asked what nursing program they attended, and what level of degree they obtained. This additional data established that the participants could provide a varied representation and that data gathered could be used to answer the second research question.

Of the nine participants, two held bachelor's-degrees and seven held associate's-degrees. In answer to the second research question, the perceptions of the bachelor's-degree participants were similar to the perception of the associate's-degree participants. The participants were graduates of three different nursing programs, two of the participants were male and seven were female. Instead of using names, the participants were assigned numbers: P1, P2, P3, P4, P5, P6, P7, P8, and P9. During one of the

interviews, question five was accidentally skipped, all other questions were answered by all participants. No discrepant cases were identified, and the all the data were used.

The Themes

The five major themes that were identified during the data analysis phase were in order of frequency: (a) environmental and technical factors, (b) preparation for nursing tasks, (c) human factors, (d) communication, and (e) caliber of the equipment. The questions were divided between four categories: question one and two - conducting simulation, questions four, five and six - comparing to real life, question three, seven, eight and nine - exploring value and importance, and question 10 - additional comments. The transcripts were coded and 181 total codes were identified that were then divided among 5 themes. *Environmental and technical factors* such as equipment working and videotaping generated the most responses, with 39% of the total responses in that theme. All participants stated that they perceived that simulation helped with *preparation for nursing tasks,* 33% of the total responses. *Caliber of the equipment* was mentioned by eight of the nine participants. The ability to become engaged in a scenario and have an experience similar to real life is enhanced by higher fidelity manikins. This theme appeared in 7% of the coded responses. *Communication*, at 8%, was an issue that was presented as a problem in the simulation environment when trying to communicate with the manikin. It was also mentioned as a valuable tool of simulation when students learned to communicate with peers, patient family members and doctors. It was mention as less of an issue than the *human factors* at 13%. The codes that were assigned to the *human factors* theme were those relating to importance of the instructor, having other students

take the simulation experiences seriously, and working in groups. The data supporting the themes are presented in the following sections.

Conducting Simulation

The first two questions participants answered were to gather data about the frequency of simulation activities, and how the program conducted simulation activities. (a) How often during a semester did you participate in a simulation laboratory experience involving a human patient simulator (manikin)? and (b) Describe how your nursing school carried out simulation laboratory experiences. Please provide examples. After analysis, it was determined that the majority of students participated in simulation laboratory experiences weekly, with six of the nine participants giving the initial response of weekly. One participant clarified, through member checking, that weekly participation in simulation was a correct response rather than the two times stated during the interview. The participant further clarified that the initial response of two referred to midterm and final scenario simulation activities. This brought the total to seven of nine participants who participated in weekly simulation activities. Participants also stated that some of the simulation experiences were just practice time, and others were a more involved scenario based experience.

The majority of participants stated that they were divided into groups, and the simulation laboratory experience began with a demonstration of the skill the participants would be practicing during the simulation. Eight of the nine participants said they were given a scenario, report, or case study to work with, and that simulation experiences lasted 2 or 3 hours. One theme that was mentioned throughout the interviews, in

responses to various questions, was *caliber of the equipment*. "Better manikins made it more realistic" (P2) and "Using the more realistic manikins made it a good experience" (P6) were two such responses to question two. The next group of questions asked about how manikins compare to real life.

Comparing to Real Life

Questions four, five, and six were asked to explore the participants' perceptions of how simulation is applied in the real world setting. Question (d), *Since graduation, what real life situations have you experienced that simulation prepared you for? Please provide examples.* Here again the theme that *caliber of the equipment* was mentioned. Three participants responded that assessment skills were learned and polished through simulation. One participant stated that because of simulation, "I'm more thorough in my examination…you need to be thorough in your assessments" (P2). The assessment skills are included in p*reparation for nursing tasks*, a theme that developed from the research. Participants mentioned gaining experience with feeding tubes, Foley catheters, vital sign trending, and blood administration in addition to the previously mentioned assessment, as nursing tasks for which simulation prepared them. By repeating these tasks multiple times in simulation laboratory experiences, they gain confidence and the ability to perform these tasks in real life situations, "Overall, I did learn a lot of my skills in simulation labs" (P1). When responding to this question participant five responded, "Every time a patient goes bad I think, okay, what did we do…okay, I can totally do this" (P5)

Communication is another theme that was identified during data analysis. In simulation, participants practiced communicating with other team members "It helps you to communicate and learn what to say to each other" (P6). Some participants also learned how to call a doctor, "getting orders from the doctor" (P1), and "I felt like it gave me a lot of practice on how to call doctors" (P4), while some participants felt that calling doctors was an area they wanted more simulation practice with in response to question five or six.

After asking what experiences simulation prepared them for, the next question asked participants to consider the following; (e) *Since graduation, what experiences have you had that previous simulation experience could have prepared you for? Please provide examples.* Here, the theme *communication* was mentioned again. Two participants felt like they did not get enough practice calling doctors. Participant five and nine respectively stated, "I think the only thing is, I'm not as comfortable calling doctors as I'd like" (P5) and "they don't really prepare you to call a doctor too much" (P9). Another communication issue that participants would have liked to experience in simulation was communication in psychiatric situations. "Unfortunately I work in psych right now and it's really just learning as you go, and trying to learn your de-escalation" (P7) was one comment made in response to question five. Another such response was also recorded, "I think maybe a simulation with like a psych patient…there wasn't a ton of psych stuff" (P3). Of the nine participants interviewed, three could not identify any areas that were not covered by their simulation experiences. Participant nine stated, "I think they were pretty well generalized, that it really helped with a lot of things" (P9). After responding to a question about what real life experiences simulation prepared them for, and what

simulation might have prepared them for, the participants were then asked to compare simulation to real life in question number six which stated, (f) *How do simulation experiences compare to the real life experience in a hospital setting?* Six of the participants responded that simulation was either different, or very different from real life. Of the items listed that make simulation different, communication issues were mentioned by five of the participants. Their responses, listed here, help to illustrate some of the communication difficulties experienced in simulation laboratories "People can tell you things that manikins can't tell you…in the hospital there is interaction" (P8). "Manikins can make some noises and can look those ways, it's different…" (P5). "The communication barrier is the most difficult thing to kind of overcome, talking to a manikin and not having them make eye contact and stuff like that is the most awkward" (P4). "They [manikins] don't' say ouch, they don't get stressed" (P3). Along with communication difficulties, students mentioned that you can control simulation, you can pause or slow down or even stop to ask questions the ability to do this is seen as an advantage; "I feel like the most valuable piece of simulation was being able to reflect on what we were doing. So, being able to say, hold on one second, go back, let's do this again…I liked that" (P1). It was also mentioned as a disadvantage, "It's a lot more intimidating in real life than it is in there" (P9). This is part of the *environmental and technical factors* theme that emerged during data analysis. There are several other topics that fall into the *environmental and technical factors* theme and they are covered in next group of questions.

Exploring Value and Importance

The value and importance of simulation were assessed using questions three, seven, eight, and nine. In this group of questions, the fact that simulation provided an opportunity for hands-on practice was mentioned by five of the participants. This hands-on practice is a part of the *environmental and technical factors* theme that was mentioned in the previous section. Also mentioned, three times in this group of questions, was the topic of *caliber of the equipment.* Question three states, *(c) How would you describe your overall experience with simulation? Please provide examples*. All of the nine participants interviewed stated that they liked simulation, or that it was a good experience. One of the participants did state "Sometimes I thought they were kind of boring if you weren't the one participating" (P1). This comment, along with a comment from participant seven, "a lot of people weren't taking it completely serious…they'd do it once or twice…then they pretty much messed around for the rest of it" (P7), and the comment that "If it had been in smaller groups that you had to do more in then I think that would have been more valuable" (P9), highlight the difficulty of keeping students engaged, part of another important theme, *human factors*. The problem of a participant perceiving that students were not taking simulation seriously was mentioned in response to question number three specifically, three times, and five times in response to other questions, for a total of eight occurrences; this also falls into the *human factors* theme.

Question seven asks *(g) What was the most valuable aspect of simulation in your program?* Two participants mentioned code simulations as being most valuable, "As a new nurse it's always scary to think about your patient all of the sudden…having a code

and it's hard to think about what you would do. I liked that simulation because going through the process, helped me think about things that you might not have thought about" (P3). These comments along with comments about, "feeling less awkward with patients" (P7), "Prepares you for patients in a less stressful setting" (P6), and "Practice helped to review the process" (P3), are all examples of the theme *preparation for nursing task.* Participant seven also noted that, "It's a good starting place, it's that good foundation, its building that foundation. But, over time it stops becoming real life" (P7). This comment illustrated another issue in the *human factors* theme. Another theme that was revisited in question seven is that *caliber of the equipment.* Participant nine stated, "The patient actually had a heartbeat, bowel sounds, lung sounds…plus they had the microphone and everything, and the person could talk like they were the patient. The manikin is very helpful, made it a little bit more real" (P9). Following question seven about most valuable aspects of simulation, question eight asks about the least valuable. Question *(h) Which was the least valuable aspect of simulation in your program?* Once again the theme *caliber of the equipment* surfaced. Two participants perceived that, "having the manikin that said things to you, or reacted to what you were doing, helped more than just having the [other] manikins in the lab" (P6) and "I remember the baby manikins we had they were, I mean you couldn't even tell when they were having difficulty breathing" (P4). With higher fidelity manikins, the participant gets a closer to real life experience. Other comments included that simulations were too long with too many students, both of which are part of the *environmental and technical factors* theme. Having discussed most and least valuable, the next question deals with the participant's perception of importance.

Question nine asked (i) *What aspect of simulation in nursing school do you perceive as the most important and why?* Responses to this question generated the first mention of the importance of the instructor in simulation. The importance of the instructor was mentioned by two participants in response to this question, and by three different participants in response to the final question. Participant one mentioned the importance of, "a simulation teacher who can really show you what you're doing is right or wrong" (P1). Another participant stated, "I think the instructor makes a huge difference, because when we had a substitute it just didn't go over well…I think them being in charge, and knowing what they want from us, and having it all organized well helped a lot. I think that's probably the most important" (P5). These comments, a total of five, regarding the importance of the instructor are included in the *human factors* theme. Comments that were categorized into the *environmental and technical factors* theme were, "the equipment needs to work" (P2), and "videotaping and reviewing in class" (P9). The theme *preparation for nursing tasks* was represented by the comments "I think just establishing basic nursing skills on the manikin is super important" (P4), "Actually practicing skills is the most important" (P3), and "Going over the things that can really end somebody's life and the warning signs leading up to that" (P7).

Additional Comments

The concluding question asked (j) *What additional information might you provide to assist in better understanding your experience with simulation as a nurse?* This open-ended question allowed students to add any additional information that they felt was pertinent to the topic. All five of the identified themes were represented in the responses

to this question. Participants three and six commented on the importance of *higher fidelity* manikins. Participant three stated, "I think it's really beneficial and as they're going to come out with newer and newer manikins, it's going to become almost like a real life situation" (P3). When talking about simulation at another school, with higher fidelity manikins participant 6 said, "…it would have been helpful to practice there more often" (P6). When discussing *preparation for nursing tasks,* participant two responded that being able to practice cardio-pulmonary-resuscitation (CPR) and have the chest move was valuable, and participant 6 said it was more helpful to actually do skills than just talk about them. *Communication* was represented by participant 3 who responded that "the hardest part for me is when they don't talk back. Some people are just great at pretending but I'm like waiting for a response" (P3). The *environmental and technical factors* that were mentioned by the participants were; that it needs to be more educational, and have written scenarios, simulation is less stressful after a participant has passed boards, and is not being graded on participation. *Human factors* were mentioned frequently. Three participants replied that the instructor was important. Participant four stated, "I think having instructors who make you feel comfortable, and confident, is really important instead of making you feel funny and awkward during the whole thing" (P4). Participant 7 also felt the instructor was an important piece of simulation, "…it seems like depending on the instructor, depending on how much experience they have and depending on experiences, depends on how much the can add to it" (P7). The other *human factor* mentioned was getting students involved and taking it seriously. Participant seven boldly stated, "…it's in everybody's own individual hands. Which is great if you

are with people who are equally wanting to participate but if you're not you kind of get screwed over" (P7). Only one of the participants had no additional comments to add on question ten. Adding this question was suggested in the course work leading up to this project study, and it provided some interesting information.

The information gained from this research could be of value to local schools of nursing. To share this information in an efficient and effective manner a white paper was developed. The white paper outlined the information learned from the research, and possible application of the information in the nursing education setting. Also included are suggestions for beginning dialogue that could improve the simulation experience for students, and could improve the applicability of simulation for those students as they graduate and go on to fill the role of RN.

Conclusion

Section Two of this project identified the methodology, research design and approach. The participants were purposefully selected and the method for gaining access and ethical protection were discussed. Data collection and analysis methods were outlined and the role of the researcher was identified. The five major themes identified were: (a) environmental and technical factors, (b) preparation for nursing tasks, (c) human factors, (d) communication, and (e) caliber of the equipment. The data supporting these themes was presented for each question from the face-to-face interview the participants participated in. The results of this research study could be used to reevaluate the effectiveness of the simulation laboratory experiences in preparing the recent graduate for similar real world experiences. By understanding the recent graduates' perception of

what is beneficial in the simulation laboratory, simulation experiences can be designed

for maximum effectiveness. In Section 3, the method for disseminating the findings of

this project is discussed.

Section 3: The Project

Introduction

There is a shortage of clinical placements for student nurses. As a result of this shortage, the use of simulation is increasing in nursing education. While some research has been done regarding the application of simulation to student performance and testing, very little research has been done regarding the recent graduate's perception of the simulation experience and its applicability to real-life situations as a new nurse (Schiavento, 2009). The findings from this study show that graduates found simulation useful and applicable in certain circumstances. The importance of the instructor as well as the hands-on experience was stressed, and factors that detract from the experience such as too many students and not enough structure were emphasized.

The facility where this study was conducted hires new graduates from various schools of nursing throughout the area. All new graduates are required to complete a 2 month residency program to prepare them to function effectively in their new role as registered nurses. During nursing school, these graduates participated in laboratory simulation activities that were designed to meet learning objectives of a particular course. The purpose of this research was to determine recent graduates' perceptions of the efficacy of simulation laboratory experiences. Specifically, how did the recent graduates view the simulation experiences of nursing school, and were there differences between associate's and bachelor's-degree students' perceptions? The logical deliverable of this research was a white paper that might be of assistance to schools of nursing locally, and perhaps on a wider scale, in designing effective simulation laboratory experiences. The

white paper might aid nurse educators, simulation laboratory managers, and program administrators in discussing current simulation laboratory practices at their institution and what might be done to improve the applicability of those experiences. The white paper could facilitate discussions regarding the allocation of resources, both fiscal and human that will have the greatest impact on students' success as they transition to real world nursing. The academic white paper provides research that is integral in informal decision making.

Description and Goals of the White Paper

The goal of the academic white paper is to persuade or educate the audience (Mattern, 2013). The white paper provides a clear description of the problem and possible solutions. This white paper contains information regarding the types of simulation activities that the participants were exposed to and the simulation activities that they found most applicable to actual patient care as RNs. This white paper also gives insight into what newly graduated RNs found most valuable and least valuable about simulation laboratory experiences.

The original proposal identified the problem of schools of nursing increasingly turning to high-fidelity simulation mannequins to substitute for clinical experience. The proposal also stated that research exists to support the effectiveness of simulation relative to student success and achievement but there is a lack of research to indicate that the learning transfers to the clinical setting for a newly graduated RN (Finan et al., 2012). The data gathered from the face-to-face interviews were compiled, coded, and grouped by themes. This information was then used to construct a white paper that can be

disseminated to stakeholders to open a dialogue that could lead to improvements in nursing education programs. The majority of the participants enjoyed simulation learning activities and felt that the simulation activities prepared them for certain aspects of real world nursing. They also responded to questions about what was least valuable and those responses are the foundation of the changes suggested in the white paper. These changes involve the structure and length of simulation activities as well as proposing discussions about the lab personnel and simulation scenarios.

The white paper provides a method of educating nursing school faculty, simulation laboratory managers, and administrators regarding recent graduates' perceptions of the efficacy of simulation. By presenting both the problem and possible solutions, the white paper extends opportunities for dialogue among decision makers that could lead to improved simulation laboratory experiences. The data that were collected and analyzed came from nine participants who were representative of three schools of nursing. Some were associate's-degree nurses, some had bachelor's-degrees, and both male and female participants were included in the research. The participants reviewed their interview transcripts and initial coding to provide the member checking that increased the validity of the research. The coding was also evaluated and agreed upon by a peer reviewer. Using these methods to improve the validity of the research was an asset during the creation of the white paper.

Scholarly Rationale of the White Paper

The amount of information that is available via the Internet can be overwhelming. Stakeholders have more information retrievable at the click of a button than ever before

and increasing demands on their time. Academic white papers have arisen as a method to communicate important information regarding technology, information, or innovation in a concise and persuasive manner (Stelzner, 2010). Communicating the results of this research with administrators, educators, and stakeholders via white paper is an effective way to disseminate key information regarding the efficacy of simulation laboratory experiences from the perspective of the recently graduated RN.

Lack of clinical placement has required nursing educators to look at the substitution of simulation laboratory experiences with HPS for clinical time caring for real patients (NCSBN, 2011). The ability to transfer the knowledge and skills learned in the simulation laboratory to the clinical setting has not been well researched (Handley & Dodge, 2013; Okuda, 2010). The recent graduate's perspective is valuable when designing and implementing simulation laboratory experiences and the white paper outlines this perspective.

Implications of the White Paper

The purpose of a white paper is to inform or persuade. White papers are generally authoritative and informative in nature (Sakamuro, Stolley, & Hyde, n.d.). The objective of this white paper is to inform the administrators, educators, and simulation laboratory managers at local schools of nursing, along with other interested stakeholders, of the perceptions of recently graduated RNs regarding the efficacy of simulation laboratory experiences. The use of simulation continues to increase; however, adequate research to support the increase has not been done (Schiavenato, 2009). As it outlines the problem and informs the audience of possible solutions, this white paper can be used to convince

decision makers that solutions can be reached through open dialogue and collaboration. White papers are intended to propose effective solutions to stated problems. By convincing decision makers that addressing the issues highlighted by this study will improve simulation experiences, this information can be used to open dialogue regarding the effective use of simulation in the nursing education program.

Review of Literature Addressing the White Paper

The goal of this literature review is to examine the various methods for presenting qualitative research and the white paper as the method chosen for disseminating the information gathered in this project study. Initial searches were conducted to locate information regarding the different methods of presenting qualitative research. There is a limited amount of information regarding different presentation methods. After some research it was determined that the white paper would be the appropriate method for presenting the qualitative research study. A search was then undertaken to find information about the white paper genre. This literature review presents the definition, purpose, and description of the white paper. Also included is the history of white papers and their application in the academic setting.

Analysis of Research on the White Paper

After the data have been collected and analyzed, the task of writing a report of the results can be daunting. One of the frequently neglected steps of qualitative research is disseminating the results. Because large amounts of data must be organized, interpreted, and presented in a cohesive manner, the best method for presentation of the results can be difficult to determine (Merriam, 2009). The selection of the white paper as the method for

disseminating information was appropriate for this project study because it will provide information in a clear, concise format to the administrators, faculty, and lab managers at local schools of nursing. This small study is not generalizable to all schools of nursing, but the information gathered may assist in opening dialogue that could improve simulation laboratory experiences. The facts are presented as a synopsis of the research study in a format that does not overwhelm the reader (Graham, 2013).

The white paper followed the outline proposed by Mattern (2013):

1. The Problem--This section is essentially the introduction to the audience; it is approximately one page long and identifies the reason for the white paper.

2. Proof the Problem Exists--This section contains the literature review and research that reinforces the claim that there is a problem.

3. Additional Problems--Any other problems that are connected to the issue that inspired the writing of this white paper.

4. The Basic Solution--What can be done about the problem.

5. Your Solution--A call to action, the desired outcome regarding the problem.

The purpose of this white paper is to inform faculty, administrators, simulation laboratory managers, and other stakeholders of the perceptions of recent graduates regarding the efficacy of simulation and to encourage dialogue regarding the use of simulation in nursing education.

Interconnected Analysis of How Theory and Research Support the White Paper

White papers are used as a way to influence decision makers (Sakamuro, Stolley, &Hyde, n.d.). This white paper identifies recent graduates' perceptions about the efficacy of simulation laboratory experiences in nursing school. The white paper contains the recommendations that administrators, faculty and other stakeholders recognize the importance of providing simulation experiences that contain the elements identified as valuable by recent graduates of RN programs. These recent graduates are in a position of recently applying the lessons learned from simulation, and their perspective has merit.

White papers are created to serve many functions; one function is to, "provide unbiased, objective information to educate and inform a target audience, and to demonstrate thought leadership" (Hoffman, 2014, p. 1). The white paper presents findings regarding the use of simulation laboratory experiences and the application of those experiences to the practice of nursing. In addition to sharing the findings from a review of the literature, the white paper provides answers to the project study research questions:

1. How do recent graduates of registered nurse (RN) education programs view the simulation lab experiences from nursing school?
2. In what ways do the perceptions of simulation experiences differ between associate degree RN program graduates and bachelors program RN graduates?

The research data indicated that recent graduates found simulation valuable as preparation for nursing tasks and in other areas as well. There was not a difference noted

between the perceptions of associate's-degree RNs and bachelor's-degree RNs. The white paper connects the theory and the research to guide decision-makers toward dialogue with faculty and simulation laboratory mangers regarding the use of simulation in nursing education. Following a suggestion by Creswell (2007), this white paper presents a small number of themes. The resulting document is a short, concise document that is informative and easy to read.

History and Definition of the White Paper

Official government publications are sometimes called *white books*. White paper is a term that has developed from the origin of the white book. White papers have a long history; one of the more famous white papers was written by Winston Churchill in 1922 (Stelzner, 2010). White papers do not use jargon or highly technical terms, and they are written to inform or persuade (Srikanth, 2010; Stelzner, 2010). Although the white paper originated from a form of government document, it can now be found in business, technology, and even academic writing (Sakamuro, Stolley, & Hyde, n.d.) A white paper is like an article that seeks to inform the reader, and, like a sales pitch, its objective is to promote a solution (Bly, 2010). These definitions reinforced the decision to disseminate the research results through the white paper format.

How to Write a White Paper

There are many different methods suggested to develop a white paper. Graham (2010) stated that if the themes identified in the project study are presented as a numbered list--for instance, the five factors that impact simulation education--readers can determine how they are progressing through the information. In a fast-paced society that

is over-saturated with information, this technique can increase the odds of the research being read. Hoffman (2014) noted that "most readers respond more positively when the information the paper provides is tailored to their particular needs" (p. 1). By clearly defining the problem, and the information gained from the research, the white paper format can meet the needs of the intended audience. According to Srikanth (2010), the framework for this technical form of writing involves first stating the purpose, then the methods used to support the investigation, followed by the final conclusion. This format was also considered for the white paper generated by this project study. The format outlined by Mattern (2013) was used during the early stages of white paper construction. She advocated a five section paper, (a) the problem, (b) proof the problem exists, (c) additional problems, (d) the basic solution, and (e) your solution. As a novice writer of white papers, I found it good to have a solid format to begin writing with. The advice of starting with a big picture is important to remember: "A white paper typically starts with a big picture and leads readers to the proposed solution" (Sakamuro, Stolley, &Hyde, n.d., p. 2). In his article published by *Writer*, Bly (2010) stated that the best papers are written with a clear objective in mind, and without that clear objective, they can be boring documents that are stuffed with useless content. Because the main limitation of a white paper is getting the document read, writing an engaging and interesting document is important.

Literature Saturation

Finding information about the genre of the white paper is difficult. The results I gathered from most searches were actual white papers on various topics, not information

about how and why to write a white paper. After an extensive search using search engines such as Academic Search Complete and ERIC, very few scholarly sources were located about the genre of white papers. The search terms *white paper, white paper writing, white paper method, white paper importance,* and *academic white paper* yielded hundreds and, in the case of the generic term white paper, thousands of actual white papers but few sources of information about the white paper's purpose and audience. The more specific searches for *nursing simulation white paper* yielded zero results, as did a search using the terms *nursing education simulation white* paper. The term *nursing white paper* yielded zero results; an advanced search using parts of the search terms found 15,402 white papers on various nursing topics but no information on how to write a white paper or specifically on simulation. Information from those few identified sources has been presented here.

Project Implementation

The purpose of this white paper is to educate administrators, faculty, and simulation laboratory managers of local schools of nursing and to persuade them to open dialogue regarding the effective use of simulation in nursing education. The white paper will be presented to local schools of nursing and the schools of nursing in the state where the research took place. Administrators, faculty, and simulation laboratory managers should engage in discussions about what the research indicated was effective and valuable in simulation experiences and what was not. In using the information gathered for this research, simulation experiences can be evaluated for effectiveness and applicability in real-world nursing.

Needed Resources, Existing Supports and Potential Barriers

There will be a cost associated with printing the white paper and distributing it to the schools of nursing in the state where the research took place. The costs will include printing, binding, and postage costs for distributing the white paper. The resources needed for this part of the project are under my control. I do not have control of the resources needed for the implementation of any changes made as a result of discussion generated by the white paper.

I will make myself available to facilitate discussion of the white paper with administrators, faculty, and simulation laboratory mangers individually or as a group. I will continue to encourage ongoing dialogue regard simulation education with interested parties. By distributing the white paper, I am committing my time and resources to ongoing discussions to improve simulation in nursing education.

Simulation equipment is expensive, and funding is always an issue in education. This may be a barrier to improvement in some cases. Others barriers may be a lack of qualified personnel, or even a lack of interested personnel, to run effective simulation experiences. Another potential barrier is time; both the time needed to adequately discuss the research and its implications, and the time needed to incorporate simulation experiences into an already overwhelming curriculum. If stakeholders openly discuss these potential barriers, and work together to find solutions, it is hoped that they can be overcome.

Proposal for Implementation, Including Time Table

When university requirements are met, the white paper will be distributed to administrators, faculty, and simulation laboratory mangers at local schools of nursing, and other schools of nursing in the state where the research was conducted. It will also be presented to the facility where the research took place and a copy will be emailed to the participants. The white paper will inform them about the elements of simulation that recent RN graduates found valuable, and elements that could be improved. The hope is that decision makers at institutions state wide will engage in dialogue regarding potential changes that may need to be made to individual simulation programs. Providing education and information regarding the importance and value of simulation, and how recent graduates' perceived that simulation compared to real-life could benefit the schools of nursing receiving the information. The results of this research will add to the current research base, and support the effective use of simulation. It is also recommended that decision makers at schools of nursing continue to explore the use of simulation in nursing education with additional research.

Roles and Responsibilities of the Student and Others Involved

My role was that of researcher, including gathering data, transcription, analysis, and compiling the results into a report that may effect change in nursing education. A significant amount of time was spent learning about white papers, how to write white papers, and reading white papers to learn what the finished project should look like. The participants were not involved in the creation of the white paper. The education department at the institution where the participants work forwarded the invitation to

participate, but was not involved in any way after that point. They were not informed who participated in the research study. A peer reviewer helped during the process of developing the questions and with analyzing the data that went into the white paper. She signed a confidentiality agreement, but she did not have access to the raw data. My Walden University doctoral committee chair and the second committee member served as an invaluable resource, offering much constructive feedback during the writing process.

Evaluation Plan

The evaluation of this project centers on understanding the aspects of simulation that could open dialogue among all stakeholders. The justification of using the white paper focused on the lack of inclusion of the recent graduates' perspective when designing simulation experiences. My goal with this project was to bring stakeholders together to discuss changes that may be necessary to make simulation laboratory experience valuable, and applicable, in real-world practice. The limited number of participants in the study should be taken into account. However, review of the research could provide the impetus for discussion, and the potential for addition research to be undertaken to provide more in-depth studies in the future. The overall goal of the white paper is to evaluate the effectiveness and applicability of simulation laboratory experience, and open a dialogue among administrators, faculty, and simulation laboratory managers at schools of nursing. Successful outcomes are accomplished through increased dialogues about simulation activities. Additionally, continued dialogue and research are key to the continued measure of success.

Description of Evaluation

One of the methods for evaluating the effectiveness of the white paper is to include a cover letter with the copies of the white paper mailed to schools of nursing in the state where the research was conducted. The cover letter would ask for informal comments, or suggestions and feedback, to be returned to the researcher. A survey could also be used to gather evaluation information in a more formal format. This type of survey could be sent as an email follow-up to the white paper, and it would also serve as a reminder for those who had not yet read the white paper to do so and respond.

Another method of implementation and evaluation would be to post the white paper to a website or seek publication in a peer reviewed journal. Evaluations of the white paper in this format would include an invitation to send feedback to a posted email address, or comments on an online discussion format for online articles. The feedback would be valuable to assess the effectiveness of the white paper in beginning dialogue regarding simulation in local nursing programs.

An alternate method of distributing the white paper would be to present it in person to a group or at a conference. At the end of the presentation, attendees could be asked to fill out an evaluation onsite. This type of evaluation could evaluate both the material, and the method of presentation. The participants could also be asked to fill out an online survey to give evaluative feedback, but the response rate may not be as high as having them fill out the evaluation on-site. Any of these methods of evaluation would assist me in determining if the goals of the white paper were met.

Overall Goals of the White Paper

The overall goal of this white paper was to provide information to local administrators, faculty, and simulation laboratory managers informing them of the aspects of simulation that were found to be effective and valuable by recent graduates of RN programs. The results of the research indicate that simulation can be an effective method of educating students, and effectiveness could be maximized by open dialogue among stakeholders regarding current simulation practices, and what could be done to improve them. The information contained in the white paper could benefit stakeholders of local nursing programs who engage in open dialogue regarding simulation practices, and what could be done to improve them. Making necessary changes could lead to positive social change.

The willingness of stakeholders to read the white paper and engage in dialogue within their own institutions will be considered a measure of success for this project. Information presented in a clear and concise manner that is not difficult to read and understand should ensure the white paper will be read by stakeholders (Stelzner, 2010). I hope to distribute the white paper to decision makers, to encourage dialogue at their institutions. Therefore, the white paper may serve as the impetus for change.

Implications Including Possible Social Change

Implications for this study are the stimulation of dialogue in schools of nursing about the value and effectiveness of simulation laboratory experiences, and the evaluation of current simulation laboratory experiences, to identify areas that could be improved according to the recent RN graduates' perception of value and effectiveness. Simulation

can prepare nursing students to enter practice with the skill and knowledge necessary for a novice beginner. By applying the information gathered in this study, administrators, faculty, and simulation laboratory managers in schools of nursing can increase dialogue and collaboration between the stakeholders and effect social change.

Local Stakeholders

Local school of nursing administrators, faculty, and simulation laboratory managers can use the information presented by the white paper to begin dialogue regarding the effective use of simulation laboratory experiences. Discussion about what the participants found to be effective and was found to be less valuable will allow stakeholders to evaluate current practice, and discuss the type of changes the stakeholders could make to improve the simulation experience for current and future students. The information gathered could also serve as validation of current practices, if a program has already incorporated the items that were identified as valuable by participants in the research. Students and alumni can also be invited to join the discussion, as they are also affected by the decisions made regarding simulation laboratory experiences.

Larger Context

The ability of the newly graduated nurse to function effectively as an RN benefits the members of the community seeking healthcare. It also benefits the agency that hires the new graduate by providing a graduate that has the knowledge, and skill, necessary to enter into nursing practice. The acquisition of this knowledge and skill can be supported by effective simulation laboratory experiences. In addition to benefiting members of the community and employers, the coworkers of the new graduate benefit by having a new

nurse that is able to transition into the work force smoothly, and who has the skills needed to do the job with minimal orientation.

The impact of effective nursing education is felt at the bedside of every patient in every hospital. Preparing students to practice nursing is a responsibility with far reaching consequences. The opinions of those who have recently completed nursing school, about the applicability of their simulation experiences, should be considered when evaluating simulation experiences for future students. Sharing information to create better educational experiences, and maximize effectiveness, is the far reaching goal of this project.

Conclusion

Traditionally the domain of marketing and government, white papers are quickly becoming a way to share academic information. This white paper will give stakeholders at schools of nursing the information needed to start a dialogue regarding the use and effectiveness of simulation laboratory experiences. The short concise format of white papers make them an ideal method for sharing research findings. This white paper presents the large amount of data gathered in a condensed, and easy to read format that will convey the important information quickly and efficiently. As the outcome of this research, the white paper is a benefit to the administrators, faculty, and simulation laboratory managers that choose to read it and engage in open discussion about the applicability of the research to their simulation laboratory experiences. Section 4 includes reflections on the project study process and the reflections on the lessons learned.

Section 4: Reflections/Conclusions

Introduction

This has been a long process. I have learned that writing and rewriting take time and attention to detail. I discovered that while I thought something I had written was perfectly clear, another reader might be confused. As I compare the final draft to my original draft, I can see the progress I have made, and I am appreciative of the people who have helped along the way. Slowly, I am becoming a better writer, and I have learned to accept constructive feedback from those people who have been there to support me through the process. I am particularly grateful for this educational experience that has increased my ability to write and conduct scholarly research … it was worth it.

Project Strengths

The academic white paper examines the results of interviews regarding simulation laboratory experiences of newly graduated RNs. The results were compiled into a white paper with the potential to *open a dialogue* among nurse educators regarding the efficacy of simulation laboratory activities. The project was designed to gather information that could then be shared with program administrators, nursing faculty, and simulation laboratory managers. It is hoped that this information will stimulate discussion about current practice and potential areas for improvement. In any case, dialogue will be opened that could result in better understanding of what is valuable as perceived by the newly graduated RN.

In addition, the information gathered provides a method to *identify strengths and weaknesses in current simulation laboratory practices* to *improve simulation laboratory*

experiences and to *stimulate interest in additional research*. The discussion of the

findings of this research could lead to improvement in current practices if such

improvements are necessary. Considering the perception of graduates is one way to

evaluate the effectiveness of a program. This is an important part of the growth and

improvement of an institution and is required by nursing accrediting bodies

(Accreditation Commission for Education in Nursing, 2014). If an institution concludes

that improvements are not needed, the research will serve to validate the current practices

at such an institution. It is hoped that the dialogue inspired by this research will be *used*

to improve simulation experiences by considering the recent graduates' perceptions

shared in the white paper. As the subject of simulation is discussed by nursing faculty that

are responsible for simulation laboratory activities, the information shared in the white

paper could be useful in identifying areas that need improvement. Another possible

strength would be promoting an *interest in additional, more rigorous research* as

programs identify research topics in their own areas.

Project Limitations

The main limitation of a white paper is getting stakeholders to read the paper and

use it to generate discussion regarding simulation use in their own area of responsibility.

Additionally, specific limitations of this white paper include: making the magnitude of

the problem understood, gaining enough attention for the problem from already

overburdened faculty members, the difficulty of gaining fiscal support for needed

changes and lack of interest in the problem which may lead to insufficient discussion.

Faculty and others who are not directly involved with scheduling clinical experiences

may not be aware of the difficulty in finding clinical placement. Because of this, they

may not understand the magnitude of the problem and the necessity of providing valuable

simulation experiences for students. There are many demands on full-time nursing faculty

in addition to teaching a full course load. Gaining support from already overburdened

faculty could be a challenge. Additionally, simulation equipment is expensive, and

obtaining funding could be a barrier to improving simulation experiences. The final

limitation mentioned is lack of interest. The mindset that what is currently being done is

working is sometimes a challenge to overcome. Change and improvement require effort

and time, and sometimes it can be difficult to gain support for changes that require these

things.

Remediation of Limitations

Stelzner (2010) recommended that white papers be kept to 6-12 pages. By

keeping the length of the white paper to 10 pages, as recommended in the current sources

located, I hoped to minimize the time demand on already overburdened faculty,

administrators, and simulation laboratory managers. Less time spent reading will allow

more time for discussion of local problems and solutions. Simulation laboratories are

expensive, and funding for improvements in simulation laboratories will continue to be

an issue that administrators will have to evaluate. Finally, by providing education and

support to interested faculty and cultivating a supportive environment for simulation,

simulation experiences will improve.

Recommendations for Alternative Approaches

There are often alternative methods for disseminating information. One method would be to hold a series of workshops. I would be available to share the information gathered from the research and discuss ways to improve simulation experiences. These workshops could be held for a single facility or be open to a larger audience. Another method of addressing the problem based on the research would be to hold a panel discussion with recently graduated RNs as the panel and invite local faculty, administrators, and simulation laboratory managers to discuss what the panelists found effective in simulation. Either of these methods would require a time commitment on my part, on the part of the attendees and, in the case of the panel discussion, on the part of the panelists.

Another approach to the problem would be to consider the potential clinical sites. Because the source of the problem is the lack of clinical placement for students and the use of simulation instead, seeking clinical placement sites that are outside of the common hospital sites is one option that could present a solution to the problem. Other possible solutions would be to partner with hospitals and use student nurses as support staff like the early nursing diploma programs did. This could provide a solution that would benefit both the school of nursing and the hospital partner. There are always multiple ways to address a problem, and any of these options would be a topic for further research.

Analysis of Learning

Learning is an individual process that requires effort and commitment on the part of the learner. I have been able to stay focused and motivated throughout the course of

this program, and that has helped me to gain the most that I can from this educational experience. As a nurse, I found that a great deal of my early education focused on developing critical thinking skills, and I was grateful for those skills as work on the project progressed. Using the critical thinking skills I have developed over my years of practice as a nurse helped me be able to look for errors in my thought process, look at the situation from different angles, and make the necessary adjustments during the course of the research and analysis.

Scholarship

Reading and assimilating the ideas and research of others for this project did not begin in the final semester. It was part of the scholarship required throughout the doctoral program. Through study and reflection, I have grown as a scholar during the many semesters spent developing my knowledge base to prepare me to complete this research. I have gained an appreciation for the time that it takes to immerse oneself in a subject to be prepared to competently examine the current practice and suggest change.

I have been impressed by the level of knowledge and commitment that has been shown by my instructors and peers in this program. I have benefitted from their direction and feedback. I have also appreciated the support and feedback I have received from my committee members as they patiently read my many revisions and gently steered me toward a polished piece of scholarly work. I was also grateful for the vast collection of templates available from the research department. It would have been an arduous task indeed to develop those many documents and forms without the guidance of a template.

Project Development and Evaluation

The purpose of this research was to discover the answer to some basic questions to improve an educational opportunity. Merriam (2009) stated, "Having an interest in knowing more about one's practice…leads to asking researchable questions" (p. 1). After asking the researchable questions, the goal was to share the answers with the administrators, educators, and stakeholders who could benefit from the information gained. Determining the best way to share that information required thought and some discussion with my peers.

After I decided on the white paper format for disseminating the information, the challenge became determining what was important enough to include in the white paper, a format that is intended to be much shorter than the full project study. The process used during the coding and analysis of the interview transcripts, which involved reading and rereading the data to become fully immersed, was used again. I read and reread the project study to determine the most concise method to convey the key elements of the information gathered. The need to be thorough enough to clearly convey the information but brief enough to maintain readers' interest and keep them reading until the end was a constant concern.

Leadership and Change

During my bachelor's program I completed an honors research project. At the end of the semester, I had to present a poster about my research at an honors banquet. I tried everything I could think of to get out of this assignment. It is easy for me to see how far I have come. I look forward to sharing my research. I talk to people about what I am doing

and what I am learning, and I am excited for opportunities to present what I have learned to my colleagues and peers. This is such a change for me--from the person I was who dreaded having to present my work, to the person I am now, with the desire to share what I have learned. Completing the white paper has opened up a method for me to share my research.

Being a leader is not always about being the person who is in charge because of assignment or appointment to a leadership position. Leadership is also about influence and the ability to serve as a resource for others. I have been an administrator and I enjoyed being able to effect change for the better with the authority that the position I held gave me. Right now in my career, I am back in the classroom, and I want to use my growing and developing leadership skills to work with my peers to make the program that I am part of the best it can be. This growth as a leader was not something I expected to gain from this experience.

Analysis of Self

While I was in the process of obtaining my master's-degree, a professor stated that the further one goes in education, the more *think time* is required. I found this to be true. The number of hours spent writing to complete this project was staggering, and I cannot even begin to calculate the amount of *think time* invested in the planning and preparation of this monumental task. Now that the task is complete, I am once again a novice, at the beginning of my career as a researcher.

Scholar

After spending a few weeks writing and another couple of weeks waiting for feedback, it was frustrating to be asked to make revisions in what I felt like was some of my best work. The amount of time it took for writing and revisions was something that I had not taken into account when developing my personal timeline for completion of the project. I have a tendency to set ambitious goals, and when I do not meet them, I am disappointed in myself and frustrated with anything that seems to have been an obstacle to my success. I have had to learn to refocus my attention to other areas while waiting on various approval processes.

I have a gained greater appreciation for the amount of preparation that goes into conducting research. Even a small qualitative study with nine participants can generate a mountain of paperwork. By following the established guidelines and paying close attention to the project study timetable and rubric, I was able to complete the process within a shorter than average time. This would not have been possible if I had not had the summer off to focus on my writing.

The achievement of balance among work, school, and family responsibilities was more challenging than I had ever experienced. In the middle of the doctoral program, I found it necessary to change jobs. Going from an administrative position at a small proprietary school to a tenure-track faculty position at a much larger public university has created many more challenges than I had expected to experience during this process. Along with the challenges, there have been some definite advantages to the change of employment. I have the opportunity to work daily with other faculty members with a

wealth of knowledge and experience. These coworkers and peers have fostered within me a love of research, and they have helped me to see the positives in a sometimes slow and discouraging process. I have learned that it is important to surround myself with supportive, intelligent people that encourage me to become the best I can be.

I also found my assigned committee chair, methodologist, and university research reviewer to be a part of the support network that provided valuable feedback to help me understand what needed to change and why, which improved the final result of this project. Their support, along with support from other students who were facing similar challenges, helped to nurture the budding researcher I have become. It is not easy to give or accept constructive criticism, but it is essential that beginners in any field be given this sort of guidance if they are to progress and become experts someday.

Practitioner

To prepare myself to conduct research, I had to read and comprehend dozens of studies relevant to my chosen topic. I had to become proficient at searching for information and evaluating the quality of the information I found. Through this reading, I not only gained an understanding of the current literature, but also developed a sense of what constitutes quality research and how it should be conducted. I used that information along with the information gained from the program coursework to create my own research study.

As a tenure-track faculty member, I have found that the experience I gained from this process has been invaluable. I have gained a greater understanding of simulation education and what is valuable to students. This information is directly applicable to my

professional work as a nursing instructor, both in the simulation laboratory and in the clinical setting, as I strive to help students to apply the lessons learned in simulation. I have improved my scholarly writing ability, which will be helpful when I submit work for publication, a part of my tenure responsibilities. I have also increased my understanding of professional writing, what it is and what it is not. This is extremely helpful as I work with students to improve their written work.

Immersion in the literature increased my understanding of how important it is to contribute to the body of knowledge in my career field. As I have become more focused on research, I see opportunities for research everywhere. Every time students ask questions or make a comments that indicates a perspective that is different from the current way of thinking, I find myself telling them they have a great topic for research. I hope that as I continue to grow as a researcher, I can mentor students, urging them to seek out answers to the questions they have about the world around us.

Project Developer

As a novice researcher, I found that developing a research project that culminated in a white paper was, at times, overwhelming. I very much appreciated the clearly laid out time-table provided by the university to assist me in knowing what to do next. Several times throughout the project study/dissertation phase of education, I found it easy to understand why so many people quit at this stage. I had great support and was able to persevere and complete the degree.

After the course work related to project development, I had some idea what would be required, but until I was doing it, I did not understand just how much time would be

required. Because I am a novice project developer, I had to do a lot of research to increase my understanding of the process. Even when I thought I understood, there were often times that I had to look up some information to help me understand what I should do next.

I learned that there are many hours of reading, writing, and rewriting that happen before, during, and after the actual research takes place. I discovered that even the most carefully created plans do not always go the way you plan. I also discovered that I am not a very patient person, and I was often frustrated by the waiting that is such a big part of this process.

The project outcome of a white paper allowed me to share what I have learned with the nursing education community. My goal is that the stakeholders will be able to take what was learned and use it to open dialog regarding the use of simulation in nursing education, and what recent graduates perceive as beneficial in a simulation laboratory experience. The many revisions of the white paper helped to ensure that the information conveyed was clear and concise.

Reflections on the Importance of the Work

A reflection on the work shows that it takes a great deal of thought and preparation to present effective simulation. Improvement in the effectiveness of simulation comes from knowledgeable simulation instructors, realistic manikins, and students taking the simulation seriously. The ability to run an effective simulation laboratory experience requires an instructor that has patient care experience and the knowledge to run an effective simulation. The fidelity of the manikin matters. For a

student to become immersed in the simulation, the manikin must be able to adequately simulate a human patient. For students to take the simulation seriously, instructors need to be prepared, have outlined clear expectations, and be familiar with the manikin's capabilities to make simulation function smoothly.

Implications, Applications and Directions for Future Research

By immersing myself in the data and the research for the project, I was able to gain a clear understanding of the problem. This understanding increased the possibility that I could inspire change in the field of nursing education. Presenting the information in the clear, concise format of a white paper allowed decision makers easy access to the information needed to affect change.

The research showed that simulation can be an effective tool for preparing students for the real world of nursing. For simulation to be effective it needs to be a hands-on experience for students, facilitated by instructors who understand the simulation technology and the art of nursing. Simulation is less effective when there are too many students in the group, or when the students do not take the simulation seriously. Higher fidelity manikins help to make simulation more realistic for the students. A limitation of the study was the small sample size. Future studies with larger numbers of participants would help to make the research for generalizable. It was hoped that the participant pool would include graduates from a variety of programs. In fact, 3 different programs were represented by the 9 participants. A larger sample size with a more diverse group of programs represented might yield different outcomes.

Future research should include larger sample sizes and a wider variety of program types. Simulation is going to be part of the future of nursing education. By seeking to better understand what is effective, and how to structure experiences that have the most benefit to students, educators can improve not only education, but ultimately patient care in the real-world nursing.

Conclusion

The information gathered from this project study was presented as a white paper. The final section of this study included a reflection on the strengths and limitations of the project along with analysis of my learning through this process. The self-analysis outlines what I learned through this process, and the progress I have made on the path to becoming a researcher. The desired outcome of this research is to improve simulation experiences by opening a dialogue, based on the perceptions of recent graduates, about simulation experiences.

The concise summary contained in the white paper provided administrators, educators, and other stakeholders with the information needed to open a dialogue about simulation experiences in their respective programs. If changes are needed, the information provided could be used to determine what areas need improvement. If changes are not needed, the information contained in the white paper could serve as validation of the effectiveness of the current simulation experiences. Use of this information could assist nursing program decision makers to improve the simulation experience for future nursing students.

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Appendix A: The White Paper
(see next page)

FOCUS on HIGH-FIDELITY SIMULATION:

A White Paper of Recommendations and Best Practices
By Holli Sowerby BSN, MSN

Simulation has been a part of nursing education for over 100 years. Through recent advancements in technology, high-fidelity manikins are available that provide students with very realistic simulated patient care experiences. High-fidelity manikin simulation laboratory experiences are rapidly becoming part of health care education at every level and nursing education is no different. This paper presents a brief history of the use of simulation in nursing education; the terms low-fidelity, medium-fidelity, and high-fidelity are also defined.

Following the history is a review of the literature related to the use of simulation and its applicability and efficacy. There is a lack of research on simulation in healthcare education and the perception of the recent graduate is almost nonexistent in the literature regarding the value and applicability of simulation laboratory experiences in nursing education programs.

After the review of literature, best practices, as determined by a research study, will be presented. These best practices will be followed by recommendations for administrators, faculty, and simulation laboratory managers regarding the use of simulation in nursing education.

The recommendation to open a dialogue about the current simulation laboratory practices and some questions to guide the discussion will be presented. Suggested steps will be presented to assist in the discussion and implementation of improvements in simulation laboratory equipment, environment, communication, and procedures. By following the suggestion in this white paper, schools of nursing may be able to improve simulation laboratory experiences and make them more applicable to the real world experiences of new RN graduates.

This paper can be used to open a dialogue between administrators, faculty, and simulation laboratory mangers regarding what recent graduates' perceive to be effective simulation laboratory experiences. This dialogue may lead to improvement in simulation laboratory experiences.

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Historical Background

The nursing profession has been teaching with simulation for over 100 years. In 1911, Hartford Training School placed one of the earliest known human patient simulators (HPS) into service. The manikin was named Mrs. Chase and she exhibited such features as jointed hips, elbows and knees. Improvements were made and a few years later she also featured a wig, more realistic skin and multiple body orifices (Nickerson & Pollard, 2010). In 1932, documentation shows that the skills laboratory at the Indiana University Training School for Nurses was used to train students. They were allowed to give hypodermics to the manikins and practice various treatments on each other (Davis, 1932). The use of simulation provides a way for students to practice nursing tasks. Simulation use has continued to increase and improve over the past 100 years.

Early in the 1960's, the Laerdal company began to market a manikin design to teach the skill of cardiopulmonary resuscitation (CPR), and modern day use of simulation manikins began. This simulation manikin, named Resusci© Anne, had inflatable lungs and a spring that mimicked the feel of chest compressions (Nickerson & Pollard, 2010). Since then, manikins have become more sophisticated and simulation has become an integral part of most nursing programs.

In the past decade many nursing schools have invested significant resources in manikins that mimic real-world patients. These manikins are some of the most complex HPS ever seen. They are identified in terms of fidelity:

- Low-fidelity: Mrs. Chase, noted above, would be a low-fidelity HPS, a task trainer suitable for teaching basic psychomotor skills such as the insertion of various medical devices.

- Medium-fidelity: A more realistic patient on which to learn new and increasingly complex skills that require some feedback from the patient, for instance, lung, cardiac or bowel sounds can be listened to on a medium-fidelity HPS.

- High-fidelity: These manikins allow for responses from the patient to the student's actions. These highly complex computer controlled machines can cry, speak, and exhibit symptoms of disease that require intervention from the student. Some specifically designed high-fidelity HPS even give birth. Major advances in technology have made a dramatic difference in how simulation is used today.

Prior Research

The Effects of Simulation

Some research shows that simulation can have a positive effect on confidence and decision making. Stirling, Smith and Hogg (2012), showed that simulation experiences early in a nurse's career can have positive effects. Similarly, Kaddoura (2010) found that new graduates reported that simulation helped them to make good clinical decision in care of critically ill patients. The perception of increase in self-confidence and competence was noted by students in several studies (Blum, Borglund, & Parcells, 2010; Kaplan & Ura, 2010; Partin, Payne & Slemmons, 2011; Reid-Searl, Eaton, Vieth, & Happell, 2011). Students often have positive perceptions of simulation but recent graduates are a group that have not been adequately studied regarding perceptions of simulation. Helping students take the knowledge gained from the simulation laboratory into the clinical setting is a challenge faced by schools of nursing.

Transferring knowledge to practice was one of the areas that Blum, Borglund, and Parcells (2010) concluded needed more research. Kaplan and Ura (2010), found that the student clinical experience is rich, yet challenges arise in providing experiences where leadership skills can be developed and used in nursing practice. Evaluation of what is learned from simulation can also be difficult. Alinier, Hunt, Gordon, and Harwood (2006), generated a quantitative study about the effectiveness of simulation as measured by an examination and results showed that test scores improved. Clinical education is vital to nursing education and simulation experience can improve test scores. The difficulty is connecting simulation to the real world so that simulation experiences improve critical thinking and decision making in clinical practice.

Critical thinking is another area that showed possible improvements from simulation. Goodstone et al. (2013) concluded that the students using high-fidelity simulation improve, over time, on tests evaluating critical thinking. Critical thinking requires the student to look at all of the variables of a situation which is a skill that can be practiced in the controlled environment of the simulation laboratory. Sometimes the simulation laboratory is the only place the student will encounter less common patient problems.

Some experiences that students need to be prepared for, both for licensure and everyday practice, are difficult to provide in the clinical setting. Using simulation for these experiences has been perceived to be a good solution to a growing problem. This problem led Smith, Klaussen, Witt, Zimmerman and Cheng (2012), to implement a learning experience in which students participated in a high-fidelity human simulation (HFHS) scenario and applied the concepts they learned in class to legal and ethical dilemmas presented in the scenario. An initial evaluation was done comparing the HFHS

experience with the face-to-face and the online students. Both faculty and students identified HFHS as the best approach for implementing a learning experience regarding legal and ethical content. Pediatric experiences are another area that is often lacking in a student's clinical rotations. Richard (2009) demonstrated that students are highly satisfied with a pediatric asthma simulation. As an active learning method, students perceived that they were able to experience rare patient problems in a controlled, safe learning environment. The use of simulation was found to be effective as long as students remain flexible and faculty have the time a resources required to support simulation in the nursing curriculum.

Despite the best efforts of instructors, it may not be possible to transfer the lessons learned in the simulation laboratory to the clinical setting. Finan et al. (2012) compared the success rate of two groups of residents related to infant intubation. One group participated in simulation exercises and the other did not. While the simulation group was more proficient in the post-test performance their proficiency diminished quickly. At the end of eight weeks there was no significant difference in the two groups' success rate. Conclusions were made that while immediate skill may improve in the simulation environment, these skills may not transfer to the clinical setting. The literature regarding the students' perspective often shows that students like the simulation experience but more research is needed to validate the transfer of this experience to the clinical setting. Students identified, "...transient feelings of confusion" (Wotton, Davis, Button, & Kelton, 2010, p. 632), but perceived that, hypothetically, they could apply the knowledge from the simulation to actual events. The actual transfer of knowledge gained in simulation to the clinical setting is an area that has not been fully researched.

In the only study located that evaluated student skill on actual patients, Kirkman (2013) followed 42 nursing students conducting respiratory assessments. Their skill was evaluated on actual patients before the lecture was given, after the lecture and again after the simulation experience. Results showed significant improved at each evaluation. This research concludes that students are able to effectively apply their learning from simulation experiences in the clinical setting. One factor in the application of skills learned in simulation is the skill of the simulation instructor.

Role of the Instructor

A commonality in the literature reviewed was the fact that much of the success of a HPS experience was dependent on the skill of the instructor. The conclusion is that by careful planning of the experience, and thorough debriefing afterward, the learner can experience increased confidence in their ability to perform in situations similar to the simulation (Inch, 2013). Garrett, MacPhee, and Jackson (2010) are also proponents of the importance of a thorough reflective debriefing. Debriefing is a common area that is mentioned often in the literature. Guimond, Sole, and Salas, (2011) proposed that pre-

training is a vital component in successful simulation. This article proposes that pre-training would improve the quality of simulation experiences. By incorporating evidence-based teaching strategies, a method for improving the simulation experience for the participant by use of a pre-training analysis check-list was developed. The conclusion of the article is that simulation is often skills driven but appropriate pre-training and preparation can result in a greater use of critical thinking.

Exploratory research of 21 first year graduates and nursing students was conducted by Reid-Searl, Eaton, Vieth, & Happell (2011), participants who had participated in a type of simulation which involved the instructor assuming the characteristics of the patient, complete with appropriate clothing and mask. The two themes that emerged were the realistic portrayal of the patient and the skill of the instructor. Conclusions are that more research is needed to identify appropriate uses and outcomes of the differing types of simulation. Students found the experience to be fun and educational. Handley and Dodge (2013) sought to explore broad, complex problems and identify practice gaps. Simulation was found to have a great deal of support but there is little guidance on the best methods of implementation. Simulation implementation strategies need to be developed to ensure best practice on the incorporation of simulation in the curriculum. One of the areas to be addressed is the preparation of the instructor.

Brewer (2011 found that while HPS can be a valuable tool in nursing education, the instructor's skill and technique was an important factor in the success of the technique as a learning tool. An important component of evaluation was emphasized and more research was recommended to identify what makes up successful simulation. Adamson and Kardong-Edgren (2012) also discuss the importance of evaluation in their article. This quantitative study documents the reliability of three tools designed to evaluate student performance in simulation scenarios. Twenty-nine faculty participants from across the United States viewed video-archives of nursing students engaged in simulation activities. The conclusion is that analysis of student performance is becoming increasingly important as the use of simulation grows.

Other Factors

It is important to determine if the skills learned in the simulation laboratory transfer to real world of patient care as a nurse. Handley and Dodge (2013) highlighted the reality that there is no clear method for incorporating or evaluating the effectiveness of simulation in nursing education. Likewise, there is no established method to evaluate, "...its effect on student competency within clinical practice" (p. 529). Okuda et al. (2009) determined that while there is evidence to support the claim that simulation is an effective method for teaching skills, few studies link simulation with an improvement in patient outcomes. In fact, Finan et al. (2011) found that simulation training did not translate to improved performance in the clinical setting when evaluating medical

students learning the procedures for intubating a newborn. Finan et al. (2011) researched the reasons for this and found that participants felt increased anxiety in the clinical setting versus the simulation laboratory.

The Mandate

To help meet the need for clinical experiences, schools of nursing are increasingly turning to high-fidelity HPS to substitute for clinical experience. Some research exists that supports the effectiveness of these simulation experiences relative to exam results and student learning outcomes, but there is a lack of research that explores the recently graduated nurse's perceptions about the efficacy of simulation experiences. It is clear that the preparation and skill of the instructor are paramount to effective simulation education. If the goal of simulation is to prepare students for practice in the real world, more research is needed on the efficacy of simulation.

Best Practices

In a recent (2015) study, nine recently graduated RNs were interviewed regarding simulation laboratory experiences in nursing school. The five major themes that were identified in order of frequency are: (1) *environmental and technical factors,* (2) *preparation for nursing tasks,* (3) *human factors, (4) communication,* and (5) *caliber of equipment.* It is recommended that administrators, faculty and other stakeholders recognize the importance of providing simulation experiences that contain the elements identified as valuable by recent graduates of RN programs. These recent graduates are in a position of recently applying the lessons learned from simulation and their perspective has merit.

Environmental and technical factors are extremely important when planning simulation laboratory experiences. The experience needs to be as close to real life as possible for students to be able to become fully immersed in the simulation experience. The equipment needs to be functional and, wherever possible, it should be the same equipment that is used in the clinical setting. Students should begin as they would in the clinical setting, by getting a report on their patient from the off-going nurse. They should assess the manikin as if it were the patient and be tasked with performing appropriate interventions for the scenario they are given. Students should work in small enough groups that all the students are required to take an active role in the care of the simulated patient. Videotaping the simulation experience can be a useful tool for reviewing the interaction between the student and the simulated patient. Students are often able to identify areas that need improvement when watching a recording of the simulation scenario. This can be a part of another important factor, the debriefing

afterward. This step should not be skipped, it is an opportunity to identify both what went well and what needs to improve in the student's performance.

Preparation for nursing tasks is another aspect of simulation identified as one of the most important. By working with manikins to learn nursing skills and then practicing those skills multiple times, students are able to gain the confidence and experience needed to perform the same skills on real patients in the clinical setting. Simulation should include ample time for students to practice the nursing tasks they will need to be able to perform in the clinical setting. Students need practice time that is unsupervised to become comfortable with nursing tasks without the added pressure of performing for an instructor and supervised practice time to make sure that they are practicing correct technique.

Human factors are those factors that involve the students or the instructors. A well prepared instructor that is trained to operate the manikins and enjoys simulation can make the difference between a great simulation experience and one that does not meet the learning objectives or provide an educational experience. When the instructor is not fully invested in the experience, the students often do not engage fully either. If the student is not fully engaged, they may not take the simulation experience seriously. When students are not taking the simulation seriously they not only affect their own learning but they affect the ability of the member of their group to become fully engage in the scenario. Students should be informed of the necessity of participating fully and not becoming distracted or becoming a distraction.

Communication in simulation is viewed as a benefit to students when it is used to provide an opportunity for students to communicate with peers, other members of the healthcare team (especially doctors), family members and the patient. It is viewed as a problem when a method has not been devised to communicate with the simulated patient and get a response. Scenarios should be developed that include opportunities for students to collaborate with each other and the other members of the healthcare team such as doctors, respiratory therapy, dietary, and pharmacy. Communication with family members should also be included in simulation experiences. It is very important that a method be devised to communicate with the patient. High-fidelity manikins are already capable of transmitting voice via an instructor. Methods of transmitting voice in lower fidelity manikins can be devised, from simply having an instructor or student assigned to respond as the patient to devising a radio system that can be used for two-way communication. This should be given careful consideration as it allows the student to become more fully engaged in the scenario if the manikin can answer questions.

Caliber of the equipment is another factor to consider when designing simulation laboratory experiences. The closer the simulation experience is to real life the

more applicable it is to the student or the newly graduated RN in the clinical setting. The simulation laboratory experience can be maximized by equipping the simulation laboratory with high-fidelity, well maintained manikins and ensuring that the personnel operating the manikins are well trained and can operate the manikins to their fullest potential. All other equipment used in simulation such as infusion pumps, crash carts and medication dispensing systems should also be functional and similar to what is currently in use in the clinical setting.

Recommendations

It is recommended that copies of this white paper be distributed to administrators, faculty and simulation laboratory managers with a request that they read it and prepare to attend a meeting scheduled within the following few weeks. During the scheduled meeting, a discussion should take place regarding the current simulation laboratory practices. Using the following questions to guide a dialogue among the administrators, faculty and simulation laboratory managers can lead to valuable discussions regarding the efficacy of simulation programs and what can be done to improve the experience.

- **Environmental and technical factors**
  - *Is all the equipment in good working order? Does it need to be repaired, upgraded or replaced?*
  - *Do all simulations have well written, fully developed scenarios? Give examples...*
  - *Are there too many students in the laboratory at one time? How many can be accommodated?*
  - *Do the people using the equipment know how it works? When and how were they trained?*

- **Preparation for nursing tasks**
  - *Is the simulation laboratory being used to teach nursing skills? Give examples...*
  - *Are the students given the opportunity to practice nursing skills? How often? Is it voluntary or mandatory?*

- **Human factors**
  - *Are the simulation instructors fully trained and committed to the success of the simulation program? What training have they had?*
  - *Do the students take simulation seriously? How can you tell?*

- **Communication**
  - *Has a method been devised that allows the student to talk to the manikin and get a response? What is the method? Is it working?*
  - *Are the students given the opportunity to communicate with other members of the healthcare team? Give examples...*
  - *Are the students given the opportunity to call the doctor and report changes? Give examples...*
  - *Does the student have to opportunity to receive a report on the patient at the beginning of the simulation and to give a report on the patient at the end of the simulation? How is this accomplished?*

- **Caliber of Equipment**
  - *Does the program have high-fidelity manikins and if not can they be obtained? Who is responsible for this decision?*
  - *Are the manikins being used to their full potential? What can be done to be sure this continues?*
  - *Do the personnel using the manikins have the training necessary to maximize the use of the manikins? How can this information be assessed?*

It is recommended that after the discussion, areas identified as needing improvement be clearly identified and a plan for addressing them be outlined. Items should be prioritized and a timetable for addressing areas of concern developed. A plan for follow-up meetings should be decided on before adjournment of the meeting.

Follow-up

It is important to have the support of the administration, faculty and simulation laboratory managers to be able to effect change in the system that is already in place. Administration can show support by allocating fiscal and human resources to simulation programs. By seeking volunteers from faculty to join a committee to address the issues, interested faculty will be supporting simulation laboratory managers to improve the simulation experience. A presentation could be scheduled with the author of this paper to help gain support needed to make the changes that were identified as necessary in the initial meeting held previously.

Nursing education is constantly evolving and incorporating new technologies and best practices. Simulation laboratory experiences should keep pace with the new technology available and the research that identifies best practices. By following the recommendations of this paper a process can be established to incorporate new technology and best practices into simulation experiences on an ongoing basis.

A WHITE PAPER OF RECOMMENDATIONS AND BEST PRACTICES - BY HOLLI SOWERBY

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Appendix B: Invitation to Participate in Research

Dear Participant in ███████████ New Nurse Residency Program:

My name is Holli Sowerby. I am completing my Ed.D at Walden University under the direction of Dr. Edward D Garten. The title of my doctoral research project study is, *Recent Graduates' Perspective on the Efficacy of Nursing Simulation Laboratory Experiences.* I am seeking participants in the residency program to interview regarding your experiences with simulation.

I am interested in the lived experience of the recent RN graduate and how you feel simulation impacts your experience as a new nurse. I will be doing personal interviews with each of the participants in the study. The findings will be used to evaluate efficacy of simulation experiences and determine what simulation experiences are most applicable in the new graduate's experience of real world nursing. This study poses little to no risks to participants.

If you graduated from nursing school with in the past two years and are willing to spend about 1 hour discussing your simulation experiences please contact me at ████████████████████████ as soon as possible.

Respectfully,

Holli Sowerby

Appendix C: Initial Contact With Research Site

April 8, 2014

Terry Phillips,

We have met previously at various Sigma Theta Tau events. I am currently the secretary of the Nu Nu chapter. I am also working on completing my Ed.D at Walden University under the direction of Edward D Garten. The title of my doctoral research project study is, *Recent Graduates' Perspective on the Efficacy of Nursing Simulation Laboratory Experiences.* I am seeking permission to contact participants in your residency program as my pool of participants.

I am interested in the lived experience of the recent RN graduate and how they feel simulation impacts their experience as a new nurse. I will be doing personal interviews with each of the participants in the study. I anticipate 10-30 participants to reach saturation in the developing themes. The findings will be used to evaluate efficacy of simulation experiences and determine what simulation experiences are most applicable in the new graduate's experience of real world nursing. This information could benefit other nursing education programs and I am considering a white paper or a series of workshops as the outcome for my research.

I would not expect to use time the participants are committed to the residency program but would schedule interviews outside of those hours. I realize that I will need to complete the IRB process for Intermountain before conducting research, as well has through Walden and Weber State (my employer). What I would like from Intermountain is the contact information for the residency participants so that I can contact them to request their voluntary participation in my research. I anticipate conducting this research late this summer or early fall 2014. My predicted graduation date is December 2014.

Please let me know if this is something that sounds workable to you. I have attached a copy of my approved prospectus.

Respectfully,

Holli Sowerby

Appendix D:

Response from Research Site

████, will you please respond and guide Holli in the proper process to propose doing her research with Intermountain employees?   HR may need to be involved too, on giving out employee contact information.
Thank you!

████████████ **MSN APRN ANP-BC**
Region Education Director
████████████████████████████
████████████████████
████████████████

Hi Holli,
I have spoken with Human Resources regarding your request. By law, we cannot release employee information to anyone external to
████████████

What we can do is e-mail the 17 residents who graduated about a month ago and let them know of this voluntary opportunity and provide your contact information; if they are interested in participating, they would contact you and coordinate for the interview.
If you want to pursue this option, please provide the telephone number and/or e-mail address you would like us to relay to them.

The summer group will start in May; we are anticipating about 24 in this group. Can make the announcement to them the first day of class and provide your information to them as well.

Please advise if you would like me to proceed with this plan. Best wishes on this project.

████████████████████████████████████

Appendix E: Confidentiality Agreement

Name of Signer:

During the course of my activity in collecting data for this research: **Recent Graduates' Perspective on the Efficacy of Nursing Simulation Laboratory Experiences** I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this Confidentiality Agreement I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.

2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.

3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.

4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.

5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.

6. I understand that violation of this agreement will have legal implications.

7. I will only access or use systems or devices I'm officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signature: **Date:**

Appendix F: Interview Protocol

Interviewees' Codes:
Date and time of Interview:
Interview Location:

State Purpose of Study and Interview: This research study will explore your perspective on the efficacy of nursing simulation laboratory experiences. You were invited to participate as an interviewee because you are currently in a position to supply valuable information. **Rights to confidentiality:** Please read this consent form which explains the purpose of the study and your rights to confidentiality. Please sign the form if you agree to the terms explained within.
The interview will take approximately 60 minutes. Can I have your permission to audio tape this session? **Turn on audio recorder only after permission has been granted.**

Interview Questions:

1. How often during a semester did you participate in a simulation laboratory experience involving a human patient simulator (manikin)?

2. Describe how your nursing school carried out simulation laboratory experiences. Please provide examples

3. How would you describe your overall experience with simulation? Please provide examples.

4. Since graduation, what real life situations have you experienced that simulation prepared you for? Please provide examples.

5. Since graduation, what experiences have you had that previous simulation experience could have prepared you for? Please provide examples.

6. How do simulation experiences compare to the real life experience in a hospital setting?

7. What was the most valuable aspect of simulation in your program?

8. Which was the least valuable aspect of simulation in your program?

9. What aspect of simulation in nursing school do you perceive as the most important and why?

10. What additional information might you provide to assist in better understanding your experience with simulation as a nurse?

Thank you for participating in this interview. Please remember that your identity will not be disclosed to anyone working for your institution or the state college system.