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A Phenomenological Study Exploring Baccalaureate Nursing Students' Experiences in Simulation

Susan Lanzara
Indiana University of Pennsylvania

A PHENOMENOLOGICAL STUDY EXPLORING BACCALAUREATE NURSING STUDENTS' EXPERIENCES IN SIMULATION

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Susan Lanzara

Indiana University of Pennsylvania

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Indiana University of Pennsylvania
School of Graduate Studies and Research
Department of Nursing and Allied Health Professions

We hereby approve the dissertation of

Susan Lanzara

Candidate for the degree of Doctor of Philosophy

_____ _____
Kristy Chunta, Ph.D.
Associate Professor of Nursing and Allied Health Professions, Advisor

_____ _____
Elizabeth Palmer, Ph.D.
Professor of Nursing and Allied Health Professions

_____ _____
Teresa Shellenbarger, Ph.D.
Professor of Nursing and Allied Health Professions

ACCEPTED

_____ _____
Timothy P. Mack, Ph.D.
Dean
School of Graduate Studies and Research

Title: A Phenomenological Study Exploring Baccalaureate Nursing Students' Experiences in Simulation

Author: Susan Lanzara

Dissertation Chair: Dr. Kristy Chunta

Dissertation Committee Members: Dr. Elizabeth Palmer
Dr. Teresa Shellenbarger

Changes in healthcare delivery, that are due in part to increased patient acuity and advances in technology, challenge nurse educators to prepare graduates that can practice in this complex environment. The use of simulation is one way nurse educators can meet this challenge. Although, simulation is not new in nursing education, it too has undergone changes due to technological advances making it more valuable than ever as a teaching tool for nurse educators. This has caused a rapid growth in the use of simulation in nursing programs.

In order to effectively design and implement simulations, nurse educators need to understand the experience of simulation from the students' perspective. This study examines the student experience in simulation for baccalaureate nursing students. A descriptive phenomenological approach was utilized to gain rich descriptions of the students' experiences. A convenience sample of 15 baccalaureate nursing students who had participated in medium and/or high fidelity simulations, in the role of the primary nurse, at three universities in Pennsylvania was used. Five essential characteristics of the simulation experience were identified. The five essential characteristics were Anxiety, Making Mistakes, Realism, Putting it Altogether, and Having Value. Implications from this study may be used by nurse educators to assist in the design and implementation of learner centered simulation experiences.

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CHAPTER ONE

INTRODUCTION: AIM OF THE STUDY

Chapter One provides an overview of the research study. Presented first, is a description of simulation and its evolution in nursing education. Next is a discussion of the phenomenon of interest, justification for studying the phenomenon, and the specific context of the phenomenon. In addition, assumptions and biases, a brief description of the research method, and relevance of the study for nurse educators are addressed.

Simulation is the replication of the essential features of reality so a situation may be better understood and managed (Morton, 1995). Nurse educators use simulation to recreate a realistic clinical experience in which students may practice skills, learn assessment, and develop communication and critical thinking abilities. Simulation occurs on a continuum from low to high levels of fidelity. Fidelity refers to the degree to which reality is replicated (Seropian, Brown, Gavilanes, & Driggers, 2004). Simulated learning experiences in nursing education may range from low fidelity such as learning injection techniques using an orange, to medium fidelity by monitoring physiological changes in a human patient simulator (HPS). High fidelity simulations usually involve the use of a HPS that is capable of interactive physiological responses based on student actions.

Simulation takes many forms. Although, often associated with the use of advanced technology, such as HPS, simulation learning is not limited to such experiences. Simulation experiences may also include the use of standardized patient actors, virtual reality, role-playing, computer and Web based programs, and case studies.

The use of simulation-based learning is not new, nor is it unique to nursing. For decades, simulation has been used in aviation and the military to provide learning experiences regarding

dangerous events in a safe and controlled environment (Wilford & Doyle, 2006). Medical and dental schools use simulation scenarios for training. Additionally, simulation has been suggested as a method of accreditation for anesthetists (Hyland & Hawkins, 2009).

As in other disciplines, simulation provides nursing students with learning experiences in a safe and controlled environment. In the clinical setting with real patients, the nurse educator has an ethical responsibility to ensure that students do not harm patients while they are teaching (Jeffries, 2005). For example, if a student were to perform care that would harm a patient in the clinical setting, the nurse educator would intervene to prevent this from happening. Simulation provides nursing students with opportunities to see the consequences of their actions (Lasater, 2007). With the advent of medium to high fidelity simulation, the nurse educator can allow the student to make mistakes that result in adverse consequences without harm to actual patients. Nurse educators can then assist students to learn from mistakes made in the simulated environment.

The use of simulation is increasing in nursing education. This growth in the use of simulation is driven by changes in both health care delivery and in nursing education. Changes in the health care delivery system include increased patient acuity, rapid patient turnover, and changes to the role of the nurse that require enhanced critical thinking skills. Hospitalized patients are sicker; however, average length of stay for patients is decreasing (Ogilvie, Cragg, & Foulds, 2011; Spector & Echternacht, 2010). This contributes to an increase in patient acuity, which in turn negatively affects the quantity and quality of the clinical experience for students (Nehring, 2008). Simulation can provide students with learning opportunities that may not be available in the clinical area due in part to the changes in health care delivery. However, in order

to design good learning experiences in simulation nurse educators need to have a better understanding of the student experience during simulation.

The role of the nurse has changed and the scope of practice for nurses has expanded due, in part, to increased patient acuity. Nurses find themselves practicing in an increasingly complex environment (Jeffries, 2012). Challenging situations require that nurses have more sophisticated clinical skills (Hovancsek, 2007), as well as enhanced critical thinking ability. Oftentimes, general hospital units resemble intensive care units with high patient acuity necessitating cardiac monitoring, respiratory assistance, and intensive treatments requiring specialized nursing skills (Hyland & Hawkins, 2009). Nurse educators are challenged to prepare graduates to practice in this complex health care environment. Traditional methods of clinical teaching may no longer adequately prepare graduates for the realities of the workplace leading to a practice readiness gap. In a survey of employers, less than 50% of employers surveyed felt that new graduates were ready for practice (Spector & Echternacht, 2010).

Clinical rotations have been used in nursing education for many years to provide nursing students with learning experiences. However, the changes to the health care environment mentioned earlier have made it difficult for nurse educators to provide adequate clinical experiences for students (Larew, Lessans, Spunt, Foster, & Covington, 2006). Additionally, nurse educators are experiencing more difficulty obtaining clinical placements that foster the development of critical thinking, as well as providing students with the opportunity to practice sophisticated skills. This is particularly true in specialty areas such as pediatrics (Broussard, Myers, & Lemoine, 2009). In 2012 the annual report on Pennsylvania nursing education programs reported that of 31 baccalaureate programs that provided data, 88 % indicated difficulty in obtaining clinical sites for student experiences. Of that number, 75% or greater

indicated difficulty in obtaining student experiences in the areas of obstetrics, pediatrics and psychiatry (Pennsylvania State Board of Nursing, 2014). However, even clinical areas where learning opportunities are more readily available, such as medical-surgical units, are experiencing a decline in availability for student clinical experiences (Bensfield, Olech, & Horsley, 2012; Nehring, 2008).

Another challenge for nurse educators is the increased use of technology in health care regarding documentation and patient information retrieval. Health care providers, including nurses, now routinely document in an electronic health care record. This requires that nursing students, as well as nurse educators, learn to navigate the computer systems utilized for entry and retrieval of patient assessment information. Nurse educators are able to use simulated electronic health care records during simulation to familiarize students with documentation and retrieval of information from an electronic health care record.

Advances in technology also influence how nursing students are educated. Realistic patient care simulations, and simulated electronic health records assist nurse educators in providing learning experiences that students may not be able to obtain in the clinical area. While simulation is being increasingly used in nursing programs to cover gaps in learning caused by inadequate clinical experiences, there is still great potential for growth. Results of a survey of nursing programs conducted by Kardong-Edgren, Willhaus, Bennett, and Hayden (2012), found that of the 1050 respondents, 81% indicated that they should be using more simulation in their programs. This potential for growth is the use of simulation makes it even more important for nurse educators to have an understanding of the student experience in simulation that can guide them in planning and implementing simulation.

In spite of the restrictions to learning discussed here, nurse educators must prepare graduate nurses for the current health care delivery system. Simulation is one way for nurse educators to meet this challenge and this in turn is contributing to the rise in the use of simulation in nursing programs. As the use of simulation increases, so does the need to understand the student experience during simulation.

Phenomenon of Interest

The phenomenon of interest for this study was the experience of baccalaureate nursing students during medium and/or high fidelity simulation. Concepts and terms associated with simulation are discussed first in order to provide the reader with a more complete understanding of what is involved during the experience of simulation. Following this is a discussion of the student experience during simulation.

Simulation experiences occur on a continuum from low to high levels of fidelity. Fidelity is the degree to which reality is replicated (Seropian et al., 2004). Low fidelity refers to either the use of isolated anatomical parts such as an arm or a pelvis, to full body manikins that are incapable of reproducing life signs. This type of manikin is often called a "static" manikin. Task-trainers and static manikins are useful in teaching psychomotor skills such as injections or urinary catheter insertions as well as positioning or hygiene tasks.

Medium fidelity most often refers to the use of a full body manikin or simulator that integrates the use of a computer to replicate heart, lung and bowel sounds (Broussard et al., 2009). These manikins are also capable of vocal sounds and speech using a wireless microphone. An example of a medium fidelity manikin is the Nursing Anne VitalSim® by Laerdal.

High fidelity simulation involves the use of a high fidelity manikin or simulator, which provides the most realistic simulated patient experiences (Broussard et al., 2009). High fidelity simulators such as iStan and METIman, both products of Medical Education Technologies Inc. (METI), are capable of many physiological responses. High fidelity simulators contain features such as measurable vital signs including pulse oximetry, visible respirations, vocal sounds and speech, and pupillary changes. In addition, the high fidelity simulator is capable of interactive physiological responses based on student actions such as administration of medications or application of oxygen.

The term fidelity is most often associated with the type of task trainer or manikin being used. However, it may also refer to the recreation of other elements of reality. The higher the fidelity of a simulation, the closer it resembles the replicated real-life situation. For instance, if the simulation is meant to replicate a critical care scenario, the training room should resemble an intensive care environment with equipment such as a cardiac monitor, ventilator and resuscitation equipment. An attempt to reproduce the actual sights and sounds of an intensive care environment increase the realism or fidelity of the simulation, beyond that of just a high fidelity manikin alone (Jeffries & Rogers, 2012).

Simulation scenarios typically occur across three phases, pre-briefing or preparatory phase, the simulation, and the post-simulation debriefing or reflection phase. The exact nature of each of these three phases will depend on the learning objectives of the simulation. Therefore, nurse educators may vary on the use of these phases.

Simulations often have some time allotted for student preparation. The pre-briefing, or preparation phase varies in length and type of preparation required of students. Preparation for simulation includes completion of pre-simulation work such as reading and written work to

prepare for the simulation experience (Brewer, 2011). There may be a briefing prior to the simulation which often takes the form of a hand off report. The pre-briefing phase may be patterned after the clinical preconference students experience in the actual clinical setting, such as reviewing the patient's diagnosis, medications and potential nursing problems. The pre-briefing phase may include an orientation if the students are unfamiliar with simulation.

The simulation phase is the actual implementation of a simulation scenario. Simulation time varies but is usually between 20 and 30 minutes in length. Ideally, faculty observe from a remote location with little interruption of the simulation. The pre-determined length of the simulation should be adhered to even if students are not progressing appropriately (Jeffries & Clochesy, 2012).

Guided discussion in the post-simulation phase is referred to as debriefing. The students' experiences during simulation are discussed during this phase. Debriefing is similar to post conference in the clinical setting. During debriefing, the instructor leads the discussion to help students assimilate information, develop critical thinking, and relate the simulation to real-life experiences (Brewer, 2011). Instructor feedback encourages student reflection that is essential for helping students get the most benefit from the simulation (Dreifuerst, 2009). Since students will begin to analyze their own performance, sometimes before the simulation is even over, it is important for the debriefing to occur immediately after the simulation. By initiating debriefing immediately following the simulation, emotions that arise from self-judgment and uncertainty over performance, can be focused in a productive manner (Arafeh, Hansen, & Nichols, 2010). Debriefing should last at least as long as the simulation scenario and often lasts longer. For a 20-minute simulation, debriefing may last 30 minutes or more.

The phenomenon of interest for this study was the student experience during simulation. Webster's New World Dictionary (2003) defines an 'experience' as the act of living through an event or anything observed or lived through. The student experience in simulation is complex and there are varying opinions about how and why simulation works. Some argue it is the simulation itself that determines the learning experience; while, others feel it is how the simulation is perceived or experienced that most influences learning (Elfrink, Nininger, Rohig, & Lee, 2009). For the purposes of this study, the simulation experience was defined as student experiences during the pre-briefing, simulation, and debriefing phases of simulation.

Although, the student experience during simulation is mostly unidentified, the literature suggests there are both positive and negative aspects of the experience (Baxter, Akhtar-Danesh, Valaitis, Stanyon, & Sproul, 2009; Beischel, 2013; Cordeau, 2010; Ganley & Linnard-Palmer, 2012; Gantt, 2013; Lasater, 2007). Students have reported increases in self-confidence, critical thinking, knowledge and improved decision-making ability as strengths of simulation (Baxter et al., 2009; Fountain & Alfred, 2009; Smith & Roehrs, 2009). Conversely, challenges associated with simulation have been reported which include increased anxiety, difficulty perceiving the simulation as a clinical situation, and difficulty transferring the knowledge learned in simulation to the actual clinical setting (Walton, Chute, & Ball, 2011). Since the simulation experience as well as students' perceptions of the experience may vary, nurse educators need a better understanding of the experience.

Justification for Studying the Phenomenon

The healthcare delivery system in which nurses' practice and students' learn is becoming increasingly complex. Over the years, the role of the nurse has become multifaceted, while the scope of nursing practice has expanded to include more sophisticated clinical skills (Hovancsek,

2007). Nurse educators are challenged to prepare students to practice in this environment. Nursing students need to be prepared as safe and effective caregivers in spite of diminishing availability of clinical sites, and shortage of nursing faculty, all of which restrict learning opportunities (Elfrink, Kirkpatrick, Nininger, & Schubert, 2010; Hyland & Hawkins, 2009).

Traditional methods of preparing students for practice no linger appear to be effectively meeting the learning needs of today's students. New nurses are caring for sicker, more complex patients. Graduates of nursing programs today must possess the ability to practice independently while providing safe and effective care requiring high-level thinking (Ironside, 2009). Yet, studies suggest that graduates are not ready for practice (Clark & Holmes, 2007; Spector & Echternacht, 2010). Berkow, Virkstis, Stewart, and Conway (2008) propose that greater investment in simulation is one way to optimize new graduate performance. Additionally, Del Bueno (2005) suggests that consistent experience with simulations teaches students how to manage patient problems, thus better preparing them for clinical practice.

The National League for Nursing (NLN) lists eight core competencies for nurse educators. The first competency is to facilitate learning. This competency tasks nurse educators to create a learning environment that assists students in meeting learning outcomes (Wittman-Price & Godshall, 2009). Although, nurse educators have long relied on clinical experiences to provide experiential learning for students (Larew et al., 2006) changes in clinical education place students at risk for inadequate exposure to meaningful clinical experiences. These changes in clinical education include increased patient acuity, difficulty finding clinical placements, and inefficient use of student time during clinical. Patient safety concerns and agency policies regarding the practice of nursing students' increases the potential for less meaningful clinical experiences for students (Nehring, 2008). Agency policy often prohibits students from

administering medications intravenously, administering blood, or performing other skills that students will be expected to perform as graduate nurses. Additionally, students rarely have opportunities to report changes in the patient's condition to the physician or to another nurse. Simulation is one way to provide students with an opportunity to practice skills that are not performed in the clinical setting, thus promoting attainment of learning outcomes.

According to Shinnick, Woo, & Mentes, (2011) students value simulation and feel that it is beneficial to their learning. Others suggest that students are satisfied with simulation as a teaching strategy and feel simulation increases self-confidence (Fountain & Alfred, 2009; Lasater, 2007; Smith & Roehrs, 2009). However, much of the focus in the literature is on the effectiveness of simulation, or the design of the simulation, and not the student experience in simulation. Student perceptions of the simulation experience may affect learning outcomes (Ulrich & Mancini, 2014). Therefore, understanding the student experience during simulation will assist the nurse educator in providing effective learning experiences for students using simulation.

Another justification for this study is the mismatch between faculty and student perceptions of simulation. Ganley and Linnard-Palmer (2012) found that there is a significant difference between how students and faculty perceived the simulation experience. For example, when asked if simulation was anxiety provoking 62% of students stated that this was true, compared to only 46% of faculty. Similarly, student and faculty perceptions differed regarding self-esteem. While only 38 % of students reported that simulation improved their self-esteem, 71% of faculty felt that students' self-esteem was improved due to simulation. These varied perceptions of simulation suggest that the student experience needs to be better understood by faculty.

Further justification for understanding the student experience in simulation is the anticipated recommendation of the National Council of State Boards of Nursing (NCSBN) regarding the use of simulation in nursing programs. Currently, the NCSBN is conducting a three-phase study in an effort to determine if simulation can be substituted for actual clinical time, and how much of a nursing student's clinical time may be replaced with simulation. Participants in the study were placed into one of three groups. The control group had clinical experiences as usual with up to 10 % of clinical time spent in simulation. The second group substituted 25 % of clinical time with simulation, while the third group experienced 50 % of clinical time in simulation in place of actual clinical time (National Council of State Boards of Nursing, 2009). The purpose of the NCSBN's study is to determine if there are differences between the three groups in knowledge, clinical competency and perceived differences in how well learning needs have been met (National Council of State Boards of Nursing, 2009).

Presently, nursing programs have little guidance from their state boards of nursing regarding the amount of clinical time that may be replaced with simulation (Nehring, 2008). A survey conducted by Nehring in 2008 revealed that out of 44 states that responded only 16 states gave permission for the use of simulators to replace clinical time without specifying the percentage. Furthermore, only two states, Florida and Colorado have identified allowable simulation time. Most respondents stated that they do not specify clinical versus simulation hours, leaving individual nursing programs to determine this. If the NCSBN concludes that nursing students may spend up to 50% of clinical time in simulation, it is anticipated that this will greatly increase the use of simulation in nursing programs. If simulation as a teaching strategy may replace up to 50% of clinical time, nurse educators need to understand the experience of students during simulation. Awareness of the student experience during

simulation will help nurse educators to design simulation experiences that are conducive to learning and maximize readiness for practice. Providing such an environment will improve student-learning outcomes.

Driven by changes in the health care delivery system and a decrease in adequate clinical experiences, the use of simulation, particularly the use of HPS, is rapidly increasing in nursing education. In order to design effective student-centered learning experiences in simulation, nurse educators must understand the experience from the student perspective (Cordeau, 2010). According to Cordeau (2010), "To effectively use clinical simulation for nursing education, the phenomenon must be understood from the perspective of the nursing student so learner centered teaching/learning strategies can be implemented to achieve desired outcomes" (p. 9). While the literature does contain some discussion of the student's perceptions of their simulation experiences (Beischel, 2013; Cordeau, 2010; Ganley & Linnard-Palmer, 2012; Walton et al., 2011), how students perceive the experience of simulation is still largely unknown. The research questions that guided this study was: What is the experience of participating in medium to high fidelity simulation for baccalaureate nursing students? Understanding the pedagogy of simulation is essential to ensure proper and effective use of simulation in nursing education (Walton et al., 2011). This purpose of this study is to investigate the question, "What is the experience of participating in medium and high fidelity simulation for baccalaureate nursing students?"

Specific Context of the Phenomenon

This study explored nursing students' perceptions of simulated learning experiences. The phenomenon was examined from the perspective of baccalaureate nursing students who have participated in medium to high fidelity HPS. Nursing students who have participated in courses

using simulation were sought as participants. Junior and senior level students, were sought as participants thus providing a range of experience with simulation that better described the student experience. The experience of simulation from the pre-briefing phase through the debriefing phase was explored in this study.

Assumptions and Biases Related to the Study of the Phenomenon

Assumptions and biases are opinions and feeling that the researcher has that might influence the outcome of the study. Bias begins with the choice of a topic to study. Researchers cannot completely separate themselves from their feelings; however, awareness of assumptions and biases helps to prevent these from interfering with data interpretation. The researcher examined personal assumptions and biases related to simulation. This awareness of personal beliefs about simulation and the effect of simulation on student learning helped the researcher to remain open to different ideas when analyzing data.

Assumptions for this research study were as follows:

1. Nursing students' experiences in simulation are different from experiences in the clinical setting.
2. The use of simulation provides a unique learning experience.
3. Nursing students at all levels, but in particular those who are novices in simulation, are unsure of the expectations in the simulated learning environment.
4. There are phenomena in the simulation experience that affect nursing students, which have not yet been described.
5. Nursing students experience simulation differently when simulation is used as a teaching strategy as opposed to an evaluation strategy.

In my personal experiences as a nurse educator, I have observed that clinical practice is changing, while the way nursing students are prepared for practice remains essentially the same. During my experiences as a clinical instructor, I felt that clinical time was often wasted. Much of my time was spent monitoring students as they practiced routine skills, while opportunities for deeper learning were missed. Often, the types of patient experiences students needed were not available while at the clinical setting. All too often students were idle while waiting for me or the primary nurse to guide them with patient care. While simulation cannot change the clinical experience students are having in agencies, it can help to compensate for some of the restrictions to learning experiences. For example, students can independently provide care without waiting for faculty or being restricted by agency policies. I believe that students need actual clinical experiences working with real patients in order to learn how to be a nurse. However, I also believe that simulation is a valuable teaching strategy in nursing education that has a positive impact on student learning.

Over the past several years, I have been working with junior and senior level students in the simulation lab. During that time, I have heard many comments from students regarding their experiences in the simulation lab. Although, the comments range from positive to negative, it seems the majority of the comments were negative. However, they were not negative concerning simulation as a learning experience. Students commented that they found their time in the simulation lab to be a good learning experience. Students often stated that they benefited from simulation and were able to use the knowledge gained in the simulation lab in actual clinical experiences. According to the students, this ability to transfer knowledge from the simulation to clinical increased feelings of self-confidence and self-esteem. The negative comments seemed to focus on the way students felt during simulation. I heard words such as awkward and silly used

to describe how students felt during simulation. Students made comments such as "I am not an actress", or "I feel stupid" when they referred to their simulation experiences. One topic that recurred frequently was feeling anxious prior to and during simulation. Students also expressed anxiety over the debriefing phase, which lessened after I eliminated videotaping, and review of the videotape during debriefing. Cordeau (2010) identified that perceived anxiety might be present at various times during simulation including presimulation, simulation, and debriefing.

Student comments such as, "I thought I was going to have a panic attack." and "I vomit before simulation because I am so nervous." have led me to believe that for some students, simulation is a negative experience. Once, a student cried during debriefing when the simulation brought up memories of a past experience that was painful for her. Based on experiences such as this, and the comments of students, I believe there may be more to the student experience in the simulation lab than nurse educators realize. I believe the simulation lab experience should be a positive learning experience for students, not an aversive one.

I began to wonder if students' emotions and feelings during and about simulation have an effect on their ability to learn from this teaching strategy. Are there things about the simulation experience that are unknown to nurse educators that might be important to know when designing simulations? Nurse educators make many decisions about what is best practice in simulation, but there is sparse evidence in the literature to support these decisions. This is due in part to the difficulty in measuring transfer of learning from the simulation lab to the clinical setting. However, I believe an important piece is missing from the research on simulation, which is an understanding of the simulation experience from the perspective of the student.

Overview of Research Method

Simulation experiences are often designed using a standardized format. Although the learning experience may be standardized, the way in which students experience simulation varies from student to student. Qualitative research is used to describe or make meaning from the lived experience as opposed to quantitative methods that attempt to measure the experience. While quantitative research adds to what is known about simulation, it limits the participant's ability to express their thoughts and feelings. This study used a qualitative method that allowed students to describe their thoughts more completely, thus better describing the lived experiences of nursing students during simulation.

Phenomenology is a philosophical approach used to study experiences. As a form of qualitative inquiry, the purpose of phenomenology is to understand the meaning of human experience. Phenomenology provides a rich source of ideas about the lived experience. The phenomenological approach can be either descriptive or interpretive. Descriptive phenomenology seeks to describe experiences, while interpretive phenomenology seeks to find meaning in the context of the lived experience.

Edmund Husserl (1855-1938) is often considered the "father of phenomenology." Husserl's ideas on the philosophy of phenomenology gave rise to the descriptive phenomenological approach to inquiry (Lopez & Willis, 2004). Husserl believed that experiences in the world are dealt with through consciousness therefore; he sought to understand human consciousness in all its manifestations (Giorgi, 2005). Descriptive phenomenology emphasizes descriptions of human experience.

Descriptive phenomenology utilizing a modified Husserlian approach, proposed by Giorgi (2009), was used to inform this study. Giorgi, a psychologist, has written extensively on

the application of phenomenology to human sciences research (Giorgi, 2000a; Giorgi 2000b; Giorgi, 2005; Giorgi, 2009; Giorgi, 2012). Giorgi modified Husserl's work to create a scientific phenomenological approach to studying the human sciences (Giorgi, 2005). According to Giorgi (2000b), scientific phenomenology differs from philosophical phenomenology in that it is a research method rather than a philosophical perspective.

Although Giorgi developed this method for research in psychology, he asserts that the method is useful for any human sciences research. However, the perspective must be that of the researcher's discipline. For example, in psychology studies the researcher assumes the psychological perspective, for nursing research the nursing perspective is assumed, and so on for different disciplines (Giorgi, 2009).

Relevance to the Discipline

The use of simulation in nursing education is widespread and continuing to grow due to changes in health care delivery as well as changes in nursing education. However, the pedagogy of simulation, or the how and why simulation is effective, is largely unknown (Walton et al., 2011). According to Cordeau (2010), failure to examine the student experience in simulation creates a knowledge gap in the effective use of simulation as a teaching strategy. Although, it seems reasonable that simulation is an appropriate teaching strategy in nursing education, nurse educators lack sufficient evidence-based practice research on the pedagogy (Walton, et al., 2011). The lack of evidence to support simulation practices may prevent nurse educators from developing truly effective learning experiences using this approach.

In addition, the way a student perceives the simulation experience may affect the entire experience, thus interfering with the attainment of student learning outcomes (Elfrink et al., 2009). According to Ganley and Linnard-Palmer (2012), there is a significant difference in the

way faculty and students perceive the simulation experience. Furthermore, faculty consistently rated the learning experience in simulation more positively than did students (Ganley & Linnard-Palmer, 2012). A better understanding of how students' perceive the simulation experience may influence choices nurse educators make when designing and implementing simulations.

Elfrink et al. (2009) reported one example of how an understanding of the student experience during simulation changed the practice of nurse educators. The researchers found that a majority of students expressed strong concerns regarding the impact of videotaping the scenario on their overall learning (Elfrink et al., 2009). Even though videotape review during debriefing was accepted as beneficial by nurse educators, students' feelings towards it were so negative that the researchers felt it might interfere with learning. The decision was made, in this case, to eliminate videotape review during debriefing.

As the use of simulation increases in nursing educations, the complexity and types of simulation used by nurse educators are evolving (Kardong-Edgren et al., 2012). Nurse educators now utilize simulation for more than the basic assessment simulation in medical-surgical courses. Simulations are also being used in specialty areas such as psychiatry and community health. The use of more complicated scenarios, with an emphasis on teamwork and communication, sometimes involving multiple patients (Chunta & Edwards, 2013) is growing in nursing education. The findings from this study provide nurse educators with information about the student experience during simulation that may guide the use of this teaching strategy.

Summary

Nursing education is changing in order to prepare graduates for today's health care delivery system. Simulation use is likely to increase in order to meet the learning needs of today's nursing students. Students' perceptions of the simulation experience may influence

learning outcomes. An understanding of how students experience simulation provides a basis for the most effective use of simulation in nursing education. Chapter Two provides a review of the literature on simulation.

CHAPTER TWO

EVOLUTION OF THE STUDY

The aim of this study was to describe the experience of baccalaureate nursing students during medium to high fidelity simulation learning activities. The knowledge gained from this study may assist nurse educators to develop best practices related to the use of simulation in nursing courses and curricula.

This chapter includes a review of the literature on simulation in nursing education. In a qualitative research study, an extensive literature review is postponed so that the researcher is open to all perspectives regarding the phenomenon of interest. This minimizes the impact the ideas and assumptions of others have on the researcher (Munhall & Chenail, 2008).

First, the rationale for this study is discussed. This includes how the findings of this study are significant to nurse educators. Then the research topic will be presented in a historical context. Lastly, is a discussion of this researcher's experiences using simulation, as a nurse educator, from a practice and personal point of view.

Rationale

The healthcare environment is rapidly changing, due in part to, high patient acuity that requires specialized nursing skills (Hyland & Hawkins, 2009). Nurse educators are challenged to prepare graduates who can effectively practice in this complex environment (Jeffries, 2012). The use of simulation in nursing education is increasing in order to help prepare graduates for the practice environment. This increased use of simulation is attributed to many factors. Although, nurse educators have long relied on clinical experiences to provide experiential learning for students (Larew et al., 2006), concern for patient safety in the clinical setting may restrict student-learning opportunities. Traditional clinical experiences alone may no longer be enough

to meet the learning needs of today's students and diminishing availability of clinical sites has led to difficulty with clinical placements. Fewer clinical hours and inefficient use of student time while in clinical, all place students at risk for inadequate exposure to meaningful clinical experiences (Elfrink et al., 2010; Hyland & Hawkins, 2009). This lack of meaningful clinical experiences contributes to a decrease in graduate nurse readiness for practice.

In an effort to improve the healthcare system as a whole, the Institute of Medicine (IOM) paired with the Robert Wood Johnson Foundation (RWJF) to create the RWJF Initiative on the Future of Nursing (National Research Council, 2011). The two organizations worked together to explore the challenges facing the nursing profession, including nursing education. A report issued by the RWJF Initiative on the Future of Nursing, stated that it is likely that much of students' time spent in clinical is unproductive, suggesting that students spend many clinical hours performing routine tasks that do not foster the development of clinical reasoning skills (National Research Council, 2011). Tanner (2007) defined clinical reasoning as the process by which nurses make decisions about patient care based on knowledge of the patient's situation, disease processes, and nursing interventions. The process of reaching a clinical decision is complex and "….requires a keen assessment of patient cues, interpretation of cues into a meaningful pattern, actions as appropriate responses to the cues, and reflection about the outcome of clinical judgment" (Jensen, 2013, p. 23). When students care for patients with complex problems or emergent issues often all they can do is observe while the experienced nurse handles the situation (Jensen, 2013). While this is appropriate, it does not allow the student the opportunity to develop clinical reasoning skills, nor does it permit the faculty to assess a student's clinical reasoning ability.

In the simulated learning environment, students often care for patients with complex and emergent needs, thus providing them with an opportunity to develop clinical reasoning skills. Through simulation, students can demonstrate the ability to link theory and practice thereby increasing insight and development of clinical reasoning skills (Decker, Sportsman, Puetz, & Billings, 2008). The use of simulation in nursing education may help to address some of the challenges nurse educators experience when preparing graduates who are able to practice in an increasingly complex healthcare environment.

As the use of simulation grows in nursing education, there is an increased interest in the effectiveness of simulation. However, in order to understand the effectiveness of simulation, the experience must be understood from the student's perspective (Cordeau, 2010). According to Cordeau (2010), an understanding of the student's perspective is essential for the development of learner-centered teaching strategies that achieve desired outcomes.

The cost of simulation is another factor that supports the need for a better understanding of the student experience during simulation. Simulation can be very expensive to implement, as it is costly in terms of resources and faculty time. Individual costs vary according to circumstances; however, total costs to purchase equipment, renovate space and maintain a simulation program are estimated to range between $200,000 and $1.6 million (Tuoriniemi & Schott-Baer, 2008). In order to support the cost of simulation, the effectiveness of simulation needs to be established. Knowledge of the student experience during simulation will provide a basis for understanding the effectiveness of simulation as a teaching strategy.

This phenomenological study explored the student experience in simulation as told by the student. The knowledge gained from this study may help nurse educators to understand the student's experience in simulation. This understanding of how students experience simulation

will aid nurse educators in designing and implementing improved educational experiences in simulation. In addition, knowledge gained from this study may identify opportunities for future research.

Historical Context

In this section, the history of simulation in nursing will be explored. The word simulation has various meanings often involving a reproduction of essential features of something, which aids in learning or training. A clinical simulation is an event that closely resembles a clinical situation or practice, and provides students with an interactive, practice-based, instructional strategy (Jeffries, 2005).

Simulation, defined as the replication of a realistic environment for learning purposes, has been around for decades. Simulation training provides students with an opportunity to practice skills that require accuracy and which are often too risky for performing on patients. For years the military and aviation industry have used simulations involving hazardous situations to train soldiers and pilots (Wilford & Doyle, 2006). For example, the aviation industry uses simulation to train aircrews to perform in emergencies. The nuclear power industry is another area where accurate performance is essential; however, learning the necessary skills in the real environment may involve risk. Consequently, simulations are designed to train nuclear power plant operators to handle crises (Aghina, et al., 2008). Although simulation has been used in multiple fields, the literature describing the student experience using simulation is scant.

As in the military and aviation settings, health care deals with decision making in unpredictable situations. This requires critical thinking and skilled task performance in a timely manner (Jeffries, 2012). The use of simulation as a teaching tool in healthcare is not new, nor is it unique to the nursing profession. Medical and dental schools, paramedics, and emergency

medical technicians use simulation scenarios for training. According to Nehring & Lashley (2009), there have been discussions regarding the use of simulation for competency testing in conjunction with license renewal for nurses. While it would be some time before such a change occurs, it is interesting to note that these conversations are taking place.

According to Nehring & Lashley (2009), task trainers have been used in nursing education for more than a century to teach nursing skills. Task trainers are static manikins or replicas of anatomical parts. The use of "mechanical dummies" and anatomical models of arms and legs are described in nursing textbooks from the late 1800's (Nehring & Lashley, 2009). In 1910, Mrs. Chase, a full body low fidelity manikin, was introduced (Nehring & Lashley, 2009). Mrs. Chase had injection sites for needles in her arm and was capable of having some procedures performed on her. Shortly after Mrs. Chase was introduced, a baby model was made available. Although, considered task trainers, Mrs. Chase and the baby could be considered examples of early HPS. A task trainer called Mr. Chase came out in the 1940's and was used primarily by the military (Nehring & Lashley, 2009).

Simulators such as Resuci Annie, a CPR simulator, and Harvey, a cardiology-teaching manikin were introduced in the 1960's. Resuci Annie was initially designed for practicing mouth-to-mouth breathing. Later, a spring was built into her chest for the practice of CPR (Rosen, 2008). Sim One was designed in the 1960's by Dr. Stephen Abrahamson and Dr. Judson Denson at the University of Southern California (Cooper & Taqueti, 2004). Sim One is considered the first computer controlled manikin that simulated an entire patient (Cooper & Taqueti, 2004). Only one of these manikins was constructed and it was not widely accepted due to cost (Cooper & Taqueti, 2004). In the 1980's anesthesiology began using simulation. Anesthesia educators looked to the military and the aviation industry for guidance on using

simulation to train groups and individuals in critical events (Jeffries, 2012). The next significant advances in medical simulation came in the 1990's with advances in computer technology (Rosen, 2008). The Laerdal Company developed the first higher fidelity manikin named Sim Man. Around 2000 companies such as Laerdal began to offer medium fidelity manikins at a much lower cost than high fidelity HPS.

Since that time, companies such as Laerdal Medical and CAE Healthcare have developed high fidelity, full body manikins capable of producing physiological responses to medications and student interventions. The advantages to teaching with sophisticated manikins are the ability to see physiological effects based on nursing interventions, and opportunities to practice clinical decision-making (Nehring & Lashley, 2009).

There are some disadvantages to the use of this technology such as cost of the equipment and lab personnel, time required for design and implementation of scenarios and inability of the manikin to portray things such as facial expression or some outward signs of physiological change (Nehring & Lashley, 2009). In spite of the limitations, the use of simulation has grown and is continuing to grow in nursing education. Additionally, students who have grown up with digital technology, expect faculty to use technology such as simulation in their courses (Shinnick et al., 2011). According to Nearing & Lashley (2009), there is a need for great change in nursing education and simulation will play a large part in this change.

Simulation has many forms. Another form of simulation that has been used in nursing education is the standardized patient (SP). An SP is a person trained to portray a patient with a particular disease or in a given patient situation (Nehring & Lashley, 2009). The use of SP's allows students to interact with people who act like patients in clinical encounters thus providing students the opportunity to experience the complexity of real clinical situations (Yoo & Yoo,

2003). Although SP's have been used in medical education for a number of years, the use of SP's in nursing education was minimal until recently (Nehring & Lashley, 2009). One possible reason for the upsurge in use of SP's in nursing education is the increased emphasis on communication skills. Yoo and Yoo (2003) found that use of SPs enhanced learning of communication skills.

Simulation has become an important part of nursing education for many reasons. Difficulties finding appropriate clinical experiences and advances in technology are two reasons that have led to the increased use of simulation in nursing education. Rapidly advancing technology now allows nurse educators to place students in realistic situations, helping them to become competent practitioners. HPS provides students with opportunities to learn in a setting that mimics reality in a controlled environment without the risk of harming patients (Weaver, 2011). Simulation, specifically HPS provides an ideal learning environment for nursing students.

Over time, the applications of simulation in nursing education have expanded. In the earlier stages, the primary use of simulation was to teach psychomotor and clinical reasoning skills to students in medical-surgical scenarios. More recently, however, the use of simulation has branched out into specialty areas not originally taught through this teaching strategy such as community health and psychiatric nursing.

Paralleling the growth of simulation in nursing education is the growth of professional organizations and journals devoted to simulation. The International Nursing Association for Clinical Simulation and Learning (INACSL) had its beginnings in 1976 when a group of nurse educators organized a biennial conference that focused on the skills laboratory and technology. This conference was known as the Biennial North American Learning Resource Centers

Conference. By 2002, INACSL was officially formed with a mission to promote and provide the development and advancement of clinical simulation and learning resource centers (History of INACSL, 2013). In 2011, after two years in development, INACSL published standards for simulation. These performance standards were developed to establish criteria in simulation for healthcare (Sando, Farager, Boese, & Decker, 2011). Seven standards were developed for different aspects of the simulation experience; these included standards on uniformity of terminology, professional integrity and objectives for participants, facilitation methods, simulation facilitator, debriefing, and expected outcomes (Sando et al., 2011). In 2013 these standards were revised and guidelines for each standard was included. The INACSL standards for simulation have been adopted by simulation centers worldwide and are used in simulation research (Borum, 2013).

In October of 2009, INACSL joined forces with the Society for Simulation in Healthcare (SSH). The SSH was established in January 2004 and represents educators and researchers who use simulation techniques for education, testing, and research in health care. SSH is a multi-disciplinary, international organization (Outside Resources: Affiliates, 2013). In June of 2012 SSH began offering certification for simulation healthcare educators. Additionally, SSH accredits simulation programs that demonstrate compliance with standards in one or more of the following areas: assessment, research, teaching/ education, and/or systems integration (Society for Simulation in Healthcare, 2013). Both INACSL and SSH publish journals devoted solely to simulation.

Laerdal Medical Corporation paired with the NLN in 2007 to develop the Simulation Innovation Resource Center (SIRC). The purpose of SIRC was, "to develop a community of nurse educators who can effectively use simulation to promote and evaluate student learning and

who dialogue with one another in an effort to advance simulation in nursing education" (Simulation Innovation Resource Center, n.d.). The SIRC started in 2008 and offers nurse educators a wealth of resources for simulation. Among other things, SIRC provides nurse educators with online course offerings and opportunities to interact with those interested in simulation. The growth of professional organizations devoted to simulation will likely continue to grow and evolve mirroring the needs of simulation educators.

Various forms of simulation have been used in nursing education for many years. In recent years, however, changes in the healthcare delivery system, and advances in technology have contributed to an increase in the use of simulation in nursing programs. In order to provide students with sound educational experiences in simulation, the student experience in simulation must be explored.

Overview of Simulation Literature

This section presents an overview of the literature on simulation in nursing education. As the use of simulation increases, there has been an exponential growth of articles and studies devoted to the various aspects of simulation. The focus in the literature changed over time reflecting how simulation has evolved. This overview will describe how the focus of the literature shifted over time from an early emphasis on the importance of simulation in nursing education to later discussions on the integration of simulation into curricula, and most recently the effectiveness of simulation.

The early literature on simulation focused on why simulation is useful in nursing education (Medley & Horne, 2005; Nehring, 2008; Nehring & Lashley, 2004; Seropian et al., 2004). Another early focal point in the literature was on designing simulation labs and purchasing equipment to match a program's needs (Curtin & Dupuis, 2008; Harlow &

Sportsman, 2007; Kyle & Murray, 2008). Although, the design and implementation of simulation labs is discussed most in earlier literature, some discussion of this is found in literature that is more recent as well (Kuiper & Zabriskie, 2012). Even though many nursing programs currently use simulation, this suggests that some are purchasing new equipment and just starting to develop simulation programs.

As simulation use increased over time, the focus of the literature shifted. Interest in how to write scenarios as well as integrating simulation into nursing curricula became more common (Brewer, 2011; Hodge, Martin, Tavernier, Perea-Ryan, & Alcala-VanHouten, 2008; Richard, 2009; Sarver, Senczakowicz, & Slovensky, 2010; Seropian et al., 2004). In addition, around this time literature on faculty resistance to the use of simulation started to appear (Akhtar- Danesh, Baxter, Valaitis, Stanyon, & Sproul, 2009; King, Moseley, Hindenlang, & Kuritz, 2008; Starkweather & Kardong-Edgren, 2008). The findings of one study suggested that although there are barriers to faculty adoption of simulation, most faculty perceive simulation as beneficial to student teaching (Akhtar-Danesh et al., 2009). The results of a study done by King et al. (2008) indicated that faculty had little if any training or experience with using HPS. This contributed to negative attitudes regarding faculty comfort levels using simulation; however, faculty still maintained an overall positive attitude towards simulation as a teaching strategy. King et al. (2008) implemented an educational intervention for faculty that was designed to enhance faculty beliefs towards simulation and to increase their intent to use simulation in the future. Based on the findings of this study the researchers proposed that understanding faculty attitudes towards simulation was essential to the success of their educational intervention (King, et al., 2008). In some ways, this is similar to understanding the experience of students during simulation in order to design effective learning experiences.

Starkweather and Kardong-Edgren (2008) also examined faculty resistance regarding the adoption of simulation as a teaching strategy. Findings from this study suggested that faculty attitudes and beliefs toward simulation were important to know when attempting to increase simulation use in a nursing program (Starkweather & Kardong-Edgren, 2008). This concurs with the findings of King et al. (2008) that understanding the faculty perspective is important when planning faculty education.

The simulation literature continued to evolve and change focus as the growth of simulation in nursing education continued. Articles related to tool development for student evaluation, use of theory to guide simulation, and models or frameworks to guide simulation design began to appear in the literature (Jeffries, 2005; Kaakinen & Arwood, 2009; Kardong-Edgren, Adamson, & Fitzgerald, 2010; Larew et al., 2006; Lisko & O'Dell, 2010). Kardong-Edgren, et al. (2010) conducted a review of published evaluation instruments used in simulation. Challenges to tool development for clinical simulation, as well as the importance of learning domains in evaluation were also discussed (Kardong-Edgren et al., 2010).

Discussions regarding the application of theory as the foundation for simulation experiences also began to appear in the literature. Kolb's experiential learning theory is one theory that has been applied to simulation. Kolb's theory is based on the premise that transforming experience into existing cognitive patterns changes the way a person thinks and acts (Lisko & O ' Dell, 2010). Using Kolb's theory as a foundation, Lisko and O'Dell (2010) introduced a transformative approach to learning in a nursing course by blending simulated learning opportunities with performance skills. Another example of the use of theory in simulation is the application of Benner's novice to expert model in patient care simulations (Larew et al., 2006). In 1984 Benner adapted the Dreyfus model of skill acquisition to nursing

practice. Dreyfus was a mathematician and philosopher who had developed a model of skill acquisition based on the study of airline pilots and chess players (Benner, 1984). Benner adapted this model to describe the stages of skill acquisition of clinical nurses. Larew et al. (2006) used Benner's theory to develop clinical simulation protocols for nursing students. However, a review of the nursing simulation literature conducted by Kaakinen and Arwood (2009) found that of 120 simulation articles reviewed, 104 did not mention the use of a learning theory in simulation design. According to Jeffries (2005), the use of a framework on which to base simulation design is essential to successful learning. One model frequently mentioned in the literature is *The Nursing Education Simulation Framework* developed by Jeffries (Jeffries & Rogers, 2012). This framework contains the five conceptual components of teacher, student, educational practices, simulation design characteristics, and expected student outcomes (Jeffries & Rogers, 2012). Incorporating a framework such as this will enhance the development and design of simulations, which in turn should provide students with effective learning experiences (Jeffries & Rogers, 2012).

More recent studies sought to understand how well the knowledge learned in simulation is retained and/or transferred to the actual clinical setting (Lapkin, Levett-Jones, Bellchambers, & Fernandez, 2010; Lewis, Strachan & Smith, 2012; Sears, Goldsworthy, & Goodman, 2010). Lapkin et al. (2010) conducted a systemic review looking at the effectiveness of simulation in teaching clinical reasoning skills to undergraduate nursing students. Results of this review appeared to be inconclusive regarding the effectiveness of simulation; however, there was evidence suggesting that some outcomes related to clinical reasoning were improved (Lapkin et al., 2010). A literature review done by Lewis et al. (2012) suggests that simulation is useful communication, teamwork, leadership, and clinical decision makings skills. Elfrink et al. (2010)

conducted a study in which a pre-test/post-test design was utilized to measure retention of cognitive knowledge following a simulation experience. Results of this study indicated that while simulation related knowledge was improved, retention of this knowledge was not consistent. In a similar study Sears et al. (2010) examined the relationship between simulation and medication safety. Results of this study demonstrated that simulation did reduce medication errors.

As the use of simulation continues to evolve, other applications in undergraduate education noted in the literature include simulations in ethics and communication (Gropelli, 2010). Also noted in more recent literature are simulations involving multiple patients (Chunta & Edwards, 2013) and work in interdisciplinary teams (Ironside, Jeffries, & Martin, 2009; Kobayashi, Shapiro, Gutman, & Jay, 2007; Reese, Jeffries, & Engum, 2010). These newer applications of simulation reflect the expanded use of simulation in nursing education. However, much of the literature is anecdotal and lacking a basis in theory (Reese et al., 2010). The rapid growth of simulation in nursing education has created challenges for nurse educators using this teaching strategy since best practices are still being defined (Ulrich & Mancini, 2014).

Literature Related to the Student Experience in Simulation

In addition to the areas discussed in the previous section, the simulation literature also addressed the student experience in simulation. Early studies explored students' experiences in simulation with a focus on student satisfaction with simulation as a teaching strategy. Also discussed were student reports of increased confidence resulting from simulation experiences (Fountain & Alfred, 2009; Smith & Roehrs, 2009). Smith and Roehrs (2009) used a descriptive correlational design to examine factors correlated with student satisfaction and self-confidence related to the simulation experience. The sample consisted of 68 junior level nursing students

enrolled in their first medical-surgical course. A researcher-developed tool was used to obtain demographics. Additionally, two tools developed by the NLN were used. These were the NLN *Student Satisfaction and Self-Confidence in Learning* scale and the *Simulation Design Scale* (SDS) (National League for Nursing, ND). The *Student Satisfaction and Self-Confidence in Learning* scale reported Cronbach's alpha of 0.94 for the Satisfaction subscale and 0.87 for the Self-confidence subscale (Smith & Roehrs, 2009). The SDS has five subscales, which are Objectives, Support, Problem-Solving, Feedback, and Fidelity, and has a Cronbach's alpha of 0.92 for the presence of these factors (Smith & Roehrs, 2009). Smith and Roehrs' (2009) findings suggested that having clear objectives and an appropriate problem for the students to solve are two factors that correlated with increased levels of student satisfaction and self-confidence with simulation.

In a study done by Fountain and Alfred (2009), 78 undergraduate nursing students completed the NLN *Student Satisfaction and Self-Confidence in Learning* scale after participating in a simulation experience. For this study, reliability of the scale was reported as Cronbach's alphas of 0.91 for satisfaction and 0.84 for self-confidence. The data relating to satisfaction was compared to data from a learning styles self-assessment that students had completed upon entry into the nursing program. Data was analyzed using Pearson Product-Moment Correlation. Results of this analysis suggested that learning styles were significantly correlated with satisfaction and the use of simulation learning (Fountain & Alfred, 2009). Students who exhibited a strong preference for social learning or solitary learning styles were satisfied with simulation as a learning experience, but learning styles such as visual and auditory, were not significantly correlated with satisfaction. The findings of this study provided information on how learning styles may affect the student experience in simulation. Fountain

and Alfred (2009) suggested that nurse educators could design simulation activities in one learning experience that engage both the social and the solitary learner. Students with high scores on social learning benefit from interactions with others, while those with high scores on solitary learning learn by watching others. Combining activities that appeal to both types of learners in the simulation experience takes into considerations different student learning preferences.

Two earlier studies supported the findings of Fountain and Alfred (2009). Amerson (2006) proposed that by designing short, interactive activities focused on different learning styles nurse educators will better meet the learning needs of students. Garcia-Otero and Teddlie (1992) conducted a study on the effect of knowing one's learning style on anxiety and clinical performance of nurse anesthesiology students. Results of this study suggested that if students knew their preferred learning style they would experience decreased anxiety and increased learning performance. While these studies dealt with teaching strategies other than simulation, the findings reinforce those of Fountain and Alfred (2009) regarding learning styles and student outcomes. The findings of these three studies validate the premise that the student experience must be known if effective learning is to take place.

In contrast, a qualitative study performed by Lasater (2007) provided student descriptions ($N = 8$) of their experiences in simulation using focus groups. This study examined the experiences of junior level nursing students and the effect of simulation on the development of clinical judgment skills using high fidelity simulation. Some of the more frequently mentioned comments were that during simulation students integrated knowledge learned in the classroom, and the skills lab, which required critical thinking (Lasater, 2007). Other common statements focused on the ability to provide care for simulated patients with conditions not frequently

encountered in the actual clinical setting, and heightened awareness of what could happen in the clinical setting. Students also identified some limitations of simulation. The most common ones were feeling anxious and "stupid", as well as desiring more direct feedback from faculty regarding the student's performance during the simulation (Lasater, 2007). The focus group consisted of primarily non-traditional students, thus not capturing the experience of traditional students. This may have biased the findings (Lasater, 2007). While these findings provided rich descriptions of the students' experiences in simulation, the focus of the study was on the effect simulation had on the development of clinical judgment. However, the findings did help to understand the student experience of simulation including limitations.

Similarly, Baxter et al. (2009) explored student perceptions of simulation in their nursing programs. The study sample consisted of 24 students from 17 universities in Canada. Data analysis revealed four major student viewpoints regarding simulation. These viewpoints were reflectors, reality skeptics, comfort seekers, and technology savvies (Baxter et al., 2009). Reflectors believed that simulation increased awareness of their strengths and weaknesses before they worked with actual patients thus increasing their independence in the clinical setting. The viewpoint of the reality skeptic also included an increased awareness of their abilities, however this group did not feel simulation increased their independence in the clinical setting. Nor, could it replace "real patients" and the "real world". The comfort seekers found simulation very stressful and they did not feel it increased their confidence in the clinical setting. This group felt that nursing students do not have enough contact with real patients. The last group identified in this study was the technology savvies. This group believed that simulation helped prepare them for the hospital setting and reinforced the importance of being organized. Technology savvies also wanted to create their own scenarios and test other students (Baxter et al., 2009). Baxter et

al. (2009) proposed that each group required a different approach to learning in simulation. This is similar to the findings of Fountain and Alfred (2009) that learning styles affect the outcomes of simulation. However, the findings in the study conducted by Baxter et al. (2009) suggested that the students' perceptions of the simulation experience might have a profound effect on the learning experience. Some students described a sense of uneasiness when talking to a manikin, and although students realized the situation was not real, at times they found it to be very frightening and stressful (Baxter, et al., 2009). The findings of these studies support the need for nurse educators to consider the students' feelings about simulation when designing simulation experiences. These studies also identified that the simulation experience can be different for each student further justifying the need for research to understand how students individually experience simulation.

Similarly, it is important to understand what influences the student experience during simulation. The assumption may be that simulation increases student comfort; however, what students' comfort levels are in simulation has not been fully explored (Gantt, 2013). Anxiety related to clinical experiences is well documented (Melo, Williams, & Ross, 2010; Moscaritolo, 2009; Sharif & Masoumi, 2005), but in the early literature on simulation there is little mention of anxiety during simulation. In contrast, studies that are more recent have explored student anxiety during simulation experiences (Beischel, 2013; Cato, 2013; Cordeau, 2010; Ganley & Linnard-Palmer, 2012; Gantt, 2013). As simulation evolves, the use of high fidelity HPS in realistic situations are becoming more commonplace, as well as the use of simulation for evaluation (Bensfield et al., 2012). These changes may affect the student experience in simulation by increasing student anxiety. More research needs to be done on the student experience in

simulation to explore this area and understand if and how anxiety may affect student learning during simulation.

One study explored the effects of certain variables in simulation (Beischel, 2013). In a mixed methods study, Beischel (2013) examined how the variables of sleep, nutrition, learning style, and readiness to learn influenced the level of student anxiety during simulation in baccalaureate students. Participants (n=124) were enrolled in a foundational nursing course. Only three of the participants had any previous simulation experience. Beischel's (2013) findings suggested that eating, sleeping and preparing before simulation-decreased anxiety. In spite of this, student comments indicated that they experienced a high level of anxiety related to simulation. This suggests there are factors such as anxiety influencing the simulation experience for students that faculty may be unaware of.

Beischel's (2013) findings suggest that faculty and students may not view the simulation experience in the same way. In actuality, faculty perception of the student experience during simulation may differ significantly from that of students. Similarly, Ganley and Linnard-Palmer (2012) found that students and faculty have very different perceptions of the simulation experience. In this study, faculty (n=24) and students (n=101) were asked to define an academically safe learning environment. Student participants ranged from freshman to senior level with 23 students in the freshman and sophomore levels, and 78 students in the junior and senior levels. Students reported not feeling safe when they felt intimidated by faculty or other students, when not knowing what to expect or when being videotaped for review and debriefing (Ganley & Linnard-Palmer, 2012). Faculty tended to describe an academically safe learning environment in broader terms, defining it as non-threatening, yet challenging. Faculty perceptions of how students experience simulation were often drastically different from the

actual student experience as reported by students. Data were collected using two Likert-type surveys, one for students and one for faculty. Characteristics of an academically safe environment were reported as a percentage of yes responses. For instance, 71 % of faculty participants felt that simulation improved the learner's self-esteem, yet only 38 % of student participants felt this was true. Another significant difference was in the area of instructor attitude. Faculty (88%) indicated that instructors were friendly and helpful compared to 63 % of students who felt this way. Likewise, 63% of students felt the simulation environment causes one to be fearful, but only 21% of faculty thought this was true. Although, there were limitations to the study, such as small sample size and lack of validity testing of the data collection instrument, these examples of the differing perceptions between students and faculty provide valuable information to nurse educators who use simulation.

Cato (2013) conducted a mixed methods study that examined the effects of anxiety in simulation on student learning. The study consisted of a survey (n-73) and focus group sessions (n=9), Findings of this study suggest that some students experience anxiety in simulation to an extent that it may interfere with learning.

As simulation evolves, the use of high fidelity HPS in realistic situations are becoming more commonplace, as well as the use of simulation for evaluation (Bensfield et al., 2012). These changes may affect the student experience in simulation by increasing student anxiety. More research needs to be done on the student experience in simulation to explore this area and understand if and how anxiety may affect student learning during simulation.

One recent study described the lived experience of novice nursing students (n=19) during individual graded clinical simulations (Cordeau, 2010). The findings of the study revealed five themes, perceived anxiety, seeking and imagining, performing in the moment, critiquing the

performance, and preparing for nursing practice (Cordeau, 2010). Perceived anxiety contained five subthemes that suggested anxiety is present throughout the simulation experience. Based on these findings, nurse educators may devise strategies when designing simulations that will better meet student's needs. Although, this study did explore the lived experience of simulation, the focus was on simulation used for evaluative purposes. While the findings of this study provide helpful information, the student experience when being evaluated during simulation may differ from the experience when it is used as a teaching strategy. More research on the student experience when using simulation for teaching/learning purposes is needed.

Studies suggest that the way faculty and students perceive the simulation experience vary greatly (Beischel, 2013; Ganley & Linnard-Palmer, 2012). Cordeau (2010) found that students experienced anxiety throughout all phases of simulation. Since the amount of simulation in nursing programs is likely to continue to increase, these findings are very important to nurse educators. Without an understanding of how simulation affects students, effective design and implementation may elude nurse educators. While, the findings of studies such as those by Beischel (2013), Ganley and Linnard-Palmer (2012), and Cordeau (2010) are significant, there are still gaps in the literature regarding the student experience in simulation.

This phenomenological study will explore the student experience in simulation as told by the student. The knowledge gained from this study will aid nurse educators in designing and implementing educational experiences in simulation through a deeper understanding of how students experience simulation. In addition, knowledge gained from this study may provide nurse researchers with areas for further study.

Experiential Context

Several years ago, the small public university where I teach nursing students obtained a federally funded grant to upgrade technology used to teach in the nursing program. The decision was made to invest a major portion of the funds on simulation. A nursing faculty member was needed to head the initiative and I volunteered. At that time, I did not know much about simulation or its use in nursing education. The faculty made the decision to embrace simulation and incorporate it into all clinical courses in nursing over time. Since, I was heading the initiative, it followed that the junior level medical-surgical course I taught would be the first course to use simulation. The faculty also decided to use simulation in some courses as a clinical site. Therefore, instead of just a few isolated days in the lab, students would have a two to three week rotation in the lab. This rotation was modeled after the actual clinical experience in some ways.

Using medium fidelity simulations, students cared for medical-surgical patients with health problems related to those studied in the classroom portion of this course. Patient scenarios included pulmonary embolism following surgery, exacerbation of chronic obstructive pulmonary disease, and medication induced anaphylaxis. I created a “hospital" website from a learning management course site for the simulation lab and called it the Sim Valley Medical Center. On this site, students access their patient assignment and other information related to the lab experience for the following day. The day in the Sim Valley Medical Center starts with a preconference where we discuss the patient’s condition, medications, and potential nursing diagnoses. After the simulation, we have post conference. During post conference students reflect on how their actions during the simulation affected patient outcomes.

After the first semester of conducting simulation lab in this manner, the decision was made to continue a clinical rotation in the lab in the following semester during the pediatric/obstetrical course, which is taught at the junior level. I continued to work with the students in the lab for a total of 12 hours a week in the simulation lab. This course also utilizes medium fidelity simulation. There is a four-hour overlap in this semester, where juniors and seniors are in the simulation lab at the same time. The senior students experience revolved around acute medical-surgical care. Simulations were designed to meet the learning needs of both groups. Patient scenarios ranged from hypovolemic shock in a patient with ruptured ectopic pregnancy to pediatric head trauma. I have been doing this for three years now, have felt immersed with simulation, and have learned much about simulation. I have also heard a great deal of student commentary on their simulation experiences.

The students' comments on simulation were very interesting to me. At the end of each semester, students evaluated their experiences by completing a simulation evaluation form, which I created. Students were asked what they liked and did not like about the simulation experience. Also, students were asked if they felt the simulation experience had met their learning needs and what types of simulations would they like to see added. From these evaluations, I gained insight into how students felt about simulation. One of the things students focused on was their anxiety during simulation. Students told me that they worried for days prior to the simulation lab. Some even told me they were so anxious they vomited before coming to lab in the morning. I was shocked by these comments. Similar to the perceptions of faculty in the study conducted by Ganley and Linnard-Palmer (2012), I thought the lab was a comfortable learning environment for students. This however, did not seem to be the case. Our program did not use simulation for evaluative purposes, a situation that might induce anxiety

over performance, yet some of my students were very anxious about their simulation experiences. In spite of this, most of the students said that they valued the experience and felt they learned a lot. They expressed appreciation for the learning opportunities and seemed to like the fact that they had the undivided attention of faculty.

Sometimes during a simulation when a student was having difficulty using a piece of equipment or making a decision about a course of action, I would stop the simulation to assist the student. This ability to stop the action and reflect on the situation as it is happening is something that usually cannot be done when caring for an actual patient. Students' comments indicated that they found this stop action type of teaching very helpful and that they were able to retain information learned in this manner better than "after the fact".

The more time I spent in simulation with the students, the more I realized that there are many things not known about how students experience simulation. Students have reported that they are learning in simulation but they also noted that the experience can be anxiety producing. Students also commented on strategies used during simulation that were perceived as helpful. Some of the students' comments surprised me, leaving me with the feeling that there is more to know about the simulation experience as seen through the eyes of students. In order to achieve desired learning outcomes, the student experience in simulation must be further explored. This research study will add to the body of knowledge regarding the student experience in simulation.

Summary

Simulation has been used in nursing education for many years. The combination of changes in healthcare delivery and advances in technology has accelerated the growth of simulation. However, simulation programs are costly to implement and maintain. This mandates that simulation effectively meet the learning needs of students through learner centered

teaching strategies. To do this requires understanding the phenomenon from the perspective of the student.

This chapter provides a brief review of the literature on simulation in nursing education. The purpose of the literature review in this descriptive phenomenological study is to describe reasons for exploring this phenomenon, and to provide the reader with a rationale for why this study is important from a historical and an experiential context. Chapter Three provides a discussion of the methodology for this study.

CHAPTER THREE

METHOD OF INQUIRY

Chapter Three provides a discussion of the methodology for this study. The chapter begins by defining concepts and terms unique to qualitative research and the method selected to guide data analysis. Following this is a discussion of the rationale for selecting a qualitative design for this study. Next is a brief description of phenomenology as a philosophy and a research method. In the next sections, the setting and the sample are described as well as procedures for data collection and data analysis. The chapter concludes with a discussion of how rigor was established in this study.

Concepts and Terms

Definitions for concepts and terms commonly used in qualitative research and in the Giorgi's method for data analysis are provided prior to the discussion of the method, since many of these terms may be unfamiliar to the reader. For the purposes of this study, the following concepts and terms associated with the philosophy of phenomenology and the descriptive phenomenological approach to research are defined:

- Bracketing: examining and putting aside assumptions and biases the researcher might have regarding the phenomenon (Polit & Beck, 2012)
- Essence: the true meaning of something (Fain, 1999), the most essential meaning for a particular context (Kleiman, 2004)
- Essential characteristics: the result of grouping meaning units with a similar focus together (Giorgi, 2009)
- Free imaginative variation: mentally removing an aspect of the phenomenon in order to determine if that aspect is essential to the phenomenon. If after imagining the

phenomenon without that aspect, the phenomenon is drastically changed, then that aspect is essential to the phenomenon (Giorgi, 2009).

- Intuiting: total immersion in the phenomenon under investigation (Polit & Beck, 2012)
- Lifeworld: the world of lived experience
- Meaning unit: themes (Giorgi, 2009)
- Phenomenological reduction: a process that facilitates a change from the common sense belief or the natural attitude about things to a phenomenological standpoint that focuses on conscious ideas of objects (Priest, 2002). The phenomenological reduction includes bracketing and intuiting (Fain, 1999).

Rationale and Background of the Method

The purpose of this research study was to describe baccalaureate nursing students' experiences using medium and/or high fidelity simulation. The research question that guides this study is "What is the experience of participating in medium to high fidelity simulation for baccalaureate nursing students?"

Phenomenology, as a form of qualitative inquiry, seeks to understand the meaning of human experience and provides rich data regarding the phenomenon of interest. The phenomenological approach can be either descriptive, which seeks to describe the lived experience, or interpretive which seeks to make meaning of the lived experience. For this study, a descriptive phenomenological approach was used to explore baccalaureate nursing students' experiences in simulation.

Rationale

In this study, the experience of baccalaureate nursing students' participating in medium to high fidelity simulation was explored. Phenomenology as a research method examines human

experience. Phenomenologists believe that there is an essential essence of the phenomenon. This essence makes the phenomenon what it is (Polit & Beck, 2012). Using a descriptive phenomenological approach for this study will aid in identifying the nature of the phenomenon.

Descriptive phenomenology emphasizes human experience and attempts to explain how the phenomenon is experienced. This type of inquiry is particularly useful when the phenomenon is not well understood (Polit & Beck, 2012). Qualitative inquiry, specifically Husserl's beliefs, was chosen to guide this study for the aforementioned reasons. Husserlian phenomenology is concerned with the essence of the phenomenon, or in other words the reality of the experience (Priest, 2002). Phenomenology allows the researcher access to the lived experiences of others. It is hoped that with descriptive phenomenology the essence of the students experience in simulation will be captured.

Background

Phenomenology is considered both a philosophy and a research method. The phenomenological approach is used to study human experience through the description of everyday life. Phenomenological thought has its origins in the works of Immanuel Kant in the 18th century (Fain, 1999). A brief history of phenomenology as a philosophy is presented. This is followed by a discussion of phenomenology as a research method.

Phenomenology as a philosophy. According to Berrios (1989), the term phenomenology refers to philosophical doctrines that share assumptions as to what the world is like and how it can be known. Phenomenology focuses on consciousness and conscious experience as well as what it is like to live an experience and not just a person's reaction to the experience (Connelly, 2010). Phenomenology can be traced back to the 18th century. In 1786, Kant first described the distinction between phenomenon and the awareness of reality in human

consciousness (Fain, 1999). Kant believed that phenomenon is whatever is known because it appears to consciousness. Based on this belief scientific knowledge is restricted to what appears to the consciousness (Fain, 1999).

Edmund Husserl (1855-1938), a philosopher and mathematician, is often referred to as the "father of phenomenology" (Fain, 1999). Husserl's ideas about how science should be conducted are the basis for the descriptive phenomenological approach to research (Lopez & Willis, 2004). Husserl thought that a scientific approach was necessary to bring out the important components of human experience (Lopez & Willis, 2004). Husserl also believed that the lived experience contained features that were common to all having that experience and that these universal experiences or essences represent the true nature of the phenomenon being studied (Lopez & Willis, 2004). By means of describing the essences, the true structure of the phenomenon is revealed (Fain, 1999). This allows understanding of the phenomenon. The expression, "To the things themselves", is often associated with Husserl's work. This expression refers to the assumption that the essences of a phenomenon represent the true nature of that phenomenon. Another important concept in phenomenology that was developed by Husserl was that of the "lifeworld". The lifeworld is the world of lived experiences (Fain, 1999).

The philosophy of phenomenology is complex and continues to change over time. According to Polit & Beck (2012), the phenomenologist believes that there is truth about reality that is grounded in people's lived experiences. This makes phenomenology an appropriate method to study human experience. The focus of this study is to describe the student experience in simulation. This justifies exploring the phenomenon from a phenomenological standpoint.

Phenomenology as a research method. According to Merriam (2009), it is important to understand that although phenomenology as a philosophy influences all of qualitative research; it

is also a type of qualitative research with its own strategies and methods. Phenomenology uncovers and describes the meaning or essence of an experience. The findings of a phenomenological study represent the structure of the phenomenon.

The method chosen for this study is based on the procedural interpretations of Amedeo Giorgi. Giorgi is a psychologist who applied a descriptive phenomenological approach to studies in the discipline of psychology using a modified Husserlian approach. Giorgi (2012) maintained that the phenomenological approach is generic in nature and can be applied to any human or social science. The difference is the researcher assumes the attitude of the discipline they are working in thus creating a disciplinary perspective. For example, the researcher may assume a disciplinary perspective from nursing, sociology, or pedagogy. According to Kleiman (2004), once established, the disciplinary perspective should be maintained throughout the study.

Giorgi's method guided this research. The research process begins with deciding on an area to study followed by formulation of the research question or questions. After data collection, the interviews are transcribed and the transcripts read in their entirety to obtain a sense of the whole. An attitude of phenomenological reduction is maintained during this process and throughout the data analysis. According to both Giorgi (2009) and Kleiman (2004), phenomenological reduction consists of two steps, bracketing and not attributing anything to the phenomenon that is not stated by the participants. Stated another way this second step involves taking what is given by the participants precisely the way it is presented (Kleiman, 2004). Polit and Beck (2012) refer to this as intuiting. Intuiting is described by Fain (1999) as the ability of the researcher to understand the phenomenon and depends on the ability of the researcher to engage with the participant.

Bracketing can be defined as the process of identifying biases and assumptions the researcher has related to the phenomenon of interest. Once these biases and assumptions are identified, they are held aside or bracketed, so that the researcher can assume openness to the descriptions of the phenomenon (Kleiman, 2004). Researchers often keep a reflexive journal to aid in the identification of the researchers' feelings, values, interests, and experiences. This assists with the identification of biases and assumptions (Polit & Beck, 2012).

After the transcripts are read in their entirety to obtain a sense of wholeness, they are reread more slowly. This allows for immersion in descriptions of the lived experience or intuiting. Another purpose of this second reading is to divide the data into meaning units (Kleiman, 2004). Meaning units are determined when there is a shift in meaning detected by the researcher and they are stated in the words of the participants (Kleiman, 2004). Meaning units with a similar focus are grouped together. This provides the essential characteristics of the phenomenon. The essential characteristics are subjected to a process called free imaginative variation. During this process, the researcher imagines possible variations of the phenomenon to see what can be left out before the phenomenon loses its' identity (Kleiman, 2004).

Description of the phenomenon is the last step in the analytic process. The integrated meaning units give rise to the essential characteristics of the phenomenon. The essential characteristics together provide the structure or description of the phenomenon.

Sample

There are two types of sampling methods, probability and non-probability. Probability sampling allows the researcher to generalize the study findings to the general population. Generalizability in the statistical sense is not a goal of qualitative research, therefore the use of probability sampling is not necessary or justified (Merriam, 2009). In non-probability sampling,

purposive or purposeful sampling is often used. Purposeful sampling will be utilized when recruiting participants for this study. This sampling method offers insight into a particular situation. Participants will be selected on the basis that they can provide access to a perspective on the phenomenon of interest. The sample size will be determined by the point at which no new information is identified. This is referred to as data saturation. Polit and Beck (2012) suggest adding one or two cases after reaching saturation in order to ensure that no new information emerges. The number of participants needed to reach saturation was not known however it was anticipated that up to 10 to 15 participants would be required. Data analysis began during the interview process as the researcher reflected on the statements of the participants. When no new ideas were presented, data saturation was reached.

Inclusion criteria for nursing students enrolled in this study were:

1. Full-time enrollment in a baccalaureate nursing program using medium and/or high fidelity simulation
2. Experience participating in medium and/or high fidelity simulation in the role of the primary nurse
3. Age 18 years and older
4. English speaking

Participants will be recruited from junior and senior levels of the nursing program provided they have already participated in simulation experiences. Students from different nursing programs were sought so that a wider variety of experiences could be examined.

Exclusion criteria are:

1. Part-time enrollment in a baccalaureate nursing program using medium and/or high fidelity simulation

2. Students who have not participated in medium and/or high fidelity simulation in the role of the primary nurse
3. Less than 18 years of age
4. Non-English speaking

Human Subject Considerations

Institutional Review Board (IRB) approval was obtained from the Indiana University of Pennsylvania prior to the initiation of the study. Approval was obtained as required from two additional educational institutions where participants were sought. Participation was voluntary and participants could withdraw from the study at any time with no negative consequences. There were no anticipated risks associated with this study. All data was kept confidential. Participants were assigned pseudonyms. The data was stored on a password-protected computer. Audio recordings were uploaded to the password-protected computer and then deleted from the audio recorder. Any paper documents associated with the study were kept in a locked file cabinet. In compliance with federal regulations, all data will be kept for a minimum of three years.

Setting

The setting was three baccalaureate schools of nursing in Pennsylvania where moderate and high fidelity simulation was utilized. The researcher became aware of the simulation programs at these universities through personal contacts with faculty who teach in the simulation labs.

The interview setting was an environment that was comfortable for the participant and mutually agreed upon by the researcher and participants. Locations for interviews included a conference room and faculty office at one university and a vacant room in the simulation lab at

another. All participants at the third university chose to be interviewed by telephone. In all locations, privacy was provided for the interviews.

Procedures

The researcher contacted the nursing program directors, via email, at the two universities in Pennsylvania that the researcher was not affiliated with seeking permission to recruit students in their programs. Emails from the two nursing program directors indicating cooperation were included in the IRB application. After obtaining IRB approval, the researcher contacted the nursing program directors at all three universities to introduce the study (Appendix A). The program directors were requested to forward an invitational email to the students in the nursing program (Appendix B). Two of the program directors responded to this email, while the third did not. In the case of insufficient response from students, a second email would be sent, however this was not necessary.

The invitation email provided the researcher's email address as contact information. Students who wished to participate in the study were directed to contact the researcher at the email address provided and interviews were scheduled at that time. At this initial contact, students were asked a series of questions to confirm that they met the inclusion criteria (Appendix C). Interviews were scheduled after it was determined is the student met the criteria to participate in the study. Times and meeting places were at the students' convenience and mutually agreed upon by both the students and the researcher. Participants received a 15-dollar iTunes gift card upon completion of the interview.

Students were provided with an opportunity to ask questions prior to the interview. Interviews were conducted face-to-face and by telephone. For face-to-face interviews, consent (Appendix D) was obtained at the interview appointment before beginning the interview. For

interviews conducted by telephone an email consent was sent to the participants, prior to the interview. The participants printed, signed and return the consents to the researcher through a method of their choice which included scanning and emailing or faxing. Permission to contact the participants for subsequent follow up interviews was in the informed consent. Contacting participants for follow up interviews for clarification of their initial responses was not necessary.

Data Collection

Interviews were conducted face-to- face whenever possible. Face-to-face interviews are preferred for the rich data they provide such as nuances of the participants' experience that may be conveyed through facial expressions, gestures, blushing, or tears (Kleiman, 2004). This gives the interviewer more insight into the participants' experience.

When in person interviews were not possible, data collection was conducted by a method of the students choosing. Either Skype or telephone interviews were offered to students when face-to-face interviews were not possible. All students who could not meet face-to-face with the researcher chose telephone interviews for data collection.

At the time of the first interview, participants were asked to complete a demographic survey (Appendix E). The survey was read to participants to ensure consistency. The questions on the survey asked age, gender, and race. There was also a question asking the participant to estimate the number of hours they had spent in simulation experiences.

The instrument for data collection was the researcher. The means of data collection for this study was through semi structured, in-depth interviews. Semi structured interviews provided participants with an opportunity to tell their story in their own words while ensuring that a specific topic was covered. The interviews used a broad open-ended question related to the phenomenon. Participants were asked, "What is the experience of simulation like for you?"

Subsequent questions for clarification will be guided by the participants' responses to the initial question. These questions cannot be planned; however, examples of possible probing questions are included in Appendix F.

The interviews were recorded using a digital audio recorder, including interviews done via telephone. The participants were made aware that the interview was to be recorded prior to beginning the interview. The researcher took notes during the interviews, but this was kept to a minimum in order to maintain attentiveness and openness to what the participant was saying. Immediately following the interview, the researcher made detailed notes of impressions of the interview. Following the interview, the researcher listened to the audio tape in order to make certain the interview was recorded.

The in-depth interviews generated a large amount of data and a system for managing the data was necessary. A pseudonym was assigned for each transcript and included a brief notation of the demographic data. A combination of color coding, phrases and numbers was used to label the data. A codebook with a key of the coding system was maintained. In addition, a second copy of the codebook kept on a computer hard drive that was stored in a separate location from the original data. This was done in the event that the original data set or inventory was lost or damaged.

Data Analysis

The goal of the data analysis is to make sense of the data (Merriam, 2009). Data analysis was conducted using Giorgi's (2009, 2012) method as a guide. In all qualitative data analysis, the analysis begins during the data collection process (Merriam, 2009). As participants were interviewed, the process of data analysis was conducted by reflecting on their responses and making memos and notes on my thoughts.

During the process of data analysis, an attitude of phenomenological reduction was maintained. This was done through bracketing and intuiting. During the data analysis process, what is known about the phenomenon was separated from previous experience, and the participants' lived descriptions of the phenomenon (Speziale and Carpenter, 2003).

Following the interviews, I transcribed the data. By doing the data transcription myself, I engaged in prolonged immersion with the data. This facilitated the data analysis process through intuiting or being immersed in the descriptions of the lived experiences (Fain, 1999).

After the data was transcribed, each transcript was read in its entirety to get a sense of wholeness. Following this step, the transcript was reread slowly immersing the researcher in the data. The researcher looked for meaning units in the data. Meaning units were determined when a transition or shift in ideas was detected (Kleiman, 2004). After meaning units were identified and coded, similar meaning units were grouped together to provide the essential characteristics of the phenomenon. The essential characteristics were then subjected to a process called free imaginative variation (Giorgi, 2009). During this process, all uses of the essential characteristics were imagined in order to separate those that are essential to the phenomenon and those that are not. This further defined the essential characteristics. The last step in the analytic process for Giorgi's method of data analysis was combining the essential characteristics to provide a description of the phenomenon.

Rigor

In qualitative research, rigor is determined by different criteria than those used in quantitative studies. In fact, the term rigor is controversial in qualitative research (Polit & Beck, 2012). In quantitative research, the accuracy of a study's findings is supported through reliability and validity testing. In qualitative research, different methods are used to determine if

the study findings are accurate. Lincoln and Guba propose five criteria to determine "trustworthiness' of qualitative research (Polit & Beck, 2012). These criteria are credibility, dependability, confirmability, transferability, and authenticity. These five concepts of trustworthiness are analogous to the concepts of reliability and validity in the positivist paradigm (Tobin & Begley, 2004). This study utilized Lincoln and Guba's framework for determining trustworthiness in a qualitative study.

Credibility is comparable to internal validity in a quantitative study. Validity determines how well a study measures the phenomenon of interest. According to Merriam (2009), credibility attempts to establish if a study's findings are reliable given the data presented. This can be achieved through such activities as reflexive journaling, prolonged engagement, peer debriefing, data triangulation, and audit trails (Lincoln & Guba, 1985). Member checking is another strategy recommended by Lincoln and Guba (1985) to establish credibility. This study used the above-mentioned strategies with the exception of member checking. Giorgi's method does not include member checking (Giorgi, 2009).

According to Kleiman (2004), introducing the subjects into the analysis is inconsistent with Giorgi's method and with the descriptive Husserlian method. Asking participants to validate their statements causes them to reflect not on the phenomenon or the experience itself, but rather on what was said about the experience in the interview (Kleiman, 2004). In other words, the participants will not be focusing on the description of the experience as it came to mind in the interview, but what was said about the experience, thus introducing the participants into the data analysis. This is contrary to Giorgi's belief that the researcher should perform the phenomenological analysis, while the participants remain in the "natural attitude" (Kleiman, 2004).

In order to establish credibility, a reflexive journal was used that included the researcher's thoughts about the experiences and previous reading on the phenomenon. Through this reflection, an understanding of the researcher's perspective of the phenomenon was gained. As part of reflexive journaling, the researcher included a self-interview regarding the phenomenon. Through this self-interview greater insight was gained into the researcher's own experiences and assumptions regarding the phenomenon.

Prolonged engagement refers to spending sufficient time collecting data to obtain a greater understanding of the participants and the phenomenon under study (Polit & Beck, 2012). Participants were provided up to an hour to tell their story. More time would have been allowed if desired by the participant, however this was not necessary. According to Polit and Beck (2012), prolonged engagement also aids in detecting misperceptions and distortions and allows the researcher time to develop rapport with the participants. This rapport is important to ensure that accurate information is obtained from participants. Interviewing participants until no ideas are presented also assisted in providing adequate engagement in data collection (Merriam, 2009).

Peer debriefing, data triangulation, and audit trails are the three remaining strategies that were used to support credibility in the study. The researcher discussed the study and findings with committee members who are familiar with the phenomenon. Their feedback helped to assess whether the findings were reasonably based on the data (Merriam, 2009). Data triangulation aims to overcome the bias associated with single-method, single-observer methods (Polit & Beck, 2012). According to Polit and Beck (2012), space triangulation is a type of data triangulation, which involves collecting data on the phenomenon from multiple sites. Data was collected from participants at three different universities. The use of an audit trail involves systematic collection of materials that would enable an outside reviewer to come to conclusions

about the data (Polit & Beck, 2012). Examples of materials the researcher compile for an audit trail were the raw data, working notes, the reflexive journal, coded transcripts, and drafts of the final report.

Dependability is comparable to reliability in a quantitative study (Tobin & Begley, 2004). Dependability occurs when another researcher can follow the research process used by the researcher (Thomas & Magilvy, 2011). In this study, dependability was established through audit trails and data triangulation. Keeping a reflexive account of the research process ensured that the process is traceable and clearly documented. This data trail allows others to examine the research process.

The concept of confirmability represents objectivity in quantitative research. Confirmability ensures that the study's findings are based on the data and not a creation of the researcher's imagination (Tobin & Begley, 2004). This study established confirmability by careful documentation of the research process, and data triangulation involving the use of multiple sites.

In qualitative research, transferability refers to the possibility of the findings transferring to another setting. In order to achieve transferability in this study, a highly descriptive and detailed account of the findings including a detailed description of the setting, and of the participants through demographics setting are presented. The reflexive journal aided in providing a rich description of the research process. Data saturation also provided a rich description of the phenomenon. According to Merriam (2009), careful selection of the sample will enhance transferability. Participants from different universities provided a varied sample that enhanced transferability, allowing for a greater understanding of the phenomenon of interest by readers of the study.

Authenticity in qualitative research refers to the degree to which the researcher is able to convey the meanings of the lived experience of the participants (Polit & Beck, 2012). Authenticity is demonstrated if the reader is able to develop a deeper awareness of phenomenon being described (Tobin & Begley, 2004)). Authenticity is demonstrated in this study through the participants' descriptions and the researcher's analysis of the phenomenon.

Summary

Chapter Three includes the rationale for selecting a descriptive phenomenological approach for this study. Terms and concepts unique to qualitative research and to the data analysis of Giorgi are defined, as well as terms and concepts associated with simulation. A brief background of phenomenology as a philosophy and a research method is provided. This is followed by a description of data collection and data analysis used in the study. This chapter concludes with a discussion of rigor and human subject consideration.

CHAPTER FOUR

FINDINGS OF THE STUDY

Early simulation research focused on the relevance of simulation for nursing education and student satisfaction (Fountain & Alfred, 2009; Medley & Horne, 2005; Nehring, 2008; Nehring & Lashley, 2004; Seropian et al., 2004; Smith & Roehrs, 2009). Later research in simulation examined knowledge transfer from simulation to clinical practice and the student experience in simulation (Baxter et al., 2009; Beischel, 2013; Cordeau, 2010; Fountain & Alfred, 2009; Ganley & Linnard-Palmer, 2012; Lasater, 2007). However, the research on the student experience tended to look at one or two facets of the experience such as anxiety during simulation, or the experience of debriefing after simulation. The purpose of this descriptive phenomenological study was to describe the experiences of baccalaureate nursing students during simulation from a broad perspective. This chapter describes the experiences of 15 baccalaureate nursing students during simulation.

Introduction

This study explored the simulation experiences of 15 baccalaureate nursing students. Face to face interviews were conducted when possible, with three of the interviews being conducted via telephone. The interviews varied in length from approximately just over six minutes to slightly over 22 minutes. During the interviews, students were asked to describe what the experience of simulation was like for them. The interviews began with the researcher asking the student, “What is the experience of simulation like for you?” Additional questions for clarification were asked during the interview. These questions varied for each interview depending on student responses. No follow up telephone calls to clarify student statements made during the interview were required.

Participants

Participants in the study were baccalaureate nursing students who had participated in moderate and/or high fidelity simulation in their nursing programs. Participants were sought from three universities in Pennsylvania where moderate and/or high fidelity simulation was used in the nursing program. The nursing programs varied in size. The nursing program with the smallest enrollment had under 100 students, while the largest nursing program enrollment was approximately 500 students as reported by the contact person in the respective programs.

Participant Demographics

The age range of the participants mirrored that of the age of traditional undergraduate students. The sample was comprised of primarily females, roughly 66% (n=10) of the sample was female with approximately 33% (n=5) of the sample being male. Although the sample contained a female to male ratio of 2:1 this is not consistent with the numbers of male students enrolled in nursing programs. According to the NLN (2012) 14% of nursing students in baccalaureate programs are male.

Participants were asked to state their race/ethnicity. Of the 15 participants 93 % (n=14) stated their race/ethnicity as Caucasian, while one participant 7% (n=1) stated their race/ethnicity as Asian. While this does not reflect the NLN findings that nationwide in 2012 eight percent of all baccalaureate nursing students were Asian, it does most likely represent the demographics of the area where the sample universities are located.

Participants were asked to estimate the number of hours they had spent in moderate and/or high fidelity simulation. There was a large discrepancy noted in the amount of time that students estimated they spent in simulation. Although, all students were at either the junior or senior level and were in programs that provided approximately the same amount of time in

simulation, the estimations varied widely. The researcher did explain to students that simulation included time spent in prebriefing and debriefing as well as the actual simulation itself. However, it was apparent during the interview process that students' struggled with quantifying the amount of time spent in simulation. Table 1 provides a description of the sample.

Table 1

Participant Characteristics (N=15)

Variable	n	%
Age		
20	6	40
21	4	26.7
22	4	26.7
23	1	6.6
Ethnicity		
Asian	1	7
Caucasian	14	93
Gender		
Female	10	67
Male	5	33
Estimated time in simulation		
Hours		
2 to 10	6	40
11 to 20	6	40
> 40	3	20

Application of the Method

According to Giorgi (2009), Husserlian phenomenology provides the means to gain deep understanding of a qualitative nature regarding the phenomenon of interest. A descriptive phenomenological method as described by Giorgi (2009) was used in this study to describe the experiences of baccalaureate nursing students during simulation.

Throughout the data collection and data analysis process, the researcher assumed the attitude of phenomenological reduction. This process began when the researcher identified any personal preexisting biases or assumptions about the phenomenon. Setting aside personal biases is referred to as bracketing and although it can never be completely achieved, the researcher attempted to keep preconceived beliefs about the phenomenon separate in order to see the phenomenon as it exists (Polit & Beck, 2012). A journal was kept by the researcher to aid in the process of bracketing. The purpose of the journal was to assist the researcher in recognizing any biases or personal feelings about the phenomenon that might influence the researcher's thoughts during data collection and data analysis.

Intuiting is another step in the process of phenomenological reduction. According to Polit and Beck (2012), intuiting occurs when the researcher remains open to the meanings attributed to the phenomenon as stated by those who have experienced it. In other words, the researcher remained open to the description of the phenomenon as it was stated by the participants. Intuiting is an ongoing process that continues throughout the data collection and data analysis process.

Data collection consisted of obtaining concrete and detailed descriptions of the phenomenon from those who had experienced it. Interviews were transcribed shortly after they were completed. This assisted the researcher in subsequent interviews to direct the participant to

speak to the phenomenon of interest. This differs from "leading the participant" in that the researcher does not attempt to get the participant to say specific things that the researcher is looking for, but rather encourages the participant to speak to the phenomenon of interest (Giorgi, 2012). Ongoing transcription of the interviews also helped the researcher get a sense when no new ideas were emerging.

Once all the interviews were transcribed, the steps of the method as outlined by Giorgi (2012) were applied in data analysis. The attitude of phenomenological reduction was maintained by the researcher through separation of what was known about the phenomenon from the researcher's previous experience and the participant's descriptions of the phenomenon. First, the transcriptions were read and reread to get a sense of the whole. The next step in the process was the determination of meaning units. According to Giorgi (2012), meaning units are determined when the researcher senses a significant shift in meaning. No value is placed on the meaning units, they merely mark places in the transcript where a transition in meaning occurs. Once the meaning units were established and coded, similar meaning units were grouped together. This provided the essential characteristics of the phenomenon. The essential characteristics were then subjected to free imaginative variation (Giorgi, 2009). During this process, the researcher alters the different aspects of the phenomenon through imagination by mentally removing an aspect of the phenomenon. If this removal alters the phenomenon radically then this aspect is an essential part of the phenomenon (Giorgi, 2012). The final step is the integration of the essential characteristics into a description of the phenomenon of interest.

Essential Characteristics

Each participant's description of their experience during simulation was unique. However, five essential characteristics were commonly identified. These essential characteristics

were Anxiety, Making Mistakes, Realism, Putting It All Together, and Having Value. In this chapter, the five essential characteristics are described individually and then integrated to provide a description of the experience as a whole.

Anxiety

When describing their experiences during simulation all of the participants spoke about anxiety. This finding is supported by Walton et al. (2011) who also found that nursing students experienced anxiety related to simulation. Gantt (2013) reported similar findings of increased physiological stress in nursing students during simulation. The majority of the participants in this study, twelve out of fifteen, talked about their personal experiences with anxiety. While three of the participants denied feeling anxious themselves, they did talk about anxiety that they observed in their peers.

When asked what the experience of simulation was like for them many of the participants started by talking about generalized feelings of anxiety. Words like nerve wracking, scared, nervous, and anxious were frequently used to describe the overall experience. Luke described the feelings associated with knowing he was going to participate in simulation:

> *When we first hear that we are going to do simulations, even if we look it up in the syllabus weeks before, we're all terrified. And I know that I am terrified because we're just so on the spot.*

Another participant, Tori, described similar feelings when describing her first experience with simulation:

> *Simulation, the first time, I was scared. I was terrified. I didn't know what to expect. I was like literally shaking before I went in. I was really nervous.*

Some of the participants expressed that as they gained more experience with simulation, they became less nervous, though the anxiousness never went away completely. For some participants, feelings of anxiety remained high despite more experience with simulation. For Zane more experience with simulation did not decrease his sense of anxiety:

> *It doesn't matter what year we've gotten to, we've been doing them since junior year, um, it always seems very nerve wracking. You never know what to expect going in … and it's always nerve wracking because you know that the professors can throw a curve ball at any time. Whether it was the first one or the last one I've done, I was still very nervous going into it.*

But for others like Alexus, feelings of anxiety seemed to diminish with more exposure to simulation:

> *During my first simulation I was kind of worried and I didn't know what to expect and I was scared, but now that I am in my fourth year I know what to expect from simulation and I'm not worried at all.*

The three participants who denied feelings of anxiety related to their experiences in simulation seemed to approach the experience from a different perspective than their peers. Gabe described feeling confident during simulation:

> *I don't really get anxiety. I feel pretty much confident in my abilities so I don't mind dong simulation lab. So, I usually volunteer for it when the option is given … people watch us do it, things like that, so we're basically on the spot which I think a lot of people don't like but I don't mind that and I found that it can be very helpful.*

When discussing nervousness in peers during simulation Gabe stated:

I try to take control of the situation cause I feel like that helps other students out, because I mean I feel very confident in my abilities so I don't mind putting myself out there in front of other students.

The other two participants who did not express feelings of anxiety did not speak of feelings of self-confidence as Gabe did but one spoke of simulation as "fun and hard to take seriously", while the other participant, Ellie, talked about feeling calm and relaxed during simulation:

I'm not at all frightened like I am for clinical. It's very relaxed and it's just kind of a little awkwardness because you don't know what to expect but it's not a scary thing like going to clinical and seeing a real person and being like I don't know what to do so, yeah, it's a calm environment.

In addition to generalized feelings of anxiety related to simulation, many of the participants talked about causes of anxiety. Four characteristics of the experience that were related to anxiety were frequently mentioned. These were feeling unprepared, being observed, being judged, and anticipating the crisis.

Feeling unprepared. Some of the participants described a sense of uneasiness related to feeling unprepared during simulation. This feeling of being unprepared seemed to have two causes. First, participants experienced unclear expectations of what they were supposed to do during the simulation. Ellie expressed feelings of uncertainty:

Well, a lot of the times you first start off and you don't really have a direction and then once you get in there it's a lot of awkwardness cause you're not sure where to start … and then you know there's a lot of 'What should I be doing?'

Cordeau (2010) found that nursing students experience anxiety at different times during simulation. According to Cordeau (2010) presimulation anxiety stems from the unknowns of the

simulation experience and is experienced during preparation for simulation. When discussing a framework for implementing simulation, Jeffries (2005) states that clearly written learning objectives are needed to guide students learning in simulation. Likewise, Beischel (2013) found that preparation for simulation was an influential factor affecting student anxiety.

The second cause was not having time to research the patient condition, medications, and treatments prior to the simulation. On some occasions information about the patient was given as early as the day before so participants could prepare. Other times, participants were not given any information until minutes before the simulation started. The participants expressed varying emotions about the amount of preparation they preferred. Presumably those participants that were closer to graduation would be more comfortable receiving less information prior to the simulation, and sometimes this seemed to be true. However, participants at both the junior and senior level stated they would prefer more time to prepare for simulation. Tori described feelings of frustration when receiving information just prior to a simulation:

> *Our Evolve does like certain information but some of it is not available till right before the simulation. It's kind of confusing. I wish we had at least one to practice on because when you are running the simulation it gives you like an EMAR and everything, but it's really hard to navigate. I mean it's like with any other hospital computer system, it takes time to get used to. So, it you haven't used it and you are trying to do it and you are running the simulation and times not on your side, like then of course the patient dies.*

Ross spoke of having both experiences of receiving information in advance and "just walking in cold".

> *I am just like you know looking over the whole situation and trying to think, okay what do I need to do, what's priority, and I mean it's difficult because we are generally given like*

I don't know, maybe about three minutes to look over the whole situation and what we have to do.

Of the two situations, Ross expressed a preference for receiving information in advance of the simulation.

I like knowing beforehand because then you're not so much concerned, like you know what you are walking into. You have time to look up drugs, you have time to look up the different diseases and so you can actually focus on carrying out the skills and participating in the sim instead of thinking, okay, what is this, what is that? It just goes a lot smoother and I think you get a lot more out of it. I mean you learn a lot more because you have an opportunity to look these things up and if you just walk in and you have no idea what you are doing, you can't really look it up right then.

Emma described the experience of receiving less information as she progressed through the program:

I think as you go on in the program they tell you less and less and I think sophomore and junior year you kind of knew what you were going into so you had the ability to plan, but now it has gotten to the point where they just give you a really quick report, like this patient just came in for surgery, whatever and then you have to go in there and just figure out what is going on, which I think is a good thing and a bad thing at the same time.

Another participant Lara, expressed feelings similar to Emma's:

I think as I have gotten more experienced I have felt more competent and I have been able to see an improvement in what I'm bringing to simulation. Not so much like I walk in remembering all the stuff, but I walk in more prepared to do the simulation.

Overall, it seemed that participants understood that nurses often get little information just before assuming care of a patient. However, participants expressed a preference for receiving information well in advance of the simulation experience so they could prepare. Participants spoke of a better learning experience when they received information at least the day before a simulation so they could research the patient's condition and treatments.

Ganley and Linnard-Palmer (2012) conducted a study, which in part, reported students' perceptions of an academically safe learning environment. According to Ganley and Linnard-Palmer (2012) students did not feel academically safe when they did not have time to prepare prior to simulation. Beischel (2013) also found that preparation for simulation was an important factor affecting student anxiety. However, according to Beischel (2013) students' experienced significant anxiety even with longer preparation times. This may be due in part to how students prepared for the simulation (Beischel, 2013).

Being observed. Several of the participants spoke of being observed during simulation. When talking about what the experience of simulation was like for her, Abby stated:

> *I personally really enjoy simulations, umm, I know like it is not always the most popular thing, you know, it can be a little intimidating and it can be a little nerve wracking when you are the nurse because you know all your friends are watching.*

This sentiment was echoed by other participants such as Lara who spoke about difficulty concentrating due in part to the experience of being observed. Lara said:

> *I think it was hard to think straight, it was hard to remember even the basic things like okay, I washed my hands, I was reciting to myself this was the order that I needed to do things in and it was very hard to be natural just because I felt like the stakes were very*

high because all of your classmates are watching. Your professor is watching, and it was just nerve wracking.

A few of the participants spoke of simulation experiences with larger groups. The participants who experienced the larger group simulations seemed to be more concerned with the experience of being observed. One participant remarked:

In a lot of situations there are over thirty people watching you so, you know, you feel like what if I do make a mistake? What is everyone going to think of me?

Lara made the following comments when discussing being observed and being an observer in the large group setting;

And then the stakes are just higher by knowing that your peers are watching and because I have been an observer myself, I know how easy it is to sit back and laugh and go 'Oh my goodness, I can't believe how …'

This was in contrast to the experience of being observed when the groups were smaller. Alexus talked about being in simulations with groups of six or seven students. When talking about the influence that being observed had on her, Alexus commented:

Sometimes they make like funny facial expressions or something to like make you laugh, or something that can interfere with it.

While another participant who experienced both large and small group simulations commented that:

I like the simulation, um, when it's um smaller groups. That's when I've had the most fun with simulation and when we've had a lot of interaction … but, um, when there is, um, larger groups I tend not to remember the simulation as much cause everyone kind of

fades into the shadows, so the most memorable ones are when there's less people and you all get a chance to do things.

The experience of being observed was often mentioned in relation to feelings of anxiety. This was similar to the findings of Parker and Myrick (2012). Parker and Myrick (2012), in a study exploring the social and psychological processes that occur during simulation, found that nursing students experienced feelings of discomfort when observed by their peers. While there is discussion in the literature about student's aversion to being on camera, (Elfrink et al., 2009) only one participant mentioned the experience of being filmed. That comment was in the context of being observed and did not appear to be of particular importance to the participant. No participants spoke of viewing the film as part of the debriefing process, so it is not known if this was part of their experience. Perhaps, not viewing the film after the simulation accounts for no mention of being on camera by the participants of this study.

Being judged. Another characteristic similar to feelings of anxiety was that of being judged. Some of the participants spoke at length about the experience of being judged. Common to this experience was a feeling of apprehension during the simulation related to hearing the judgments of peers and professors afterwards. While some of the participants spoke about being judged, Emma spoke about it at length. Noting others feelings or experiences, Emma commented:

I feel some people have, that they view sim a lot more negatively then I do, um, and you know they just view it as, 'What if I do something wrong?' People are going to think I am stupid and I definitely understand why people are nervous about it.

When describing her own simulation experiences Emma stated, "In *the beginning I viewed it as sort of a judgment on me."* She went on to talk about being a "spectator" in a large group

debriefing and hearing other students make "*rude*" comments about the student in the role of the primary nurse. Emma speculated that hearing such comments influenced students' willingness to participate in the role of the primary nurse, as well as their performance in that role.

Lara described a different experience of being judged:

> *I don't think I ever really walked out feeling like I did a good job, um, I would walk out feeling like there would just be this feeling in the pit of my stomach. Oh, I messed that up and I then, I know everyone is going to criticize, and they are going to point out this and this and this, it wasn't overwhelming but there just was the knowledge that I didn't do a perfect job and therefore, um, I am going to have to sit there and listen to everything I did wrong while I was in a stressful situation.*

Two of the participants mentioned having their "every move" critiqued, while a third described a slightly different experience of being judged than the others who spoke of it. Ross described a difference between the judgments of the professors versus the judgment of peers:

> *Generally, I think the most difficult criticism, I guess, yeah like criticism, will come from the professors because the students, they know they would do the same thing in that situation and, um, they kind of like don't want to say, oh you know you should have done this, or you should have done that. But, the professors are like, okay, this is what happened, what should you, you know, have done and stuff like that.*

Little was found in the literature describing a similar experience of being judged to that of the participants of this study. However, the experience of being judged, whether by peers or professors, appears to be a part of the essential characteristic of anxiety for the participants of this study.

Anticipating the crisis. Anticipating the crisis is another aspect of the simulation experience linked to the essential characteristic of anxiety. In a study conducted by Lasater (2007), students talked about feelings of foreboding related to the recognition that an unexpected event requiring clinical judgment would occur during simulation. These students related that this foreboding or anticipation increased their anxiety level. This is similar to the findings of this study. All but four of the participants spoke about experiencing this feeling. Many spoke of the "curve ball". The following sentiment was echoed by all those who spoke of this experience:

> *You never know what to expect going in … and it's always nerve wracking because you know the professors can throw a curve ball at any time.*

Zane talked about his experiences with anticipating the crisis:

> *I'll have a patient who you know is completely stable, sinus rhythm … then all of a sudden the patient is telling you, um, 'I'm not feeling too well', and then, you know, unresponsive and then 30 seconds later, you know, you know they go completely out and you have to start performing CPR, so you know, when I say curve ball, you don't know what to expect and the professors is kind of sitting back there being the puppeteer if you will, puppet master … to see how you react.*

When asked about how anticipating that something is going to happen affects the experience, Zane replied:

> *It doesn't make it any better just because you know. It's kind of like, uh, watching a scary movie, I guess you would say, you know, whether you know something is going to jump out or not never makes it easier, you never keep yourself from jumping. So, I would compare it to that, you know, even though I can tell you something is going to happen*

here in the next 30 seconds or 45 seconds, as soon as it happens, it's as real as whether you knew it was coming or not … it's still nerve wracking.

It makes it a little worse because when you're anticipating it, you know, you start to think, okay what could happen next. Well this could happen, this could happen and this other thing could happen, so now you have five scenarios in your head and you've got yourself so caught up in thought so that when it does happen or when something happens you don't even know where to begin.

When describing anticipating the crisis, other participants talked about the professor introducing something unexpected and serious, often life-threatening into the simulation and how this increased their sense of apprehension. One participant summed it up by saying, "*One minute the patient is fine, next minute is going to code."*

Two of the participants, Emma and Gabe also talked about anticipating the crisis, but their experiences were different from those of the other participants. Emma expressed mixed emotions stating that it was both a good thing and a bad thing to just have to go in there and figure out what was going on. While Gabe expressed a more positive view:

I think anticipation is a very, very important thing in nursing, so I don't mind that. I think that's a good thing because in the situation you're gonna get things thrown at you that you are not expecting. So, how do you counteract that so, I feel that's okay.

Making Mistakes

Although, most participants made some mention of making mistakes during simulation, several spoke about the experience at length. Some talked about the value of making mistakes in the simulation lab rather than in the actual clinical setting with real patients.

One participant, Leah, stated that she did not fear making mistakes because she knew she would have the opportunity to correct them. This sentiment was echoed by other participants who commented that the simulation lab was the place to make their mistakes, as no harm would come to an actual patient. Tori summed it up saying, '*I feel that I rather make my mistakes in such a setting instead of doing it in real life.'*

Three of the participants spoke more in depth about the experience of making mistakes. Two of them spoke about a situation where the mistake had been made by a classmate. The experience of witnessing classmate making a mistake seemed to leave a lasting impression on the participants. In both instances, the classmate gave a medication to a patient without first checking if the patient had allergies. Shortly after receiving the medication, the patient went into anaphylaxis. When referring to the situation, Gabe stated:

> *He won't do that again because that really affected him. I think his face went white just like, oh God! I just, I mean it killed the simulation patient but at the same time I feel like that is good because you're getting that experience, you're not going to do it again in a real world situation.*

Ross speaking about a similar incident remarked, '*He'll never forget.*"

The experience of making a mistake, themselves also seemed to leave a lasting impression on participants. Clare spoke of a mistake she mistake she made when in simulation:

> *I accidently once gave a double dose of morphine, to the, fortunately just to the simulated patient not to a real patient. But, I didn't realize that it was two milligrams per milliliter instead of the one milligram per milliliter. My instructor pointed it out when I did it and he's like well, you wouldn't have killed them, but you gave them too much morphine and I'm like, not a mistake I'm gonna make in real life again. I made that mistake but*

fortunately I made it in an environment where I didn't cause grave harm to anybody. But, having made that mistake and having like, the professor know I made that mistake, kind of made me aware and hopefully will stop that from happening in the future.

When Clare told this story, I perceived that there were strong emotions still associated with the memory of this incident, although it had happened some time ago. Making mistakes is generally considered a negative thing. However, the participants focused more on the value of making mistakes and how it might prevent future mistakes with real patients. Perhaps Tori summed it up best saying:

But, it's totally worth going through it and feeling sometimes like an idiot when you make a mistake or realize, oh my God that was so stupid. I should have, you know, thought about it first but it is so beneficial in the end.

Fey (2014) conducted a qualitative study utilizing focus groups to identify nursing students' perceptions regarding debriefing. One of the themes identified in this study described students' perceptions of making mistakes. Similar to the findings of this study, participants in the study conducted by Fey (2014) described feelings related to making mistakes. For these students knowing that perfection was not expected in simulation created an environment that was conducive to learning.

Realism

When recounting the experience of realism, participants described two different types of realism. Participants spoke of the realism of the patient, and the realism of the situation.

Realism of the patient. When talking about their experiences in simulation participants spoke of limitations encountered with the manikins as well as the physical environment where the simulation took place. The most frequently mentioned limitation of simulation related to

having a manikin in place of an actual person as the patient. Participants expressed feelings of unreality due to inability to receive feedback from the manikin. One participant noted, *"You have to have a lot of imagination."*

Although, all participants noted that the nursing instructor "spoke" for the manikin, other feedback such as skin color, skin temperature, and certain pulses could not be ascertained through assessment but needed to be conveyed by the instructor. Lara commented:

> *I think a challenge is not receiving feedback from the manikin. Like you can't watch it's facial expression, um, or nonverbal cues, um, so that was very challenging.*

Emma described a similar experience:

> *It is a little awkward because you are with a manikin and so it is weird because there aren't certain things you can do like in some you can't feel a certain pulse or you can't give an IV med because they don't have an IV in, and so you're just supposed to pretend. So, it's kind of awkward.*
>
> *I was doing a pulmonary embolism simulation and they were supposed to have a DVT and you know their leg wasn't red, and other stuff that you would expect to see, so it was kind of like, you kind of feel like you have to say, 'Oh, their leg is red.' And, sometimes you have to, you know, whoever is running the simulation, you have to say, 'Oh, what's their temperature?' or something like that and it's awkward and it's hard to know what you are supposed to be able to do. So, sometimes you have to say like, 'Oh, I'm giving an IV med.' Or, can I actually give this, so it does take away from it I think.*

Emma also spoke about the difficulty of "holding" in her mind all the assessment information given to her by the instructor, things she could not observe on the manikin, at the same time she was trying to process what was happening with the patient.

Other participants also spoke about the lifeless nature of the manikin interfering with performing physical assessments especially when the patient was experiencing a change in condition. Such things as changes in neurological status or movement needed to be communicated to the student by the instructor lending an unnatural feel to the situation for the students. Gabe's comments summed up the feelings expressed by other participants:

> *You can't necessarily mimic what really happens. I mean you can try and try and try in the circumstance but honestly you can't put it into the real world… you are working with patients that aren't moving like real patients. You don't get that body language, um, you can't read them in that sense.*

When asked to describe a simulation that was memorable for them, two participants talked about their experiences with standardized patients in simulation. The descriptions of those experiences was in sharp contrast with the experiences with a manikin. The ability to communicate with the patients was emphasized by both participants. Emma described her experience:

> *There was one experience, um, I was in home health clinical last semester and they actually, um, invited theater students to do simulation and they had each of us, there was 10 of us in clinical, and they had each of us go in one at a time with the student and we weren't told what, we were just told that we were a making a visit so it was, you know, we had to figure out based on their symptoms what was going on. And, I thought it was really great because it was a real live person you were talking to and you know, they were actors so they were better able to kind of simulate what was actually supposed to happen, um, and there was, I mean my patient had diabetes and you couldn't, I mean she couldn't, I mean you can't look the part of diabetes or like in some situations they were*

supposed to be like an old man in heart failure, but it was nice to have someone talking to you and I felt like you could make more of a connection. And, I felt that they were better able to give feedback about how they felt we treat them as a nurse. Um, so I mean, I thought that was probably the best sim I have ever been a part of. It was nice to hear they felt I was responding to their needs and you know just what little things that I didn't notice I was doing, they noticed. My peers focused more about what I did clinically. In terms of did I listen to her signs and symptoms and you know, how did I take vital signs and stuff like that, but she was more focused on how I treated her like a person.

According to Nehring and Lashley (2009), standardized patients are used in simulation to provide experiences in communication, assessment, and patient interviews. Other scenarios where standardized patients are useful are in the areas of dementia care and violence prevention skills training (Nehring & Lashley, 2009; Webster & DiBartolo, 2014). Using standardized patients in simulations that rely heavily on body movements and other nonverbal cues such as facial expressions provides students with a sense of reality that cannot be replicated with manikins. The experiences of participants in this study suggests that using standardized patients in some simulations provides a better learning experience for students.

Realism of the situation. Another type of realism that participants spoke about was realism of the situation. This had both realism and lack of realism aspects. Some participants felt having nursing students play the roles of other disciplines was a negative aspect. Alexus, stated

It's kind of hard to take it seriously because we do it in groups with our class and so it's not like a real life situation, like what would happen. Because in a real life situation if a patient was like coding, you'd have doctors there and respiratory therapy and stuff like

that, not just your classmates. If we had doctors there it would be more realistic, but it's not too realistic. I think that would help out a lot because then you could learn how to communicate with a real, even if it was just like a resident or something or a medical student … because then you could know what the doctor is looking for in an order, cause now we just kind of pick up a fake phone and call a doctor and it's not really like one hundred percent true what you do in a real situation.

Some participants felt playing other roles, in particular that of family members, gave them a sense of how the family member might feel. Gabe felt this unique perspective would enable him to interact better with patient's families. Tessa also described feeling how playing a family member improved her ability to handle situations in the real world:

I played an overbearing mother … I asked them every question and I bugged them over and over again …I think you know having that experience it kind of makes you think about how you would deal with that in real life.

When describing the characteristic of realism of the situation, another aspect frequently mentioned by participants was that of their role as the nurse. Participants made comparisons between "*being a real nurse*" in the simulation lab, and their role as a student nurse in the actual clinical setting. Participants described feeling both challenged and excited about '*practicing the role of the nurse'* in simulation. When comparing the simulation experience to actual clinical Ellie said:

There's lots of times (in clinical) where things just get done, or they're already done. They're in the clinical environment and as a student nurse, a lot of times, especially this semester, with pediatrics and the ER experience, you're just watching. You're not

actually going in and doing assessments … in the simulation, it's more, and you're actually in charge of the person, the manikin.

Leah spoke about being able to do things in simulation that she was not able to do in actual clinical:

The simulations have taught me a lot of things I didn't know you had to do in real life. I just remember like when being in the hospital like, I never realized how many phone calls you have to make when it comes to what the patient needs. For example, we had to call, um, to get labs, we had to call to call to make sure the labs were actually coming back, we had to call because there was an allergy, we had to call because they were hungry and I never realized … that was probably one of the better things for simulation for me.

When comparing simulation to actual clinical students often mentioned the lack of teamwork and collaboration they felt in actual clinical. Hanna described her experience:

When we do simulation here, we do as a group. We do teamwork and that does help me understand that you're gonna be working on a team … no matter what department you go into.

Ellie also described the experience of teamwork in simulation as compared to actual clinical:

You also have like four other students with you, so it's not like you're being pushed into a room and saying take care of this person. It's four other people and you can be like, should we do this, yes, we should do this and no I don't think that's a good idea, so it's really nice.

Participants spoke about how simulation allowed them to practice the role of the nurse and work on a team, something they felt they were unable to do in actual clinical. However, they

also described how at times the unreality of the simulated environment interfered with the experience. Nathan remarked:

> *Sometimes we don't go through the actual real life motions of like scanning of the meds, and doing those kind of things, sometimes it is not all there and definitely in our sim labs we don't have EMARS and things like that. And, when we go to the unit we go on the computers, that's what we do… but they've (simulation) got like the papers and so sometimes like flipping through, I have seen other students do that where we get stuck and then we are like, okay, what do we do now and not everything is right there and we're used to that, that is kind of how we are being brought up in the profession that we can go and hit a button and we get labs and things like that.*

When discussing realism of the situation, participants often made comparisons between simulation and actual clinical experiences. Although, the simulated environment lacked many of the technical features of a real hospital setting, participants focused more on the differences in their roles and on teamwork. The descriptions of their experiences seemed to indicate that for the latter, the simulated environment actually provided the more realistic experiences of working as a primary nurse and as a member of a team.

In simulation, the term fidelity refers to the degree to which reality is replicated (Seropian et al., 2004). Fidelity most often refers to the type of manikin or task trainer used, however, it also refers to the recreation of a real-life situation. The degree to which students benefit from simulation may be directly related to the realism of the simulation. According to Jeffries and McNelis (2010), simulations must include realistic physical, emotional, and conceptual factors to make the learning experience as close to the real world experience as possible. Only then can students suspend disbelief and become immersed in the simulated learning experience.

Putting It All Together

When discussing their experiences in simulation, participants often referred to the time after simulation, the debriefing, as the most valuable part of the simulation experience. Participants identified the debriefing as a positive experience where they were able to reflect on their actions. This reflection together with feedback from instructors and peers assisted participants in gaining insight into their actions. Participants felt that debriefing helped them to integrate prior learning into their current practice. They often spoke of "*constructive criticism"* and stated this helped them to make connections. When asked to describe his experiences in debriefing Nathan said:

> *That's probably the best part of the whole experience. That's probably the part I pay the most attention to. You run through the sim, you kind of just run through it, you know, you stumble through the whole process and when we get to debriefing we really connect everything and we reflect on what we did and that's where we're all really like, we all talk about what we did, um, we talk about what we would improve and you really learn from it. We think back and okay we did this and we'll do things differently, um, definitely honing in on assessment skills and things like that is probably the most effective thing.*

Leah spoke about her experiences in debriefing:

> *That's really good because that's when the uh, simulation instructor really can say like you really did great on these key points, but let's go in depth and talk about these other ones and then you are really able to look at and be like, you know, during the simulation you guys didn't look up these medications but here's why you need to. Now, let's actually go and look them up and learn, and so it's really just forwarding, um, like forwarding what we're learning in class with simulation, with real life and it's*

information we're going to keep using. So, I think debriefing is probably one of the really key points about simulation. Like it's really important to do the methods and know how to do them but when you're debriefing it's important to know why (emphasis added) you did what you did. And, it's really good to hear, like the back and forth with the instructor, is probably what the best is.

Other participants recounted similar descriptions of their experiences in debriefing. Participants appreciated the close interaction with instructors and valued hearing not only what they did wrong, but what they did well. Clare explains:

I generally like it because sometimes I do things that could use improvement that I didn't pick up on when I was doing it. And, the professors are generally really good about saying, well this is what you did wrong, but here's also what you did right instead of just berating us for the mistakes we made. So, I generally really like the evaluation at the end.

Although all participants described debriefing in a positive way, one participant, Lara described feelings of anxiety related to debriefing:

I think there is still a little bit of apprehension just because you walk in that room and you see anywhere from 10 to 30 to 60 people all watching you come in and, um, you know, they all saw that and they all have their own opinion about how I did. And, I know everyone has a different level of how they handle personal criticism, that's not a strength of mine and so I think that there still is anxiety with that. And, sometimes depending on what comments are made during post conference, and they're valid, sometimes, I just have to shake it off and say, 'You know what, I did the best I could.' And I learned from it and move on and just try to forget about it.

Other participants spoke about the good feeling they got when they were the one in the group who was able to figure out what was wrong when their peers were "*clueless"*. One participant stated when he did well he felt like "*a champion"*. Luke probably articulated this experience best:

> *Once we leave the simulation we go back to the room … okay you did all of this right but you missed all of this so it's kind of, when you walk out you hope, you cross your fingers, it's okay, the good list is longer than the bad list. And, I was actually the nurse in a simulation today and, um, I feel like we did really well and we got back to the room and my peers and my teacher told us that, um, we all did really well so I felt good about that simulation.*

The debriefing process following simulation is a key part of the learning experience. During debriefings students have the opportunity to reflect on their actions. This reflection on action enhances learning. Debriefing began in the military. Following missions or training soldiers were brought together to analyze the events that had occurred and how develop strategies for how things could be done differently in the future (Johnson-Russell & Bailey, 2010). Debriefing is also a vital part of the learning process in healthcare simulation. The debriefing process enables students to reflect on their actions. This reflection fosters the development of clinical reasoning, clinical judgment, and critical thinking skills (Arafeh et al., 2010). Although, organizations such as INACSL have written simulation standards, including a standard for debriefing, specific techniques and guidelines are still being debated in the literature (Fey, Scrandis, Daniels, & Haut, 2014). Various debriefing techniques and strategies abound. Some commonly accepted strategies are to begin debriefing within five minutes of the

simulation, use of open ended questions, and making debriefing time at least three times the length of the scenario (Arafeh et al., 2010).

While experts debate best practices for debriefing, students are being debriefed following simulations in a variety of ways. The participants in this study were from three universities and the debriefing strategies employed varied between the three programs. In spite of the differences in debriefing technique, one thing was abundantly clear to this researcher; the participants felt the debriefing was the most important part of the simulation experience.

Having Value

The final essential characteristic of simulation to be discussed is that of Having Value. Although, participants spoke at length about such things as anxiety during simulation, and the powerful learning experiences in debriefing, the characteristic of having value was never far-off. Sometimes, participants mentioned having value in its own right, and at times when describing some of the other essential characteristics.

Several participants spoke of the opportunities they felt simulation provided them with, opportunities that were often missing from an actual clinical experience. Clare described simulation as an opportunity for her to perform skills that she did not have the opportunity to do in actual clinical:

> *I enjoy simulation very much. It think it is a great opportunity for me to get my hands on things I can't in regular clinical. Like, we're not allowed to do IV push or anything like that uh, we don't even, uh, I have never hung a piggyback in the actual hospital situations, only here in clinical so I love that I get my hands on things like that before clinical… I like that I've had the opportunity to do instead of to watch.*

Abby expressed feelings similar to Clare's:

I wish we got to do them more, had a little more opportunity. Because I mean, I know that we have all this awesome equipment and like, you know, crazy technology, to make these simulations and it's awesome to be in the hospital but especially as a nursing student there is only certain things you can do in an actual hospital setting. So being able to practice the skills we will be entitled to do once we're an RN is really beneficial. So, um, I wish we would do it twice a semester instead of once or just, you know, something, I don't know even just to master the feelings of anxiety.

Other participants described the characteristic of having value when they spoke of their experiences. One participant stated that he valued how simulation helped to transition from the classroom to an actual clinical setting.

I think it's, you know, a good way to kind of pull everything together before we are actually taking care of patients who are actually sick. I like it. I think it's a good element of nursing school.

Nathan also described how simulation had value for him:

It's very good to have. I wouldn't imagine a program without one. I do really like it given certain kind of flaws that are kind of inevitable. But as far as, um, bringing certain conditions together that we go over, cause we talk about them in our theory classes, we will see them on the clinical floor and simulation kind of fills in what we don't see, cause there are lots of things that we are taught that we don't see, so it does fill in the gap, which is very, very nice. So, I do enjoy it, it does have its flaws but you know there is only so much we can do about those ones, but I do enjoy them.

Another participant spoke of simulation as a good way to try things that she was not confident with. This participant liked how the manikin was an older patient, which gave her the opportunity to practice communication skills with a patient older than herself. Leah commented:

> *I had a fear of like authority with somebody who was older than me because we started right out in geriatrics and we went to med-surg. We've never had, I don't think I've ever had a patient under thirty and so, um, being able to, you know, playing the voice of the manikin, I guess, is able to throw some challenges at me that I can really practice and like kind of get the groove of words that I want to say and how to deal with situations… it's like a good way to get all your fears out on the table and then be able to do the same situation over and not interfere with someone.*

Perhaps, Tori summed it up best with her remarks about the value simulation had for her:

> *I think, you know, the schools that don't do simulation should look into including it and schools that do it should look into doing it more. Because I find that, yeah, clinical is beneficial but it's a hit and miss whether something is going to happen for the most part and simulation, you can have something thrown at you and you can learn how to deal with it without any real consequences. There's consequences in the moment but it's not a real individual and you learn, like okay, if this happens after I graduate that this is how I should start thinking and this is how I should start reacting.*

So, despite the lack of realism, the awkwardness of talking to a manikin, the anxiety of being observed by peers and professors and then hearing all the things you did wrong afterwards, participants still found value in simulation. This value seemed to outweigh the negative aspects.

Feingold et al. (2004) found that students valued simulation as a learning experience. This is further supported by the findings of Wotton, Davis, Button, and Kelton (2010) that

students were enthusiastic in their comments regarding simulation and expressed a desire for more simulation experiences. Many of the participants of this study also commented that they wish they could have more simulation in their nursing programs echoing Hanna's comments, "*I really like sim. I wish we had more.*"

Summary

The participants in this study described their experience of simulation in their nursing programs. These participants' stories contain a rich description of the simulation experience providing this researcher a greater understanding of what the experience of simulation is like for a baccalaureate nursing student.

Although each participant told a unique story, essential characteristics of the simulation experience were revealed. An analysis of the descriptions revealed the common ground between participants' experiences. Many of the participants' spoke of a feeling of anxiety associated with simulation. There was anxiety for participants just knowing they were going to participate in simulation. As one participant said, "*When we know we're going to have to do simulation … we're all terrified.*" In addition to an overall uneasiness regarding simulation, there were four characteristics of the simulation experience that caused anxiety. These were feeling unprepared, being observed, being judged, and anticipating the crisis. Participants spoke of each of this characteristics in the greater context of anxiety.

Participants also described the experience of making mistakes in simulation or even just witnessing a peer make a mistake. This experience seemed to leave a lasting impression on the participants. Although, participants did not want to make mistakes, in fact they feared doing so, they still found value in it when a mistake was made. Several participants spoke of how relieved they were that they made the mistake in simulation and not in actual clinical. They spoke of how

having made a mistake in simulation would prevent them from making the same mistake in actual clinical and they were grateful for this.

Realism, the replication of a real life situation, can be difficult to achieve in simulation. Participants described two types of realism when describing their experiences. One type was realism of the patient. In this type, participants described how it felt to work with a manikin instead of an actual patient. They described barriers to "pretending" the manikin was alive. Things such as skin color and temperature, no movement, and no facial expressions to provide cues to things such as pain or distress all interfered with ability to suspend disbelief when working with the manikin. Several participants spoke of feeling awkward talking to and providing care for the manikin. The inability to see physiological changes in the manikin made it difficult for participants to grasp quickly when the patient's condition was deteriorating. One participant remarked that it was difficult for her to remember all the signs she could not see (but was told by the instructor) such as the leg is red and swollen. This participant felt that it was difficult to hold these things in her memory while she was trying to assess what was happening with the patient.

Participants also talked about the realism of the situation. Sometimes they commented on how unrealistic the simulated hospital room was and how different the equipment was compared to what might be found in the actual clinical setting. For example, on participant mentioned that in the hospital students used the electronic health record, but in simulation the patient had a "paper chart". However, it was interesting to note that there was another side to realism of the situation, and this pertained to the roles that participants played in simulation as opposed to their actual roles in the clinical setting as nursing students. In this case, participants did not mind that the simulation was not the real experience they had in actual clinical. They described playing the

role of the RN and being allowed to do things in simulation that could not be done in actual clinical. Although, they felt this was not realistic, participants appreciated the opportunity to "*play the role of the nurse*" and to do things in simulation that they were not allowed to do in clinical such as giving IV push medications or calling a physician for a change in patient status.

Participants described the experience after the simulation scenario was over as a time for putting it all together. Although they sometimes feared the criticism of their peers and professors, they also spoke of liking the experience of talking about what they had done well and what needed improvement. Most participants talked about this experience as not only a time for learning but for personal growth. Comments were made about how the debriefing time after the simulation helped participants to make connections between what was learned in class and what they were doing in simulation. Many valued the close contact with instructors and felt this was a more individualized way to learn.

In spite of the anxiety, lack of realism and other barriers that participants described, they attributed great value to simulation. Participants described many beneficial features of simulation. One participant state, "*In spite of all the discomfort, it's still worthwhile.*" Others echoed that sentiment, another participant stating it was one of the best parts of nursing school. One lament heard from all students no matter what their individual experience of simulation, was that they did not get to do enough simulation and they would like to do more.

CHAPTER FIVE

REFLECTIONS ON THE FINDINGS

The purpose of this phenomenological study was to describe the experiences of baccalaureate nursing students during simulation. Descriptive phenomenology is used when little is known about a phenomenon. As the use of simulation increases there has been a corresponding growth in the literature regarding simulation. However, the literature describing the student experience in simulation is scant, even though simulation has been used in other disciplines such as aviation and the military, as well as in nursing education for some time. Understanding the student experience is important for nurse educators as the use of simulation increases in nursing education. The knowledge gained from this study can be used by nurse educators to design and implement learner centered educational experiences in simulation.

Introduction

From the interviews of 15 baccalaureate nursing students, a description of the simulation experience emerged. Giorgi's (2009) method of data analysis was followed to discern the essential characteristics of the simulation experience. Five essential characteristics were identified. They were Anxiety, Making Mistakes, Realism, Putting it all Together, and Having Value. Two of the essential characteristics had components that were distinct from each other although clearly a part of the essential characteristic. The characteristic of Anxiety also had components of being unprepared, being observed, being judged, and anticipating the crisis. The essential characteristic of Realism had two components, that of realism of the patient and realism of the situation. Each of these five essential characteristics was described in the previous chapter and supported by student comments. In this chapter, the meanings and understandings of the findings are discussed in relation to each essential characteristic and of the experience as a

whole. Implications and relevance of the findings for nurse educators are offered. Strengths and limitations of the study are examined. Finally, recommendations for future research are made.

Assumptions

Prior to conducting this study, the researcher held assumptions about the student experience in simulation. One assumption was that the student experience in simulation differed from the student experience in the clinical area. Participant comments supported this assumption. When describing their experiences in simulation, participants often made comparisons between the simulated experience and the clinical experience. These comparisons were seen in all of the five essential characteristics, but particularly when participants spoke of the essential characteristics of Anxiety, Making Mistakes, and Realism.

Another assumption held by this researcher was that simulation provides a unique learning experience for students. This assumption was also supported by the findings of this study. Participants spoke of how simulation provided them with a learning experience that was unlike any other they encountered during their education.

From personal experience, this researcher has observed that students are unfamiliar with simulation and what is expected of them during simulation. This was particularly true for students who had little experience in simulation. The participants of this study expressed similar views. Participants frequently referred to not knowing what they were expected to do. Participants in the junior level expressed greater feelings of uncertainly than seniors.

This researcher also felt that there were student perceptions regarding their experiences in simulation that faculty are unaware of. The findings of this study support what is already known about the student experience in simulation. Participants of this study reported feelings of anxiety, difficulty with the unrealistic aspects of simulation, and of the value that they placed on

simulation. These findings are supported in the literature, however they are some variations in the findings of this study that contribute new knowledge. For example, when speaking of realism participants spoke not only of the limitations of the HPS, something that appears frequently in the literature, but also of the differences between their nursing student role in clinical and being in the role of the nurse in simulation. This was an aspect of the essential characteristic of Realism that participants valued. Another unique findings of this study was the value participants placed on making mistakes in simulation. Rather than viewing this as a negative experience, participants of this study saw making mistakes in simulation as an opportunity for learning.

The final assumption held by the researcher regarding this study was that participants would experience simulations done for evaluation differently than simulations conducted solely as a learning experience. This assumption was not borne out by the findings of the study since no participants of this study engaged in simulation for evaluative purposes.

Meanings and Understandings

Each participant described their experiences in simulation. Although the descriptions were unique five essential characteristics emerged from the students' stories. Following is a discussion of the essential characteristics of the simulation experience for the participants of this study.

Anxiety

The essential characteristic of Anxiety had four components. These four components differed from the essential characteristic of anxiety, however caused anxiety and therefore were a part of that essential characteristic. Most participants spoke of feeling anxious. Although there were three participants who denied feeling anxious themselves, they easily identified anxiety in

their peers. Some participants spoke of feeling "terrified" and described physical manifestations of anxiety such as "literally shaking".

Feeling unprepared. Participants spoke of feelings of being unprepared that related to unclear expectations and lack of preparation time before the simulation. Techniques for implementing simulations varies among nursing programs. However, according to Brewer (2011) setting clear expectations and allowing students time to prepare for simulation activities improves the learning experience. Standard IV of the INACSL Standards of Best Practice in Simulation addresses the preparation time before simulation, often called prebriefing (Franklin et al., 2013). During this time students should be oriented to the equipment, provided with ground rules for the simulation, given background information regarding the simulation scenario and then given time to develop a plan (Franklin et al., 2013). The length of time devoted to prebriefing will vary according to the objectives of the simulation.

Participants of this study spoke of a better learning experience when given time to prepare for the simulation beforehand. This preparation often took the form of a "mini report" where students received the patient's diagnosis, comorbid conditions, medications, and treatments the day before the scheduled simulation. One participant who had experienced simulation with and without time to prepare, expressed a preference for receiving information in advance of the simulation. This allowed the participant an opportunity to use that information during the simulation to assess the patient's condition and to plan care accordingly. This was important to participants who often found it difficult to make sense of what was happening to the patient with no prior information or information presented minutes before the simulation started. When receiving information just prior to the simulation, one participant described feelings of frustration when trying to make sense of the situation and intervene in a timely manner before

"the patient dies". Feeling unprepared heightened the sense of anxiety for those participants who spoke of it. These findings are supported by Beischel (2013) who found students that reported feeling ill prepared for simulation experienced more anxiety.

Being observed. Being observed during simulation also heightened the sensation of anxiety for participants. Participants described being observed as "intimidating" and "nerve wracking". One participant spoke about difficulty concentrating due in part to knowing that others were watching. This participant felt that during simulation "the stakes were very high" because classmates and the professor were watching. This correlates with the findings of Parker and Myrick (2012) that being observed during simulation causes students the sensations of anxiety, fear, and stage fright.

Some of the participants experienced simulation in large groups sometimes with 20 or more students observing. These participants expressed greater feelings of anxiety stemming from being observed than did students who reported simulation experiences in groups of seven or less. Participants who experienced larger simulation groups talked more about concern over what others were thinking of them. These participants, who themselves had been observers in large groups at some point, described the experience of knowing that others were viewing the simulation from a remote location. They reported that observers in the remote location often made demeaning comments about the students during the simulation. This knowledge caused increased feelings of anxiety for these participants. This was in contrast to participants who experienced small group simulations. Participants in small group simulations talked more about the interactions among participants and expressed less anxiety in relation to being observed. One participant who had experienced both large and small group simulations expressed a preference

for small group simulations stating that small group simulations were more memorable; there was more interaction between participants and that all participants "get a chance to do things."

Only one participant mentioned being videotaped during simulation. This participant was speaking about being observed and mentioned videotaping as part of the experience; however, videotaping was not the cause of anxiety. This is in contrast to the findings of Elfrink et al. (2009) that being videotaped and viewing the videotape during debriefing was one thing students most wanted to change. In fact, Elfrink et al. (2009) found students viewed videotaping so negatively that faculty feared it would alienate students toward simulation. The experience of this researcher supports the findings of Elfrink et al. (2009). In working with students in simulation, this researcher found students reacted negatively to being videotaped and even more negatively to watching the videotape during debriefing. Additionally, participants in this study did not mention viewing the videotape after simulation. If in fact they did not view the videotape, this might explain why they expressed no anxiety regarding filming.

Being judged. Another component of the essential characteristic of anxiety was that of being judged. The participants' perception of being judged by peers and professors caused a sense of apprehension. Some of this apprehension stemmed from imagining what peers were saying about the participants as they observed the simulation. At other times, the apprehensive feeling arose from the anticipation of awaiting the judgment. One participant summarized this when she stated, "*… I am going to have to sit there and listen to everything I did wrong while I was in a stressful situation"*. Participants spoke of having their "every move" critiqued. One participant felt that being judged by the professor was worse than being judged by peers.

Although the two essential characteristics of being judged and being observed shared some commonalities, the experience of being judged differed from that of being observed. When

participants spoke of being observed they mainly focused on being watched by others. When describing being judged, participants talked more about how they perceived that the observers would judge them. Participants often anticipated negative judgments from those observing.

Anticipating the crisis. During the simulation experience students are often faced with a patient in crisis. Commonly, simulation scenarios begin with a stable patient who quickly deteriorates with life threatening problems. The majority of the participants discussed this experience in a negative light referring to "the curve ball" that faculty could throw at them at any time. Participants spoke of how the patient was alive and well and talking to them one minute and in cardiac arrest the next. The comparison of anticipating the crisis in simulation to watching a scary movie was made. Knowing that something is going to "jump out" doesn't make it less nerve wracking. Participants reported being distracted by thoughts of what was coming, so much so that when the crisis actually occurred they did not know where to begin. Only one participant had a positive view of anticipating a crisis. This participant felt that anticipating potential problems in a patient is very important in nursing and that practicing this in simulation was helpful.

The level of the participant had an effect on the amount of anxiety caused by anticipating a crisis. Senior level participants (n=8) reported less anxiety than did junior level participants (n=7). This may be due to several factors. Seniors have more knowledge, and clinical experience from which to draw on. They also have more simulation experience. Although, senior level participants seem to express less anxiety than juniors, all participants talked about the anxiety they felt during simulation experiences.

Making Mistakes

Although students described anxiety, they also recognized that simulation provides a safe environment where students can make mistakes and not harm actual patients. The essential characteristic of Making Mistakes, although seemingly related to being judged, did not cause anxiety in participants. Rather, several participants in this study spoke about the value of making mistakes in the simulation lab setting rather than when working with real patients in the clinical area. The ability to correct their mistakes and discuss the consequences of their actions with faculty made something that would ordinarily be perceived as a negative experience, a positive one for participants of this study. Making a mistake in simulation seemed to make a lasting impression on participants. Although, some spoke of mistakes they had made, others talked about mistakes their peers made during simulation. In either case, participants learned valuable lessons from these mistakes. Similarly, Lasater (2007) found students felt they learned the most from the experiences where they performed the worst.

Realism

Another essential characteristic of the simulation experience revealed in this study was that of Realism. In simulation, realism is the extent to which reality is replicated. According to Feingold, Calaluce, and Kallen (2004) the most successful simulations are those that recreate real-life situations. Cordeau (2010) found that the more realistic the setting, the easier it was for the students to immerse themselves in the simulation.

The participants in this study described how realism effected their experiences in simulation. Two types of realism were identified from the participants' comments. These were realism of the patient and realism of the situation.

Realism of the patient. When referring to realism of the patient, participants often spoke of working with the manikin. In fact, the most frequently mentioned limitation of simulation was that of having a manikin in place of an actual person as the patient. All of the participants noted that the instructor or another student gave verbal feedback for the patient and that this was helpful in establishing a sense of realism. However, there were other limitations encountered when using a manikin that made it difficult for participants to put aside the unnatural feel of the simulation. Participants described feeling like they were acting or that they needed a lot of imagination during simulations.

Performing physical assessments, particularly those that involved a change in patient status were difficult due to the lifeless nature of the manikin. Oftentimes, participants had to ask things such as what is the skin color or temperature, does the patient have edema? Sometimes, the manikin was not prepped to show the assessment findings, but at other times there was an acute change in condition that could not be observed unless the simulation was stopped and changes were made to the manikin. Participants found this aspect of simulation unnatural. One participant spoke of the difficulty of "holding" assessment findings that she could not see, in her mind, while she continued to gather and process information. Lack of nonverbal cues and body movement were other aspects of working with the manikin that adversely effected realism during simulations. The feelings of several participants' were summed up in the words of one participant who said, "… you are working with patients that aren't moving like real patients. You don't get that body language, um, you can't read them in that sense".

Some participants spoke of working with standardized patient actors. This experience was in stark contrast to working with the manikin. Although, participants did feel it was somewhat unreal for a healthy person to portray a patient with significant health problems that

was not the focus in the descriptions of the standardized patient experiences. Communication was the aspect of those experiences that participants spoke about the most. Those who described these experiences emphasized the connection between themselves and the patient. Feedback from the standardized patient was also listed as a benefit over working with a manikin. Feedback came in two forms, during the simulation in the conversation with the patient and after the simulation during debriefing, as the standardized patient would provide feedback. It was interesting to note that some participants described feeling that the feedback from the patient was valuable in a different way than feedback from peers. Those who spoke of this experience felt that peers focused on the technical aspects such as performing skills; while, the patient gave feedback on how they felt they were being treated and how the student responded to them and to their needs. Using the manikin does not afford this type of feedback.

Realism of the situation. Realism of the situation was another component of the essential characteristic of Realism. Participants described the experience of playing roles other than the nurse during the simulation. This component was discussed in both positive and negative terms. Participants described playing the roles of other disciplines in a negative light. For example, participants felt that calling the doctor, who was played by another nursing student, was not that helpful in learning how to communicate with physicians. Participants also felt that playing the role of doctor or other provider was "easy" because they always got a script to read from. When talking about playing the role of family members, however, participants spoke more positively. Participants felt that role playing family members gave them a better sense of how families might be feeling. This perspective enabled students to interact better with family members in actual situations. This corresponds to Beischel's (2013) findings that playing the

role of the family member assisted students with understanding the experience from the perspective of the patient's family.

When discussing realism of the situation, comparisons were made between simulation and clinical experiences. Here participants discussed their experiences of being in the role of the nurse in simulation as compared to being in the role of the student nurse in clinical. Although at times they were uncertain of the nurse role, participants described feeling challenged and excited by being able to do things in simulation that they could not do in actual clinical. Participants also described feelings of teamwork and collaboration in the simulated experience. They described this as different from actual clinical where participants said they were often alone with no immediate support from peers or instructor.

There were other differences between the simulation experience and the clinical experience that related to realism of the situation. These differences related to unrealistic environments in which the simulation took place, and equipment or technology that did not reflect what is being used in practice. Several participants mentioned the practice of using paper charts in simulation instead of electronic health records as an example of an unrealistic environment. Although, the simulated environment often lacked the technical features of an actual hospital, participants focused more on the differences in role and the ability to work as a member of a team when describing realism of the situation.

Putting It All Together

The essential characteristic of Putting It All Together emerged from the participants descriptions of the debriefing phase of the simulation experience. Debriefing, following a simulation, is a critical part of the experience often lasting two to three times as long as the simulation itself. Most of the learning from simulation has been reported to take place during

debriefing (Arafeh et al., 2010). According to Arafeh et al. (2010), "Debriefing is often a delicate balance of passing judgment without being judgmental" (p. 305). During debriefing students are able to reflect on their actions and it is through this reflection that learning occurs.

The participants spoke of different debriefing strategies that were employed by the three universities they attended. Even with different experiences in debriefing procedure, all of the participants of this study expressed the opinion that debriefing was the most important part of simulation. Several participants spoke of the experience of reflection on their actions after simulation during the debriefing phase. They referred to debriefing as the part where, "… we really connect everything." Others commented that through discussion and reflection they were able to think through how they might do things differently and that this enhanced learning. Still others stated it was the part they paid the most attention to because it was the key part of simulation where they began to understand why they need to do certain things, not just how to do these things. The words of one participant talking about debriefing summed up the sentiments of most saying, "That's probably the best part of the whole experience".

Participants valued constructive criticism of their performance, not only from professors but from their peers as well. Although seemingly the same, the debriefing critiques differed from the feeling of being judged that participants spoke of in relation to anxiety. The feeling of being judged came from an awareness that other students might be making negative comments while observing the simulation. This was in contrast to the descriptions of debriefing where students felt the comments were positive and aimed at helping them to learn. Although several participants did comment on feelings of apprehension when entering the room for debriefing, these comments were made mainly by participants of large group simulations. Participants in

groups of seven or fewer students expressed little to no feelings of apprehension related to debriefing.

The skill of the faculty facilitating the debriefing also seemed to influence the experience of debriefing for the participants. Some mentioned that some professors were "better" than others during debriefing. Many spoke of the good feeling they got when they when felt they had done well and this was affirmed during the debriefing by their peers and the professor. Referring to how he felt when he did well one participant said he felt like "a champion".

The importance of the faculty role during debriefing is supported by two of the INACSL Standards of Best Practice in Simulation that address the competency of the debriefing facilitator. Standard V states that to be proficient a facilitator must have education in simulation including formal coursework, continuing education and work in simulation with a mentor (Boese et al., 2013). The debriefing process itself is addressed in Standard VI. In this standard, the importance of education for those facilitating simulation is reiterated. Criterion 1 for this standard provides guidelines to ensure competency for the simulation facilitator. Some of the recommendations are that simulation facilitators should have formal training and competency assessment as well as actively maintaining skills through simulation experiences (Decker et al., 2013). In order to promote student learning through simulation, the debriefing facilitator must possess the skills to assist students in creating new knowledge through reflective thinking (Decker et al., 2013). Faculty who act as simulation facilitators should have specific education in simulation (Boese et al., 2013).

Having Value

The final essential characteristic identified in this study was Having Value. All participants spoke of the value that simulation held for them and felt simulation was an important

part of a nursing program. These findings are similar to the results of early studies showing that students were satisfied with simulation as a teaching strategy (Fountain & Alfred, 2009; Smith & Roehrs, 2009).

One of the aspects of simulation that participants valued the most was the opportunity to do things in simulation that they could not do in the clinical setting. Several mentioned that in addition to practicing skills, simulation also afforded them the opportunity to encounter situations they most likely would not see in actual clinical. One participant summarized this when saying, "*… there are lots of things that we are taught that we don't see, so it does fill in the gap…*"

Some participants appreciated the opportunity to work as the nurse in simulation saying this would help them to transition to the workplace after graduation. New graduates are challenged by the complex healthcare environment they encounter. Students routinely have one or two patients in the clinical experience yet are expected to manage the care of a group of patients upon entering the workforce. Simulation opportunities such as a multiple patient scenario provide students with an experience managing a group of patients and focusing on skills such as prioritization and delegation (Chunta & Edwards, 2013).

Participants also valued the opportunities simulation experiences provided to try things they were not confident with. Still others valued simulation for the ability to see the consequences of their mistakes without harming an actual patient. Overall, participants attached great value to their simulation experience. Although, they identified flaws to simulation such as feelings of anxiety, and lack of realism, the value of simulation seemed to far outweigh the negative aspects for the participant of this study. In fact, many of the participants stated that there should be more simulation in their nursing programs.

Implications and Relevance of the Study for Nurse Educators

The findings of this study have many implications for nurse educators, particularly those who work with or plan to work with simulation. As the use of simulation continues to grow in nursing education, more nurse educators will be using this teaching strategy on a regular basis. In order to provide students with a good learning experience nurse educators must understand the experience from the students' perspective. Additionally, nurse educators must use best practices when designing and implementing simulations. The participants in this study provided descriptions of their experiences that will be helpful to nurse educators in understanding the simulation experience from the student perspective. What follows is a discussion of how the information from this study can assist nurse educators in designing and implementing more effective simulation experiences.

Most of the participants in this study expressed high levels of anxiety related to simulation. The terms "literally shaking" and "terrified" were used by two of the participants. Generalized anticipatory anxiety was described by participants, as well as four individual aspects of the simulation experience that caused anxiety. There is some evidence in the literature that low to moderate levels of anxiety can improve performance and learning (Demaria, et al., 2010; Girzadas, Deliskn, Bose, Hall, Rzechulo, Kulstad, 2009); whereas, high levels of anxiety negatively affect performance and learning (Cheung & Au, 2011; Prabhu, Smith, Yurko, Acker, & Stefanidis, 2010). In order to enhance learning through simulation nurse educators should attempt to minimize the anxiety that students experience during simulation.

There are several strategies that nurse educators can use to minimize anxiety related to simulation. Many participants mentioned that feeling unprepared led to greater feelings of anxiety for them and they wished they had more information about the patient and more time to

prepare prior to the simulation. While there are times when having little information or time to prepare is appropriate, for most simulations this is probably not the case.

The time before a simulation is defined as the prebriefing phase. The prebriefing phase is used to provide students with information including an orientation to equipment, roles, time allotted for the simulation, objectives and patient information (Meakim et al., 2013). The 10 minutes or so immediately preceding the simulation is the time suggested in the literature (Gaba, 2007; Meakim et al., 2013) for the prebriefing. However, participants of this study indicated that providing students with information about the patient, their disease process, treatments and medications at least a day prior to the simulation helped to decrease the anxiety related to a feeling of being unprepared. This is especially true for junior level students who expressed this anxiety more than senior level students. Presumably, seniors have more knowledge, clinical, and simulation experience to draw upon leading to less anxiety related to feeling unprepared.

Another source of anxiety for participants was that of being observed. Although most participants described this experience, it seemed more intense for those participants who took part in large group simulations of greater than 20 students. Nurse educators can avoid this by conducting simulations in smaller groups. Participants of this study reported less anxiety related to being observed with groups of seven or less. Most clinical groups may be 10 or 11 students but nurse educators should work to not go beyond this number. If larger groups are necessary then nurse educators should better prepare students for larger types of scenarios.

Even though participants whose simulation groups were smaller experienced less anxiety, they did speak of the practice of having observers in the same room standing near the bedside watching them. This practice did cause some anxiety for them. Nurse educators who employ this practice should consider removing all observers from the simulation area and having them

observe from a remote location such as a classroom. If it is not possible to have observers in a remote location, faculty might consider assigning ancillary roles, such as additional family members, to the observers. Students in these roles would have little to no actual participation in the simulation but may produce less anxiety for the active participants.

Participants also expressed anxiety in relation to the feeling of being judged. This feeling stemmed from the critique of both peers and professors. Fey et al. (2014) described a safe learning environment as one where students are not fearful of the judgments of others. When students are not worried about what others are thinking of their performance, they are able to more fully participate in the simulation, take risks and ask questions. Although, critiquing performance is an important part of the simulation experience, the manner in which this is done can transform a powerful learning experience into a devastating memory for the student. To prevent this faculty must be trained in the art of debriefing. Most faculty are familiar with conducting post conferences following a clinical experience. However, the debriefing that follows simulation is different from a post conference. One notable difference is that during post conference following an actual clinical experience all students will discuss some aspects of their day, so the focus of attention is rarely on the performance of just one student. In simulation the situation is reversed with all students observing the care of one patient that is provided by one or two students. The student or students providing the care become the focus of attention fostering a feeling of what participants in this study referred to as "being on the spot". This feeling of being the center of attention was cited as a cause for anxiety by participants.

In order to provide students with a learner centered debriefing experience where reflective conversation promotes learning and improves critical thinking, nurse educators must be familiar with best practices in debriefing. Without this knowledge nurse educators may

utilize debriefing techniques such as asking closed questions, being overly critical, or focusing entirely on errors (Nehring & Lashley, 2010). This results in increased student anxiety and consequentially decreases learning. Debriefing skills are important to ensure learning. In order to be competent in debriefing, the INACSL Standards of Best Practice in Simulation recommend that nurse educators receive formal training on structuring and facilitating the debriefing experience (Decker, et al., 2013). Prepared nurse educators is essential to student learning during debriefing.

There will always be an element of judgment to the debriefing process following simulation. How this is handled by the faculty influences the experience for students. In a study conducted by Ganley and Linnard-Palmer (2012) noted significant student/faculty differences in their descriptions of a safe learning environment. This mismatch between student and faculty perceptions suggests that faculty need a better understanding of student experience in simulation in order to provide more learner centered experiences. The authors offered some suggestions for promoting an optimal learning environment in simulation. Among them are to orient the student to the learning environment prior to simulation, allow students time to prep prior to the experience, provide positive constructive criticism while avoiding an emphasis on failure, and developing simulation etiquette guidelines for faculty and students (Ganley & Linnard-Palmer, 2012).

The last aspect that triggered anxiety for participants was that of “anticipating the crisis”. Most simulations average about 20 to 30 minutes in length and begin with a stable patient. That quickly changes as most simulated patients will experience an adverse event early on in the simulation and deteriorate rapidly. The amount of time for a scenario dictates that things must happen quickly, however this is often an unrealistic situation. Although critical events do occur

unexpectedly with patients deteriorating rapidly, participants commented that in the clinical experience, it rarely happened that a patient in their care experienced a crisis and they were not anxiously waiting for something to happen. However in simulation, participants did anticipate a problem and expressed that waiting produced anxiety, and was very distracting as they were trying to anticipate what the "curve ball" would be rather than concentrating on what was actually happening in the moment. The implication for nurse educators is that not all simulations should involve a crisis. In the actual clinical setting, every time a nurse walks into a patient's room he or she does not expect a crisis to occur. Imagine how stressful that would be! Students should not be subjected to life or death situations every time they experience simulation as this heightens anxiety and does not reflect reality. Simulations based on assessments, interventions and treatments can provide students with learning experiences that are as important/effective as emergency situations.

Additionally, the difficulty of a simulation should be based on the student's level and the learning objectives for the simulation. Students should have been familiarized with content and the skills required for the simulation to ensure they have the abilities for successful decision making (Willhaus, 2014). Students just beginning clinical experiences will be challenged by making routine assessments and performing psychomotor skills, while senior level students will benefit from more complex situations such as a multiple patient scenarios. An example of increasing complexity would be a scenario involving the care of a post-operative patient where the complexity of care increases for advanced levels of students. In the care of such a patient beginning students would perform routine assessments, administer medications and change the post-operative dressing as part of their experience. More advanced students could manage acute problems such as excessive incisional bleeding, uncontrolled pain, or fluid overload. Those

students at the most advanced levels caring for this same patient, might encounter respiratory distress in the patient or care for this patient in a multiple patient scenario that allows students the opportunity to manage a group of patients. By matching the learning objectives to the student's level, nurse educators will not only provide a better learning experience but will decrease anxiety that students may feel encountering patient care situations beyond their abilities.

The essential characteristic of Making Mistakes was one that made deep and lasting impressions on participants. Students will always make mistakes, in fact participants indicated that they expect to make mistakes and view discussion of these mistakes as one of the benefits of simulation. This seems to contradict the negative association with the experience of being judged that participants also spoke of. However, when describing the feeling of being judged, participants talked about negative comments or judgments they imagined others were saying or thinking about them. The essential characteristic of Making Mistakes involved positive feelings related to constructive criticism. Several participants spoke of the ability to make mistakes in a simulation where no harm could come to an actual patient. They described learning from their own mistakes as well as those made by their peers. How mistakes were handled, it seems, is the key to whether participants were able to benefit from the experience or if they were fixated on the mistake reliving the experience without deriving any benefit from it. Most participants described the former experience where, although, deeply affected by what happened, they talked about it in a positive light and discussed what they learned from making or observing someone else make a mistake. Participants talked about faculty creating an atmosphere where students felt comfortable talking about their mistakes and asking questions to better understand the experience. It is important for nurse educators to create such an environment in simulation

where students feel they can take risks and not feel afraid to make mistakes (Ganley & Linnard-Palmer, 2012).

There is benefit to learning when students see the consequences of their mistakes; so, it would be unwise to have an expectation that no mistakes will occur during simulation. However, nurse educators should to take extra care to matching the complexity of the simulation to the level of the student. Students will benefit more from the mistakes they make during simulations that are appropriate to their level. Mistakes made in simulations that are too complex or above the knowledge level of the student may lead to further anxiety as the student will most likely not be able to learn from them and may be left with a feeling of uncertainty and inadequacy.

The debriefing phase of simulation is considered by many to be the most important part of the simulation and therefore critical to learning (Arafeh et al., 2010). Creating a simulation environment where students feel comfortable openly discussing their mistakes allows students to fully participate in the simulation without fear of embarrassment (Fey, et al., 2014). Ganley & Linnard-Palmer (2012) described a safe learning environment as one where students are respected, given positive and constructive feedback, and supported by faculty and peers. Nurse educators can promote a safe learning environment by setting expectations or ground rules for the simulation and debriefing. Standard II of the INACSL Standards of Best Practice in Simulation recommends that the simulation environment is one of mutual respect between facilitators and students. This is achieved by providing clear expectations for the attitudes and behaviors of the participants (Gloe et al., 2013). Acknowledging that students are expected to make mistakes and will not be reprimanded for those mistakes, promotes an environment that encourages students to explore their mistakes and learn from them (Fey et al., 2014).

The participants' descriptions of realism, both of the patient and of the situation, also hold insights for nurse educators. Participants spoke at length about the limitations of the manikin in relation to communication and the ability to manifest physiologic signs especially those associated with a deterioration in patient condition. All participants had the experience of the faculty or a fellow student using a wireless microphone to transmit their voice through the simulator. Even so, participants felt communication with the simulated patient was limited. Lack of nonverbal cues such as facial expressions was an often mentioned impediment to communication. Another difficulty was the inability to detect change in the patient's level of consciousness. Some participants described not knowing if the patient was sleeping, ignoring them or had become unresponsive. Participants also mentioned that it was unreal when the patient's vocal sounds did not match the gender or age of the person playing the role of the patient. For example, when using live voice a female student spoke as the voice for a male patient. This cannot always be avoided, but nurse educators should be sensitive to this limitation and try to have the voice of the patient be as realistic as possible. The nurse educator should consider the use of a standardized patient in situations where the patient's nonverbal communication and/or body movements are difficult to replicate with the manikin, yet provide important cues for the students.

Two participants spoke at length about their simulation experiences where standardized patients were used. Both participants viewed their experiences with actors playing the role of the patient in a very positive light. Participants valued the ability to communicate with the patient in a way that did not seem artificial. The ability to see nonverbal communications such as smiling or nodding improved communication. Participants also felt less awkward talking with a "real person". One participant talked about the experience of receiving feedback from the

standardized patient about how the patient felt the student had treated her. The participant found this feedback to be different from the feedback of fellow students that tended to focus more on the technical aspects of care. Although the use of standardized patients is not always possible, due to availability of actors to play the roles and to the nature of some simulations, there are times when the nurse educator should consider using a standardized patient in the place of a manikin. For simulations where communication skills need to be developed such as in the care of psychiatric patients, a standardized patient would be more appropriate (Kameg, Mitchell, Clochesy, Howard, & Suresky, 2009). The use of standardized patients is also valuable in simulations such as those involving end of life issues and dementia care where communication skills and nonverbal cues are essential to student learning (Leighton & Dubas, 2009; Webster & DiBartolo, 2014).

Other limitations to the manikin were the inability to manifest physiological changes as the patient's condition changed. This included things such as the development of cyanosis, or edema. Changes in neurological status was also hindered by lack of movement of the extremities. Participants found it cumbersome to repeatedly ask for assessment findings. As in the case of the patient with a deep vein thrombus (DVT), the participant commented that she had to ask if the leg was red, warm to the touch or swollen. These are findings that would have been assessed in the clinical experience by looking or touching rather than asking the faculty for that information. These limitations proved distracting to participants, particularly as they tried to remember all the information that could not be seen while they were trying to piece together what was happening to the patient. With this in mind, nurse educators need to choose simulations that are appropriate for the type of simulator that will be used. Standard V of the INACSL Best Standards of Practice states that the level of fidelity used in a simulation should

assist the students to meet learner outcomes (Boese, et al., 2013). If the assessment findings cannot be reasonably replicated through the use of moulage, than perhaps the simulation is one that is served best through the use of a standardized patient or case study.

There are many resources available to assist nurse educators in creating things such as wounds, discolorations, and secretions. Nurse educators should be aware of these resources and learn techniques to create a more realistic appearance for the manikin. For example in the DVT scenario described by one participant, a picture of a red swollen extremity could be taped to the manikin for the student to assess.

Also, to be avoided or carefully planned are simulations where the patient starts with normal assessment findings and then experiences changes. In simulations where the changes are things the manikin is capable of such as changes in breath sounds or heart rhythms, realism is maximized. But changes in skin color, skin temperature or swelling that occur as the simulation unfolds can be challenging to replicate. The nurse educator needs to take into consideration the objectives of the simulation and choose simulations and level of fidelity that replicate reality as much as possible.

Some participants stated that simulation required a lot of imagination and due to equipment and the surroundings it was often difficult to imagine they were in the environment the simulation was intended to take place in. These were references to environmental fidelity, the extent to which the physical surroundings resemble the environment. For example, when simulating the care of a patient in the Intensive Care Unit (ICU) the simulation room should resemble a real room ICU room to the extent possible. Students will still learn and derive benefit from simulation in a "let's pretend" environment, but the more a student has to imagine, the less able they will be to immerse themselves in the experience. To assist students in dealing with the

unreality of simulation, Fey et al. (2014) discussed the use of a fiction contract. A fiction contract asks students to suspend feelings of disbelief, prior to the initiation of the simulation.

Realism of the situation also referred to differences between clinical experiences and the simulation experience. In this case, the participants had mixed feelings. When discussing documentation participants found it unrealistic to use paper charts in place of electronic health records (EHR's) that are used in the clinical setting. Participants not only found it unrealistic, but also confusing to use EHR's in the clinical experience and paper charts in the simulated environment. Many health care facilities are transitioning to EHR's making paper charts obsolete (Bristol & Zerwekh, 2011). Reflecting this change, students are now learning to document using an EHR in the clinical setting. In order to increase the realism of simulation, nurse educators should use EHR's in the simulated environment as well. This presents a challenge for nurse educators who do not have EHR's available for use in simulations. Simulated EHR's for educational use can be costly. However, there are other options available to nurse educators. For example, Pocket Nurse ® has available for purchase a Microsoft® Word document that simulates an electronic health record. This document allows nurse educators to enter patient information into a medical record. Students are then able to retrieve this information as well as enter assessments, vital signs, and chart medication administration. Many text book companies also have simulated versions of EHR's that nurse educators can use. Nurse educators can choose the product that is best suited to the needs of their programs. Which simulated EHR is used is not as important as teaching students the principles of electronic documentation (Bristol & Zerwekh, 2011). Nurse educators should replicate the clinical situation in documentation and information retrieval in order to provide students with a more effective learning experience.

Conversely, participants valued the ability to assume the nurse role in simulation instead of the student nurse even though this was not realistic. In simulation students may be asked to perform tasks that they do not do in their student nurse role. For example, calling physicians, transcribing orders, and administering blood. Although, participants did describe difficulty assuming the role of the nurse they felt this was very beneficial helping them to "think like a nurse." Being cast in the nurse role allows students to learn skills needed for clinical practice after graduation.

The participants' descriptions of simulation clearly identified debriefing as the most important element of the experience. Participants defined debriefing as the time when "everything comes together". Reflecting on their actions and those of their peers provided them with insights and learning that they could not gain from either the classroom or clinical experiences alone. The debriefing process was where classroom learning and clinical practice became one for them.

Participants spoke of the how faculty's abilities in debriefing could influence the experience. This is similar to the findings of a study conducted by Fey et al. (2014) that indicated students felt the skills of the facilitator were crucial for beneficial and reflective debriefing. Fey et al. (2014) also found that the techniques used by the facilitator were important in creating a positive learning environment for students.

Nurse educators need to be skillful facilitators in debriefing. Standard VI of the INACSL Standards of Best Practice in Simulation states that the debriefing facilitator must be competent in the debriefing process (Decker et al., 2013). Facilitating a debriefing is not an innate skill; it must be learned. While many nurse educators are skilled at facilitating clinical post conference, the skills required for debriefing after a simulation are not the same. Faculty who work in

simulation and debrief students must possess the requisite skills in order to provide students with a good learning experience.

There are resources available to assist nurse educators in gaining the skills needed to achieve competency in debriefing. The seven INACSL Standards of Best Practice in Simulation provide evidence based standards for simulation (Borum, 2013). Formal training in simulation is offered through nursing organizations and universities. The NLN offers simulation training including specific courses on debriefing through the Simulation Innovation Resource Center (SIRC) website. Drexel University offers a certificate in simulation that includes instruction on debriefing. Certification at the graduate level is offered by other universities. In addition to courses offered by universities there are conferences devoted to simulation. INACSL and the SSH both hold annual international conferences devoted solely to simulation. The NLN also has simulation related offerings at its annual conference as well as a separate technology conference where nurse educators can attend workshops on the use of technology in nursing education including simulation.

In addition to formal training in debriefing, nurse educators must demonstrate proficiency in the facilitation of debriefing. Standard VI, of the INACSL Standards of Best Practice in Simulation, which addresses the debriefing process, states that the facilitator should, "Validate competence through the use of an established instrument" (Decker, et al., 2013 p. 528). An instrument used to validate competency as a debriefing facilitator is the *Debriefing Assessment in Simulation Healthcare* (DASH). This instrument evaluates facilitators on their ability to provide quality debriefing for students. Through the DASH instrument, facilitators also receive feedback on how to improve performance (Ulrich & Mancini, 2014). Just as nurse educators use peer

review to improve their classroom or clinical teaching, evaluating their debriefing technique can improve their ability to facilitate debriefing and improve student learning.

Participants placed great value on simulation in spite of the discomforts it caused them. This study finding is important for nurse educators to consider. So, even with the anxiety, difficulties with realism, the embarrassment of making mistakes or being observed and then judged in a public forum, all participants stated that simulation was a very valuable part of their educational experience. Most commented that they wanted more simulation experiences. This indicates the value of this type of learning experience for students. This knowledge should inspire nurse educators to continue to establish best practices for simulation. Nurse educators must also understand that simulation is not just an afterthought or a convenient replacement for clinical. Rather, it is a very powerful learning tool to assist in preparing students for the realities of practice.

Strengths and Limitations

Several strengths and limitations of the study were identified. One strength of this study is the significance of the findings to nursing education. The use of simulation is increasing in nursing education and this trend will continue. The participants' descriptions of their simulation experiences provides nurse educators with the student perspective. Understanding the student perspective of the simulation experience will assist nurse educators to plan and evaluate effective, learner centered simulations.

Another study strength is the use of multiple sites. Students enrolled in baccalaureate nursing programs from three universities in Pennsylvania participated in the study. The size of the programs varied in size from less than 100 students enrolled to approximately 500 students in the largest program. The use of multiple sites of varying size allowed the researcher access to

participants from programs that implement simulation differently. For example, large group simulations compared to small group simulations. The differences between programs provided rich descriptions of how different teaching methods used in simulation affect the experience for students.

The self-selected nature of the sample was one limitation of the study. Purposive sampling was used in order to recruit participants who had experienced the phenomenon of interest. Although, participants described some negative aspects of the simulation experience, they were overwhelmingly positive about simulation. However, there may be students who have different experiences and thus different perspectives on simulation, who did not volunteer for this study. In fact, some of the participants alluded to classmates who had negative views of simulation and felt it had little to no value. None of these viewpoints were expressed by the participants leading the researcher to conclude that there are other student perspectives on simulation not revealed in this study.

Another limitation of the study was the nature of the sample. Participants in the study were predominately Caucasian and traditional undergraduate students in regards to age. Also, only students from baccalaureate programs were included in the study. The experiences of non-traditional students of varying age as well as those enrolled in Associate Degree and Diploma programs needs to be explored to provide a richer description of the student experience.

Suggestions for Future Research

More research is needed to discover what the experience of simulation is for nursing students. The participants in this study were baccalaureate students. The experiences of simulation for associate degree, diploma, and graduate students should also be explored. Additionally, participants of this study were traditional undergraduate students in terms of age,

and 14 of the 15 participants were Caucasian. The experiences of non-traditional students of various ages and racial backgrounds may differ from those in this study. These experiences also need to be heard by nurse educators to deepen understanding of the simulation experience for students. Further qualitative studies will help to uncover the experiences of a wider range of students.

Participants' comments suggest that prebriefing and debriefing are both very important times during simulation. Although, there are guidelines such as the INACSL Standards of Best Practice in Simulation that assist nurse educators in these phases of simulation, there needs to more research on how effective these guidelines are. For example, research studies on different approaches to conducting prebriefing where students receive little preparation time as opposed to more extended time need to be undertaken. Studies that examine the effectiveness of different debriefing techniques will also aid to the body of knowledge regarding the simulation experience for students.

Research examining how different ways of implementing simulation affects the student experience will also provide nurse educators with useful information. Knowledge of the effect of variables such as size of the simulation groups and amount of time for preparation will help guide nurse educators in their design and implementation of simulation experiences. The knowledge learned from such studies will help to advance the pedagogy of simulation.

Summary

The aim of this study was to describe the simulation experiences of baccalaureate nursing students. The findings of this study contributed to a greater understanding of that experience. Asking students what the simulation experience was like for them gave voice to rich descriptions that brought to light key areas of concern for nurse educators.

The use of simulation in nursing education continues to increase. In order to use this teaching strategy effectively, nurse educators must first understand the student experience in simulation. The knowledge gained from this study will assist nurse educators in understanding the student perspective. This understanding will result in the design, implementation, and evaluation of simulations that maximizes the benefits of simulation while minimizing the negative aspects. This will ultimately result in better learning outcomes for students.

References

Aghina, M. A., Mol, A. C., Jorge, A. F., Pereira, C., Varela, T., Gerson, G. G., & Landau, L. (2008). Virtual control desks for nuclear power plant simulation: Improving operator training. *IEEE Computer Graphics and Applications, 28*(4), 6-9.

Akhtar-Danesh, N., Baxter, P., Valaitis, R. K., Stanyon, W., & Sproul, S. (2009). Nurse faculty perceptions of simulation use in nursing education. *Western Journal of Nursing Research, 31*, 312-329.

Amerson, R. (2006). Energizing the nursing lecture: Application of the theory of multiple intelligence learning. *Nursing Education Perspectives, 27*, 194-196.

Arafeh, J. M. R., Hansen, S. S., & Nichols, A. (2010). Debriefing in simulated-based learning: Facilitating a reflective discussion. *Journal of Perinatal Neonatal Nursing, 24*, 302-309.

Baxter, P., Akhtar-Danesh, N., Valaitis, R., Stanyon, W., & Sproul, S. (2009). Simulated experiences: Nursing students share their perspectives. *Nurse Education Today, 29*, 859-866. doi:10.1016/j.nedt.2009.05.003

Beischel, K. P. (2013). Variables affecting learning in a simulation experience: A mixed methods study. *Western Journal of Nursing Research, 35*, 226-247.

Bensfield, L. A., Olech, M. J., & Horsley, T. L. (2012). Simulation for high-stakes evaluation in nursing. *Nurse Educator, 37*(2), 71-74.

Berkow, S., Virkstis, K., Stewart, J., & Conway, L. (2008). Assessing new graduate nurse performance. *The Journal of Nursing Administration, 38*, 468-474.

Berrios, G. E. (1989). What is phenomenology? A review. *Journal of the Royal Society for Medicine, 82*, 425-428.

Boese, T., Cato, M., Gonzalez, L., Jones, A., Kennedy, K., Reese, C., Borum, J. C. (2013). Standards of best practice: Simulation standard V: Facilitator. *Clinical Simulation in Nursing, 9,* 22-25. doi:10.1016/j.ecns.2013.04.010

Borum, J. C. (2013). Introduction- standard revisions [Editorial]. *Clinical Simulation in Nursing, 9,* 1. doi:10.16/j.ecns.2013.05.009

Brewer, E. P. (2011). Successful techniques for using human patient simulation in nursing education. *Journal of Nursing Scholarship, 43,* 311-317.

Broussard, L., Myers, R., & Lemoine, J. (2009). Preparing pediatric nurses: The role of simulation-based learning. *Issues in Comprehensive Pediatric Nursing, 32,* 4-15. doi:10.1080/01460860802610178

Cato, M. L. (2013). *Nursing student anxiety in simulation settings: A mixed methods study* (Doctoral dissertation). Retrieved from ProQuest. (3568883)

Chunta, K., & Edwards, T. (2013). Multiple-patient simulation to transition students to clinical practice. *Clinical Simulation in Nursing, 9,* 491-496. doi:10.106/j.ecns.2013.04.015

Clark, T., & Holmes, S. (2007). Fit for practice? An exploration of the development of newly qualified nurses using focus groups. *International Journal of Nursing Studies, 44,* 1210-1220. doi:10.1016/j.ijnurstu.2006.05.010

Connelly, L. M. (2010). What is phenomenology? *MEDSURG Nursing, 19*(2), 127-128.

Cooper, J. B., & Taqueti, V. R. (2004). A brief history of the development of mannequin simulators for clinical education and training. *Quality and Safety in Health Care, 13*(Suppl. 1) i11-i18. doi:10.1136/qshc.2004.009886

Cordeau, M. A. (2010). The lived experience of clinical simulation of novice nursing students. *International Journal for Human Caring, 14*(2), 9-15.

Curtin, M. M., & Dupuis, M. D. (2008). Development of human patient simulation programs: Achieving big results with a small budget. *Journal of Nursing Education, 47,* 522-523.

Decker, S., Fey, M., Sideras, S., Caballero, S., Rockstraw, L., Boese, T., Borum, J. C. (2013). Standards of best practice: Simulation standard VI: The debriefing process. *Clinical Simulation in Nursing, 9,* 26-29. doi:10.1016/j.ecns.2013.04.008

Decker, S., Sportsman, S., Puetz, L., & Billings, L. (2008). The evolution of simulation and its contribution to competency. *The Journal of Continuing Education in Nursing, 39*(2), 74-80.

Del Bueno, D. (2005). A crisis in critical thinking. *Nursing Education Perspectives, 26,* 278-282.

DeMaria, S., Bryson, El, Mooney, T. J., Silverstein, J. H., Reich, D. L., Bodian, C., & Levine, A. (2010). Adding emotional stressors to training in simulated cardiopulmonary arrest enhances participant performance. *Medical Education 2010, 44,* 1006-1015.

Dreifuerst, K. T. (2009). The essentials of debriefing in simulation learning: A concept analysis. *Nursing Education Perspectives, 30* (2), 109-114.

Elfrink, V. L., Nininger, J., Rohig, L., & Lee, J. (2009). The case for group planning in human patient simulation. *Nursing Education Perspectives, 10*(2), 83-86.

Elfrink, V. L., Kirkpatrick, B., Nininger, J., & Schubert, C. (2010). Using learning outcomes to inform teaching practices in human patient simulation. *Nursing Education Perspectives, 31*(2), 97-100.

Fain, J. A. (1999). *Reading, understanding, and applying nursing research: A text and a workbook.* Philadelphia, PA: F.A. Davis.

Feingold, C. E., Calaluce, M., & Kallen, M. A. (2004). Computerized patient model and simulated clinical experiences: Evaluation with baccalaureate nursing students. *Journal of Nursing Education, 43,* 156-163.

Fey, M. K., Scrandis, D., Daniels, A., & Haut, C. (2014). Learning through debriefing: Students' perspectives. *Clinical Simulation in Nursing, 10,* 249-256. doi:10.1016/j.ecns.2013.12.009

Franklin, A. E., Boese, T., Gloe, D., Lioce, L., Decker, S., Sando, C., … Borum, J. C. (2013). Standards of best practice: Simulation standard IV: Facilitation. *Clinical Simulation in Nursing, 9,* 19-21. doi:10.1016/j.ecns.2013.04.011

Fountain, R. A., & Alfred, D. (2009). Student satisfaction with high-fidelity simulation: Does it correlate with learning styles? *Nursing Education Perspectives, 30,* 96-98.

Ganley, B. J., & Linnard-Palmer, L. (2012). Academic safety during nursing simulation: Perceptions of nursing students and faculty. *Clinical Simulation in Nursing, 8,* 49-57. doi:10.1016/j.eens.2010.06.004

Garcia-Otero, M., & Teddlie, C. (1992). The effect of knowledge of learning styles on anxiety and clinical performance of nurse anesthesiology students. *Journal of the American Association of Nurse Anesthetists, 60,* 257-260.

Gantt, L. T. (2013). The effect of preparation on anxiety and performance in summative simulations. *Clinical Simulation in Nursing, 9,* 25-33. doi:10.1016/j.ecns.2011.07.004

Giorgi, A. (2000a). Concerning the application of phenomenology to caring research. *Scandinavian Journal of Caring Science, 14,* 11-15.

Giorgi, A. (2000b). The status of Husserlian phenomenology in caring research. *Scandinavian Journal of Caring Science, 14,* 3-10.

Giorgi, A. (2005). The phenomenological movement and research in the human sciences. *Nursing Science Quarterly, 18*(1), 75-82. doi:10.1177/0894318404272112

Giorgi, A. (2009). *The descriptive phenomenological method in psychology: A modified Husserlian approach.* Pittsburgh, PA: Duquesne University Press.

Giorgi, A. (2012). The descriptive phenomenological psychological method. *Journal of Phenomenological Psychology, 43,* 3-12.

Gloe, D., Sando, C. R., Franklin, A. E., Boese, T., Decker, S., Lioce, L., … Borum, J. C. (2013). Standards of best practice: Simulation standard II: Professional integrity of participant(s). *Clinical Simulation in Nursing, 9,* 12-14. doi:10.1016/j.ecns.2013.04004

Gropelli, T. M. (2010). Using active simulation to enhance learning of nursing ethics. *Journal of Continuing Education in Nursing, 41*(3), 104-105. doi:10.3928/00220124-20100224-09

Harlow, K. C., & Sportsman, S. (2007). An economic analysis of patient simulators for clinical training in nursing education. *Nursing Economics, 25*(1), 24-29.

History of INACSL (2013). Retrieved from: https://inacsl.org/about/history

Hodge, M., Martin, C. T., Tavernier, D., Perea-Ryan, M., & Alcala-Van Houten, L. (2008). Integrating simulation across the curriculum. *Nurse Educator, 33*(5), 210-214.

Hovancsek, M. T. (2007). In P. R. Jeffries (Ed.), *Simulation in nursing education: From conceptualization to evaluation* (1st ed.), *(*pp. 1-9). New York, NY: National League for Nursing.

Hyland, J. R., & Hawkins, M. C. (2009). High-fidelity human patient simulation in nursing education: A review of the literature and guide for implementation. *Teaching and Learning in Nursing, 4,* 14-21.

Ironside, P. M. (2009). Embedding quality and safety competencies in nursing education. *Journal of Nursing Education, 48,* 659-660.

Ironside, P. M., Jeffries, P. R., & Martin, A. (2009). Fostering patient safety competencies using multiple-patient simulation experiences. *Nursing Outlook, 57,* 332-337. doi:10.1016/j.outlook.2009.07.010

Jeffries, P. R. (2005). Designing, implementing, and evaluating simulations used as teaching strategies in nursing. *Nursing Education Perspectives, 26,* 96-103.

Jeffries, P. R. (2012). *Simulation in nursing education: From conceptualization to evaluation* (2nd ed.). New York, NY: National League for Nursing.

Jeffries, P. R., & Clochesy, J. M. (2012). Clinical simulations: An experiential, student-centered pedagogical approach. In D. M. Billings & J. A. Halstead (Eds.), *Teaching in nursing: A guide for faculty* (4th ed.) (pp. 352-368). St. Louis, MO: Elsevier/Saunders.

Jeffries, P. R., & McNelis, A. M. (2010). Evaluation. In W. M. Nehring & F. R. Lashley (Eds.), *High-fidelity patient simulation in nursing education*, (pp. 405-421). Sudbury, MA: Jones and Bartlett.

Jeffries, P. R. & Rogers, K. J. (2012). Theoretical framework for simulation design. In P. R. Jeffries (Ed.), *Simulation in nursing education: From conceptualization to evaluation* (2nd ed.). (pp. 21-33). New York, NY: National League for Nursing.

Jensen, R. (2013). Clinical reasoning during simulation: Comparison of student and faculty ratings. *Nurse Education in Practice, 13,* 23-28. doi:10.1016/j.nepr.2012.07.001

Johnson-Russell, J., & Bailey, C. (2010). Facilitated debriefing. In W. M. Nehring & F. R. Lashley (Eds.), *High-fidelity patient simulation in nursing education,* (pp. 369-384). Sudbury, MA: Jones and Bartlett.

Kaakinen, J., & Arwood, E. (2009). Systematic review of nursing simulation literature for use of learning theory. *International Journal of Nursing Education Scholarship, 6*(1), 1-20. doi:10.2202/1548-923X.1688

Kameg, K., Mitchell, A. M., Clochesy, J., Howard, V. M., & Suresky, J. (2009). Communication and human patient simulation in psychiatric nursing. *Issues in Mental Health Nursing, 30*, 503-508.

Kardong-Edgren, S., Adamson, K. A., & Fitzgerald, C. (2010). A review of currently published evaluation instruments for human patient simulation. *Clinical Simulation in Nursing, 6,* 25-35.

Kardong-Edgren, S., Willhaus, J., Bennett, D., & Hayden, J. (2012). Results of the National Council of State Boards of Nursing national simulation survey: Part II. *Clinical Simulation in Nursing, 8,*117-123. doi:10.1016/j.ecns.2012.01.003

King, C. J., Moseley, S., Hindenlang, B., & Kuritz, P. (2008). Limited use of the human patient simulator by nurse faculty: An intervention program designed to increase use. *International Journal of Nursing Education Scholarship, 5*(1), 1-17.

Kleiman, S. (2004). Phenomenology: To wonder and search for meanings. *Nurse Researcher, 11*(4), 7-19.

Kobayashi, L., Shapiro, M., Gutman, D. C., & Jay, G. (2007). Multiple encounter simulation for high-acuity multipatient environment training. *Society for Academic Medicine, 14*, 1141-1148. doi:10.1197/j.aem.2007.05.015

Kuiper, R. A., & Zabriskie, A. (2012). Developing a new state of the art simulation learning center. *Clinical Simulation in Nursing, 8*, 437-442. doi:10.1016/j.ecns.2011.04.003

Kyle, R. R., & Murray, W. B. (2008). *Clinical simulation: Operations, engineering and management.* New York, NY: Elsevier.

Lapkin, S., Levett-Jones, T., Bellchambers, H., & Fernandez, R. (2010). Effectiveness of patient simulation manikins in teaching clinical reasoning skills to undergraduate nursing students: A systematic review. *Clinical Simulation in Nursing, 6,* 207-222. doi:10.1016/j.ecns.2010.05.005

Larew, C., Lessans, S., Spunt, D., Foster, D., & Covington, B. G. (2006). Innovations in clinical simulation: Application of Benner's theory in an interactive patient care simulation. *Nursing Education Perspectives, 27*(1), 16-21.

Lasater, K. (2007). High-fidelity simulation and the development of clinical judgment: Students' experiences. *Journal of Nursing Education, 46,* 269-276.

Leighton, K., & Dubas, J. (2009). Simulated death an innovative approach to teaching end-of-life care. *Clinical Simulation in Nursing, 5,* 223-230. doi:10.1016/j.ecns.2009.04.093

Lewis, R., Strachan, A., & Smith, M. M. (2012). Is high-fidelity simulation the most effective method for development of non-technical skills in nursing? A review of the current evidence. *The Open Nursing Journal, 6,* 82-89.

Lisko, S. A., & O'Dell, V. (2010) Integration of theory and practice: Experiential learning theory and nursing education. *Nursing Education Perspectives, 31,* 106-108.

Lincoln, Y. S., & Guba, E. (1985). *Naturalistic inquiry.* Thousand Oaks, CA: Sage.

Lopez, K. A., & Willis, D. G. (2004). Descriptive versus interpretive phenomenology: Their contributions to nursing knowledge. *Qualitative Health Research, 14,* 726-735.

Meakim, C., Boese, T., Decker, S., Franklin, A. E., Gloe, D., Lioce, L., … Borum, J. C. (2013). Standards of best practice: Simulation standard I: Terminology. *Clinical Simulation in Nursing, 9,* 3-11. doi:10.1016/j.ecns.2013.04.001

Medley, C. F., & Horne, C. (2005). Using simulation technology for undergraduate nursing education. *Journal of Nursing Education, 44*(1), 31-34.

Melo, K., Williams, B., & Ross, C. (2010). The impact of nursing curricula on clinical practice anxiety. *Nurse Education Today, 30,* 773-778.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation.* San Francisco, CA: Jossey-Bass.

Morton, P. G. (1995). Creating a laboratory that simulates the critical care environment. *Critical Care Nurse, 16*(6), 76-81.

Moscaritolo, L. M. (2009). Interventional strategies to decrease nursing student anxiety in the clinical learning environment. *Journal of Nursing Education, 48*(1), 17-23.

Munhall, P. L. & Chenail, R. (2008). *Qualitative research proposals and reports: A guide.* (4th ed.). Sudbury, MA: Jones and Bartlett.

National Council of State Boards of Nursing (2009). NCSBN National Simulation Study. Retrieved from: https://www.ncsbn.org/2094.htm#timeline

National League for Nursing. (n.d.) Retrieved from: http://www.nln.org/researchgrants/nln_laerdal/instruments.htm

National Research Council. (2011). *"4 Transforming education" The future of nursing: Leading change, advancing health.* Washington, DC: The National Academies Press.

Nehring, W. M. (2008). U. S. boards of nursing and the use of high-fidelity patient simulators in nursing education. *Journal of Professional Nursing, 24*(2), 109-117.

Nehring, W. M., & Lashley, F. R. (2004). Current use and opinions regarding human patient simulators in nursing education: An international survey. *Nursing Education Perspectives, 25,* 244-248.

Nehring, W. M., & Lashley, F. R. (2009). Nursing simulation: A review of the past 40 years. *Simulation and Gaming, 40*(4), 528-552.

Nehring, W. M., & Lashley, F. R. (2010). *High-fidelity patient simulation in nursing education.* Sudbury, MA: Jones and Bartlett.

Ogilvie, S., Cragg, B., & Foulds, B. (2011). Perceptions of nursing students on the process and outcomes of a simulation experience. *Nurse Educator, 36*(2), 56-58.

Outside Resources: Affiliates. (2013) Outside Resources: Affiliates. Retrieved from: https://inacsl.org/learn/resources/affiliates

Parker, B. C., & Myrick, F. (2012). The pedagogical ebb and flow of human patient simulation: Empowering through a process of fading support. *Journal of Nursing Education, 51,* 365-372.

Pennsylvania State Board of Nursing. (2014). Nursing Education Programs in Pennsylvania. Retrieved from: http://www.portal.state.pa.us/portal/server.pt?open=space&name=Dir&psname=SearchResult&psid=4&cached=true&in_hi_userid=2&control=OpenSubFolder&subfolderID=62404&DirMode=1

Polit, D. F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia, PA: Lippincott.

Priest, H. (2002). An approach to the phenomenological analysis of data. *Nurse Researcher, 10*(2), 50-63.

Reese, C. E., Jeffries, P. R., & Engum, S. A. (2010). Learning together: Using simulations to develop nursing and medical student collaboration. *Nursing Education Perspectives, 31,* 33-37.

Richard, J. J. (2009). Beginning experiences with simulation: Asthma in a pediatric patient. *Clinical Simulation in Nursing, 5*, 5-8. doi:10.1016/j.ecns.2008.09.005

Rosen, K. R. (2008). The history of simulation. *Journal of Critical Care, 23,* 157-166.

Sando, C., Faragher, J., Boese, T., & Decker, S. (2011). Simulation standards development: An idea inspires. *Clinical Simulation in Nursing, 7*, 73-74.

Sarver, P. A., Senczakowiz, E. A., & Slovensky, B. (2010). Development of simulation scenarios for an adolescent patient with diabetic ketoacidosis. *Journal of Nursing Education, 49,* 578-586. doi:10.3928/01484834-20100630-07

Sears, K., Goldsworthy, S., & Goodman, W. M. (2010). The relationship between simulation in nursing education and medication safety. *Journal of Nursing Education, 49*(1), 52-55. doi:10.3928/01484834-20090918-12

Seropian, M. A., Brown, K., Gavilanes, J. S., & Driggers, B. (2004). An approach to simulation program development. *Journal of Nursing Education, 43*(4), 170-174.

Sharif, F., & Masoumi, S. (2005). A qualitative study of nursing student experiences of clinical practice. *BMC Nursing, 4*(6), doi:10.1186/1472-6955-4-6

Shinnick, M. A., Woo, M. A., & Mentes, J. C. (2011). Human patient simulation: State of the science in prelicensure nursing education. *Journal of Nursing Education, 50*, 65-72. doi:10.3928/01484834-20101230-01

Simulation Innovation Resource Center. (n.d.). Retrieved from: http://sirc.nln.org/mod/page/view.php?id=347

Smith, S. J., & Roehrs, C. J. (2009). High-fidelity simulation: Factors correlated with nursing student satisfaction and self-confidence. *Nursing Education Perspectives, 30,* 74-78.

Society for Simulation in Healthcare (2013). Accredited Programs. Retrieved from: http://ssih.org/sim-center-directory

Spector, N., & Echternacht, M. (2010). A regulatory model for transitioning newly licensed nurses to practice. *Journal of Nursing Regulation, 1*(2), 18-25.

Speziale, H. J., & Carpenter, D. R. (2003). *Qualitative research in nursing: Advancing the humanistic imperative.* (3rd ed.). Philadelphia, PA: Lippincott.

Starkweather, A. R., & Kardong-Edgren, S. (2008). Diffusion of innovation: Embedding simulation into nursing curricula. *International Journal of Nursing Education Scholarship, 5*(1), 1-11.

Tanner, C. (2007). Nursing education: Current themes, puzzles and paradoxes. *Communicating Nursing Research, 40*(15), 3-14.

Tobin, G. A., & Begley, C. M. (2004). Methodological rigour within a qualitative framework. *Journal of Advanced Nursing, 48*(4), 388-396.

Tuoriniemi, P., & Schott-Baer, D. (2008). Implementing a high-fidelity simulation program in a community college setting. *Nursing Education Perspectives, 29,* 105-109.

Ulrich, B., & Mancini, B. (2014). *Mastering simulation: A handbook for success.* Indianapolis, IN: Sigma Theta Tau International.

Walton, J., Chute, E., & Ball, L. (2011). Negotiating the role of the professional nurse: The pedagogy of simulation: A grounded theory. *Journal of Professional Nursing, 27*(5), 299-310. doi:10.1016/j.profnurs.2011.04.005

Webster's new world dictionary (4th ed.). (2003). New York, NY: Wiley.

Webster, D., & DiBartolo, M. C. (2014). Using a standardized patient learning activity to teach baccalaureate nursing students about dementia care. *Nurse Educator, 39*(3), 103-104.

Willhaus, K. (2014). Using simulations to promote clinical decision making. In P. R. Jeffries (Ed.), *Clinical simulations in nursing education: advanced concepts, trends, and opportunities*. (pp. 219-227). Baltimore, MD: National League for Nursing.

Wittmann-Price, R. A., & Godshall, M. (2009). *Certified nurse educator (CNE) review manual.* New York, NY: Springer.

Wilford, A., & Doyle, T. J. (2006). Integrating simulation training into the nursing curriculum. *British Journal of Nursing, 15,* 926-930.

Wotton, K., Davis, J., Button, D., & Kelton, M. (2010). Third-year undergraduate nursing students' perceptions of high-fidelity simulation. *Journal of Nursing Education, 49, 632-639.* doi:10.3928/01484834-20100831-01

Yoo, M. S. & Yoo, I. Y. (2003). The effectiveness of standardized patients as a teaching method for nursing fundamentals. *Journal of Nursing Education, 42*, 444-448.

Appendix A

Email to Nursing Program Directors:

My name is Susan Lanzara and I am a doctoral nursing student at Indiana University of Pennsylvania (IUP). I am conducting research for my dissertation that will explore the experience of baccalaureate nursing students using medium and/or high fidelity simulation. I plan to interview nursing students who have participated as a primary nurse in medium and/or high fidelity simulation experiences.

I am contacting you because your Nursing Program uses medium and/or high fidelity simulation in nursing courses. I am requesting that you forward the attached invitational email to junior and senior level nursing students in your program who have participated in medium and/or high fidelity simulation. Institutional Review Board (IRB) approval has been obtained from IUP and your university. If you have any questions regarding this research study, please contact me via email at xqvq@iup.edu or cell phone at 570-423-2797.

Thank you,
Susan Lanzara

Appendix B

Email Invitation to Students:

Dear Student:

My name is Susan Lanzara. I am a doctoral nursing student at Indiana University of Pennsylvania (IUP). I am conducting research on the experience of undergraduate nursing students during medium and/or high fidelity simulation.

You have been chosen to participate in this study because you are a nursing student in a program that uses simulation. Your experience during simulation is important for nurse educators to know. If you participate in this study, your answers may help nurse educators plan simulations that are learner centered. You are not obligated to take the survey, but if you do, your answers will be confidential. Participants of the study will receive a $15.00 iTunes gift card upon completion of the interview.

If you decide to participate, the researcher will contact you to ask a few screening questions to be certain you meet the inclusion criteria for the study. Then, a convenient time and place for an interview will be arranged. You will sign a consent form before the interview and all of your responses will be kept confidential. If it is not possible to meet in person, interviews may be conducted via Skype or telephone. Interview times will vary but may last approximately one hour. A follow-up telephone interview is requested if there is a need to clarify any information obtained during the interview. You will be contacted via email to set up a convenient time for a follow-up interview, if one is needed.

If you have participated in simulation in the role of the primary nurse in any of your nursing courses, participating in this study would aid my research. If you would like to participate, or ask further questions about this research please contact me via email at xqvq@iup.edu

Thank you in advance for your time,
Susan Lanzara

Appendix C

Screening Tool

1. What is your current level in your nursing program?
    - Freshman
    - Sophomore
    - Junior
    - Senior
2. Have you participated in simulation in your nursing program?
    - Yes
    - No
3. Have you been the primary nursing during simulation?
    - Yes
    - No
4. What other roles have you had during simulation?
    - Patient
    - Family or friend
    - Doctor or nurse practitioner
    - Other (Specify) _____

Appendix D

Informed Consent Form (Printed on IUP letterhead)

A Phenomenological Study Exploring Baccalaureate Nursing Students' Experiences in Simulation

You are invited to participate in this research study. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask. You are invited to participate because you are a nursing student who has participated in the role of a primary nurse in medium and/or high fidelity simulation in your nursing courses.

The purpose of this study is to describe the experience of baccalaureate nursing students during medium and/or high fidelity simulation. Participation in this study will involve one individual interview, either face to face, or via Skype or telephone. The interview will take approximately 60 minutes to complete. You will receive a $15.00 iTunes gift card upon completion of the interview. A follow-up telephone interview is requested if there is a need to clarify any information obtained during the initial interview. You will be contacted via email to set up a convenient time for a follow-up interview, if one is needed. There are no known risks or discomforts associated with this research.

Your participation in this study is voluntary. You are free to decide not to participate or to withdraw at any time without adversely affecting your grades, or your relationship with the investigators, Indiana University of Pennsylvania or your own school. If you chose to participate, you may withdraw at any time by notifying the Principal Investigator. Upon your request to withdraw, all information pertaining to you will be destroyed. If you chose to participate, all information will be held in the strictest confidence. The information obtained in the study may be published in nursing education journals or presented at nursing conferences but your identity will be kept strictly confidential.

If you are willing to participate in this study, please sign the statement below.

Principal Investigator**:** Susan Lanzara, PhD Candidate
Indiana University of Pennsylvania (IUP)
Nursing and Allied Health Professions
248 Johnson Hall
1010 Oakland Avenue
Indiana, PA 15705
(724) 357-3269
xqvq@iup.edu

Informed Consent Form (continued)

Faculty Sponsor: Dr. Kristy Chunta, Associate Professor
Indiana University of Pennsylvania (IUP)
Nursing and Allied Health Professions
233 Johnson Hall
1010 Oakland Avenue
Indiana, PA 15705
(724) 357-2408
kchunta@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724/357-7730).

VOLUNTARY CONSENT FORM:

I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent Form to keep in my possession.

Name (PLEASE PRINT)
Signature: _____

Date: _____

Phone numbers where you can be reached: _____

_____

I certify that I have explained to the above individual the nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered any questions that have been raised.

Date: _____

Investigator's Signature: _____

Appendix E

Demographic Questionnaire

Please select one answer from each of the following questions.

1. What is your age? _____
2. What is your gender?
    - Male
    - Female
3. What is your race/ethnicity?
    - Asian
    - Black or African American
    - White
    - Native American
    - Hispanic
    - Other
4. Estimate the number of hours you have participated in simulation: _____

Appendix F

Interview Tool

Research question: What is the experience of participating in medium to high fidelity simulation for baccalaureate nursing students?

Main interview question: What is the experience of simulation like for you?

Probing questions:

1. Could you tell me more about that?
2. Could you give me some examples?
3. You just told me … Could you also tell me about …?
4. Tell me about how simulation was used in your nursing program.

Follow up questions, if needed for clarification, will be guided by the participants' responses to the initial questions.