FACULTY DESCRIPTIONS OF THE STUDENT PREPARATION PHASE IN UNDERGRADUATE NURSING SIMULATION: A QUALITATIVE DESCRIPTIVE STUDY

By

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Abstract

Simulation is being used for clinical experiences in many undergraduate nursing programs across the United States. With the widespread use of simulation, best-practices for design and implementation are important for faculty using this instructional method. The first phase, preparation, has not been investigated as thoroughly as the simulation and debriefing phases. When literature related to the student preparation phase was reviewed, a gap in the current knowledge related to the phase was identified. The purpose of this qualitative descriptive study was to describe the student preparation phase of simulation in pre-licensure nursing programs in and around the Denver, Colorado area, from the perspective of nursing faculty currently teaching simulation in these programs as well as provide recommendations from the faculty for practice. The sample consisted of eight nursing faculty who volunteered to participate. Semi-structured interviews and observations were used to answer the following research questions: 1) How do faculty describe current practice in the student preparation phase of the simulation experience? 2) What are faculty perceptions of current practice in the student preparation phase of the simulation experience? 3) What are faculty recommendations for the student preparation phase of the simulation experience? 4) How do faculty currently refer to the student preparation phase of the simulation experience? 5) What term do faculty recommend to refer to the student preparation phase of the simulation experience? The results of the data analysis revealed five categories. Category 1: *Student Preparation Phase* describes the characteristics, elements and faculty role, Category 2: *Spectrum of Preparation* describes the range of preparation faculty can provide for students, Category 3: *Faculty Insights* describes faculty perceptions of current practice, Category 4: *Learning along the Way* describes the process faculty go through in learning about student preparation for simulation and Category 5: *What's in a name?* describes the terminology used to refer to this phase.

Acknowledgements

When I returned to the University of Kansas in 2013 and began the journey toward my PhD I had no concept of how difficult it would be or how much I would learn. I couldn't see how much the actual journey would change me and mean to me. As I move to the next phase, I reflect on the last four years fondly and with pride at my accomplishment. In the final stretch I think now about those who have supported me and would like to thank them for everything.

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CHAPTER 1

INTRODUCTION

In a traditional clinical experience in pre-licensure nursing education, a faculty member works with approximately four to ten students at a hospital or clinical facility and serves as their clinical expert and supervisor (MacIntyre, Murray, Teel & Karshmer, 2009; Richardson, Gilmartin, & Fulmer, 2012). Activities include hands-on experience with patients and interaction with the multidisciplinary team (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Simulation complements traditional clinical education by allowing students to experience clinical scenarios and apply evidence to practice decisions in an environment where there is no risk to actual patients (McCaughey & Traynor, 2010). Jeffries (2005, p 97) defined simulation as "activities that mimic the reality of a clinical environment and are designed to demonstrate procedures, decision-making, and critical thinking through techniques such as role playing and the use of devices such as interactive videos or mannequins." Fey (2016) suggests that the question is no longer whether or not simulation should be used, but rather how simulation is best used to affect learning outcomes and ultimately improve patient outcomes.

High fidelity simulation, which refers to structured learning experiences using a Human Patient Simulator (HPS) mannequin (National Council of State Boards of Nursing (NCSBN), 2009) is often a part of educational experiences in undergraduate nursing and has become one of the fastest growing and most often studied (Mariani & Doolen, 2016; Sinclair & Ferguson, 2009) methods of teaching in the United States. As clinical placements continue to be difficult to obtain for many programs due to limited faculty and clinical sites (American Association of Colleges of Nursing (AACN), 2008; 2015), simulation use is continuing to grow (Hayden et al., 2014). The widespread use of simulation (Arthur, Levett-Jones, & Kable, 2013) creates the need

for both a clear definition of best practices and a clarification of training needs for faculty members who are facilitating simulation sessions (Mariani & Doolen, 2016). Faculty strive to ensure that students are receiving the best possible educational experiences to prepare them for practice. To ensure high quality practices, pedagogical decisions on the design and use of simulation should be based on evidence (Ironside, McNelis, & Ebright, 2014).

There are three phases in a simulation, i.e., the starting point, the simulation activity, and the ending point (Adamson, 2015; Cant & Cooper, 2010; Lioce et al., 2015). The middle phase, or the participants' activities, consists of the actual hands-on simulation. The third phase, or the end point, is the debriefing, where reflection occurs. Investigations about the second and third phases in simulation have been reported in the nursing education literature (Hayden et al., 2014; Jeffries, 2015; Mariani & Doolen, 2016). However, the first phase that involves the student preparation is much less well defined and has not been studied as thoroughly (Chamberlain, 2015; McDermott, 2016; Page-Cutrara, 2015). The current study was designed to bring some clarity to describing the first, preparatory phase from the perspective of nursing faculty.

There are many different methods and levels of student preparation for simulation. Current practices are diverse and formal recommendations for best practice are non-existent. For example, multiple terms are used to describe this preparatory phase, which creates confusion for students as well as faculty members. Clarification of terminology as well as description of activities that should be included in the preparatory phase will help to facilitate more standardized experiences for students and potentially increase learning from the simulation experience.

Nursing faculty who are up to date in simulation teaching methods with undergraduate nursing students are the best resource to determine current practices and offer recommendations

for practice in this area. In the current study, selected nursing faculty were interviewed to obtain their descriptions and perceptions regarding the student preparation phase and its usefulness along with necessary components for student success in achieving predetermined outcomes. These nursing faculty were also asked for suggestions about recommended terminology for this part of the simulation process.

Background

Nursing is a professional discipline that includes an essential practice component (Gaberson & Oermann, 2010). Nursing education began with on the job training in hospitals and has moved into the academic setting over time. By the 1900's, practical nursing and diploma programs were popular. The bachelor's degree in nursing (BSN) was implemented in the early 1900s and the associate degree followed more than fifty years later in the 1950's (Scheckel, 2009). Classroom education prepares students for clinical experiences, traditionally in a patient care setting such as a hospital, where they can apply the knowledge and skills they have learned (Gaberson & Oermann, 2010).

According to the 2014 AACN annual survey, 50,681 qualified applicants were turned away from BSN programs because of insufficient clinical teaching sites and lack of qualified faculty (AACN, 2015). With the ongoing need for clinical sites as well as increased complexity of patients, schools are encouraged to include quality simulation throughout the curriculum (Hayden et al., 2014; National League for Nursing (NLN) 2015a). Learning from simulation requires proper design and organization of students, before the actual simulation (Jeffries, 2005). Designing and preparing for the simulation are just as important as the simulation experience itself and briefing and orientation to the simulation area should always be included in the design (Kelly, Hager & Gallagher, 2014).

Simulation has been used in undergraduate nursing education for over 20 years and its use only continues to increase (Foronda et al., 2016; Shin, Park & Kim, 2015; Sinclair & Ferguson, 2009). Laerdal introduced the HPS SimMan in 2001 and high fidelity simulation use has steadily increased since (Skrable & Fitzsimons, 2014). With the increased use of high fidelity mannequins to simulate clinical experiences with patients, nursing faculty saw the need to develop specific scenarios, i.e., a patient case with a main storyline and specific learning outcomes for participants and observers (Alinier, 2009), for use with the new technology (Jeffries, 2012). An example of a scenario is a patient with a post-operative complication. In this instance, the learner must identify the complication that is occurring based on the patient assessment and then take action to resolve the issue.

The NLN (2015a) has promoted simulation use in nursing education for more than a decade. The NCSBN landmark study concluded that simulation, which was defined in the study as: "an activity or event replicating clinical practice using scenarios, high-fidelity manikins, medium fidelity manikins, standardized patients, role playing, skills stations, and computer-based critical thinking simulations" (Hayden, Jeffries, Kardong-Edgren, & Spector, 2009) can be used for up to 50% of traditional clinical experiences (Hayden et al., 2014). The NLN (2015a) stated for a nursing program to use 50% simulation, the experiences should be conducted under the same high quality conditions as were present in the original study.

The NCSBN study used the NLN/Jeffries Simulation Framework as a foundation and included structured debriefing using Debriefing for Meaningful Learning (DML) (Hayden et al., 2014). The faculty who participated in the NCSBN study attended three training sessions including DML training (Hayden et al., 2014). Unfortunately, many nursing programs have not provided the training and ongoing evaluation of faculty assigned specifically to simulation,

which was an essential study condition (Rutherford-Hemming, Lioce, Kardong-Edgren, Jeffries & Sittner, 2016). Unprepared faculty are not likely to be delivering the same quality of simulation experience, which would then change the NLN recommendation about how much clinical time could be met with simulation experiences.

Before students participate in a simulation, instructors can include preparation activities to get students ready for the experience. The purpose of the student preparation phase has been described alternately as:

- an opportunity to clarify for the upcoming scenario (Page-Cutrara, 2015),
- creating a safe and trusting environment and identifying objectives (Chamberlain, 2015),
- explaining the difference between the represented reality and a real clinical situation (Husebø, Friberg, Søreide, & Rystedt, 2012), and
- alleviating anxiety (Arthur, et al., 2013).

In the 2013 version of the International Nursing Association for Clinical Simulation (INACSL) Standards of Best Practice: Simulation^{SM}, Standard I, the student preparation phase is called pre-briefing and the purpose is defined as a time to set the stage to support participants in achieving scenario objectives (Meakim et al., 2013). In the same INACSL Standards of Best Practice: Simulation, the time period is also referred to as the briefing (Lioce et al., 2015). Including two terms that refer to the same period of time in a single document, can lead to confusion for faculty and students.

Problem Statement

Although simulation is used in almost all undergraduate nursing programs in the United States (Breymier et al., 2015), a standardized approach to prepare students for this common experience is lacking. The lack of standardization for student preparation in simulation use has

been identified in the literature (Chamberlain, 2015; McDermott, 2016; Page-Cutrara, 2015) and is beginning to be studied. Because simulation use is continuing to increase, but without clear guidelines, nursing students may not be receiving the best educational experience and faculty may not be facilitating simulations effectively. In addition, patients are being cared for by nurses who may not be as prepared as they could be and employers are challenged with bridging the gap between the skills of graduate nurses and skills needed by practicing nurses. Many factors contribute to the lack of simulation standardization including: a shortage of nurses, nursing faculty and clinical sites, increased use of simulation by under-trained faculty, and limited research in student simulation preparation. The current study will contribute to the body of knowledge needed to address the student simulation preparation problem by describing nursing faculty recommendations for practice for student preparation and proposing a term to use to describe the student preparation phase of the simulation experience.

Study Purpose

The purpose of this qualitative descriptive (QD) study was to describe current practices in the student preparation phase of simulation in pre-licensure nursing programs in and around the Denver, Colorado area, from the perspective of nursing faculty with current knowledge of teaching in simulation in these programs, as well as synthesize faculty recommendations for simulation practice. Based on faculty suggestions, a recommendation for a common term to describe this phase is proposed.

Significance

The current and projected growing shortage of nurses is well established (Hayden et al, 2014). Although more nurses are needed, nursing schools may be unable to admit larger numbers of qualified applicants. As previously noted, thousands of qualified applicants are

turned away each year from nursing programs because of a shortage of clinical sites and nursing faculty shortage (AACN, 2008; Hall, 2015; MacIntyre, et al., 2009; NLN 2015a). Increased patient acuity and shorter in-hospital patient stays together with staff shortages, and even more responsibility for nurses put additional strain on practicing nurses trying to work with and precept students (Hall, 2015). As the faculty shortage increases, even more potential nurses may be turned away from nursing schools. Simulation is an educational strategy that can provide relief for nursing schools and clinical sites (Hayden et al., 2014; Richardson et al., 2012; Skrable & Fitzsimons, 2014).

The Institute of Medicine (IOM, 2011) called for nursing faculty to incorporate high-fidelity simulation into the curriculum. Benner and colleagues (2009) also sounded the call for transformation in nursing education. Expanded use of simulation can reduce the strain on clinical facilities for student placement experiences (MacIntyre et al., 2009). Using simulation allows schools to provide quality simulated clinical experiences for students to augment their learning experiences at traditional clinical facilities.

Simulation can provide case-based experiences for students to practice clinical decision making through monitored, no-risk exemplars (Tanner, 2006). Students can care for simulated patients with conditions they commonly will see as a practicing nurse such as post-operative patients. Simulation also allows for exposure to conditions that are more infrequent but important such as pulmonary embolism development. These controlled clinical simulation experiences serve as reference for students to use when they are in clinical practice.

When students graduate from nursing school and pass their licensure exam, they have demonstrated they possess the basic knowledge, skills and abilities necessary for practice as an entry level nurse (NCSBN, 2016). Along with decreasing the pressure on clinical placements,

simulation can close the gap between graduate nurse's skills and current nursing practice expectations (Skrable & Fitzsimons, 2014) by facilitating development of thinking and clinical reasoning in students (NLN, 2015a). Critical thinking and problem solving abilities are necessary in clinical practice and have been shown to increase through use of simulation (Tanner, 2006).

The most important reason for using simulation in nursing education is to prepare nursing students to provide safe and effective patient care both during their educational experiences and after graduation. Many studies have reported student satisfaction with simulation experiences (Abdo & Ravert, 2006; Janicas & Narchi, 2016; Valadares & Magro, 2014). Assessing the value of training is not only whether the students enjoy it, but also how the training changes student practice or behavior (Kirkpatrick, 2009). Using simulation also allows faculty to design interprofessional learning experiences, which prepare nurses and other disciplines for interprofessional practice (Decker et al., 2015).

Aims and Research Questions

The primary aims of this study were to: a) describe current practices and faculty perceptions of student preparation for simulation, and b) synthesize faculty recommendations for practices in student preparation for simulation. The secondary aim was to identify a single term for describing the student preparation phase of a simulation experience.

The research questions of this study are:

RQ1: How do faculty describe current practice in the student preparation phase of the simulation experience?

RQ2: What are faculty perceptions of current practice in the student preparation phase of the simulation experience?

RQ3: What are faculty recommendations for the student preparation phase of the simulation experience?

RQ4: How do faculty currently refer to the student preparation phase of the simulation experience?

RQ5: What term do faculty recommend to refer to the student preparation phase of the simulation experience?

Conclusion

As shortages of faculty and clinical sites worsen, the ability of nursing schools to produce adequate numbers of well-educated nurses will be further challenged. Using simulation is one strategy to address the challenges of these shortages. Simulation has been shown to enhance critical thinking, which is essential to practice for nurses. To ensure the quality of the educational experience for students, best practices should be employed. Without a clear recommendation for activities that students should be completing or involved in to prepare for their simulation experience, confusion ensues for all involved. This study addresses the issue of student preparation in simulation, identifies current practices as described by faculty, and summarizes faculty recommendations for terminology to name this phase of the simulation experience.

CHAPTER 2

LITERATURE REVIEW

In this chapter, the literature is reviewed in relation to the use of simulation in nursing education and, more specifically, the student preparation phase for simulation. A brief history of nursing education, traditional clinical education and the transition to use of simulation to educate undergraduate nursing students in the care of patients will be presented followed by a comprehensive review of the student preparation phase literature. Finally, gaps in the current literature related to the student preparation phase in simulation will be discussed.

Literature Search Strategies

To identify any current evidence surrounding the student preparation phase of simulation a literature review was conducted through PubMed, CINAHL and Google scholar. The terms, pre-brief AND simulation AND undergraduate/pre-licensure/nursing were used. Then a search for simulation AND nursing AND brief/briefing/preparation/ was completed. Two content analyses (Chamberlain, 2015; Page-Cutrara, 2015), a literature review (Page-Cutrara, 2014), a Delphi study (McDermott, 2016) and a case-study (Brackney & Priode, 2015) were located, which specifically address pre-briefing. Several other articles related to student preparation of the participant in simulation also were located. The reference lists found in these articles were reviewed for other possible sources.

History of Nursing Education

Basic nursing education has evolved over more than 100 years in the United States. From apprenticeship models in hospitals to baccalaureate education in institutions of higher education, nurse training has experienced many changes. The first practical nursing program was offered in Brooklyn, New York in 1892 at the Young Women's Christian Association

(YWCA) (Scheckel, 2009). Formal nursing education in the United States began in practical nursing programs in the late 19th and early 20th century (Scheckel, 2009) and until the 1950s and 1960s remained primarily in hospitals or diploma programs (Tobbell, 2014). These early programs were based mostly on the apprenticeship model in which students provided patient care in exchange for lectures, room and board, and an allowance (Scheckel, 2009).

Early 20th Century

Dr. Richard Olding Beard began the first baccalaureate nursing program at the University of Minnesota in 1909 (Scheckel, 2009). Although university-based, the program still required students to work 56 hours a week on the hospital ward. In 1917 the Teacher's College in New York started a baccalaureate program that more closely resembled present day education. In this model, two years of science coursework were completed at the university, followed by two years of practice at Presbyterian hospital and one year of public health or education. In 1923, the Goldmark report was released and recommended higher education standards for nurses, laws to regulate practice and improved learning environments. Nurses receiving their education in institutions of higher education doubled by the 1930s (Scheckel, 2009).

Middle 20th Century

Nursing for the Future (Brown, 1948), a report on the status of nursing practice and education recommended nursing education be moved into institutions of higher learning at the baccalaureate level. The Ginzberg (1949) report suggested a more efficient and economical two year associate degree (AD) program to address the shortage of nurses following WWII. The first associate degree programs were established in 1952 and there were more than 100 such programs by 1960 (Tobbell, 2014). The intention was for the associate degree nurse to be a technical nurse who would perform the bedside hands-on nursing duties and BSN nurses would be the

professional nurses, but as early as the 1970s, the lines between the two became blurred (Tobbell, 2014). Baccalaureate programs were evolving in the 1960s. Liberal arts education, intellectual skills and content in education, community health and leadership were included and differentiated the BSN degree from the associate degree (Scheckel, 2009). In 1965, the American Nurses Association (ANA) stated nurses should be prepared in universities and the minimum education should be the BSN (Scheckel, 2009).

Late 20th Century and 21st Century

Today, most registered nurses are educated in community colleges for the associate degree and university settings for the baccalaureate degree. In 2014, the NLN reported there were 1869 nursing schools offering undergraduate degrees with 710 baccalaureate, 1092 associate, and 67 diploma programs. Since the ANA paper in 1965, studies have been performed that showed unclear differences between the two preparation levels. More recently, studies have shown improved patient outcomes when staffing includes higher proportions of BSN prepared nurses (Scheckel, 2009). Estabrooks, Midodzi, Cummings, Ricker and Giovannetti (2005) investigated the 30 day patient mortality rate among 18,142 patients discharged with diagnoses of acute myocardial infarction, congestive heart failure, chronic obstructive pulmonary disease, pneumonia or stroke. A significant relationship was identified between higher nurse education and decreased mortality (Odds Ratio, 0.81) (Estabrooks et al., 2005). In 2013, results of a national nursing survey showed 55% of RNs held a bachelor's degree (Budden, Zhong, Moulton, & Cimiotti). Though the Brown report and the ANA recommended baccalaureate education as the minimum entry level for nursing as long ago as 1948, more than 60 years later the 2011 IOM report was still calling for at least 80 percent of nurses to be prepared at the baccalaureate level.

Clinical Education in Nursing

It is difficult for faculty to predict the experiences students will have in clinical settings, which thereby results in experience by chance or random opportunity (Ironside, 2014). Arranging clinical experiences is time and resource intensive, yet often unpredictable with respect to actual learning experiences (Ironside, 2014). During traditional clinical experiences, faculty may not even have the opportunity to facilitate critical thinking in their students. A 2010 survey conducted by the NLN revealed more than half of clinical instructors reported spending the majority of their time supervising student skill practice, while only 13% reported spending the majority of their time assisting students in synthesis of information.

The traditional model of clinical education has very little evidence to support it and is increasingly difficult to sustain with the current health care environment. Furthermore, this type of clinical experience is based on tradition rather than evidence (AACN, 2005) and has changed very little over time (Tanner, 2006), but remains the gold standard for clinical teaching in nursing (Harder, 2015). The number of students in a clinical group, coupled with the need for an experienced faculty person and space on the clinical unit can create difficulties in planning these experiences for all students. Simulation has become one strategy to decrease the strain on healthcare facilities in providing clinical education for all nursing students.

Nursing is a practice discipline and students must learn and practice the skills needed to become successful. Nursing skills can include such basic tasks as obtaining vital signs to completion of physical assessments and higher-level interventions like urinary catheter or IV placement, as well as clinical reasoning and prioritization. Students can learn and practice these skills in a simulation lab until they reach proficiency and then apply what they have learned in the clinical setting. Traditionally, clinical education in nursing has occurred with live patients in hospital settings (Richardson et al., 2012). The traditional model is not only very expensive, but

taxing to faculty, facilities, students, and staff. The model is dependent on the availability of clinical sites rather than the goal of matching experiences with course outcomes (Gubrud-Howe & Schoessler, 2008), which results in education by random opportunity (Leflore, Anderson, Michael, Engle & Anderson, 2007). The educational model of the 20th century is no longer adequate for the needs of health care in the 21st century (IOM, 2011).

In 2005, the NCSBN released guidelines for clinical education in pre-licensure nursing programs. Clinical experiences were to include experiences with real patients as well as innovative teaching strategies to complement traditional clinical education (NCSBN, 2005). The IOM (2011) called for a transformation in nursing education in the *Future of Nursing* report. The Carnegie Foundation also sounded this call for transformation (Benner et al., 2009). In a national study, a large gap between nursing student preparation and practice was identified, i.e., while 90% of academic leaders believe students are prepared, only 10% of nursing executives feel the same way (Berkow, Virkstis, Stewart & Conway, 2008). Based on the need for nursing students to acquire skills needed for practice, along with the calls for reform and identification of the large preparation-practice gap, new strategies in nursing clinical education must be used to address these issues. Simulation is one method to address this gap.

History of Simulation

War games have been used by militaries throughout history, with battles simulated through games like chess and checkers (Nickerson & Pollard, 2010; Singh et al., 2013). During the middle ages, knights would participate in jousts to practice their battlefield skills (Nickerson & Pollard, 2010). In the 19th century, the Prussian army used games that were credited with the victory in the Franco-Prussian war (Singh et al., 2013). Simulations are still used by the military today. Since the middle of the 20th century, computers have been programmed to determine the

opponent's moves based on rules of war, which removes the manual work of acting out the battle (Singh et al., 2013).

As early as 1909 the first rudimentary flight simulator was created (Singh et al., 2013). Twenty years later, the first flight simulator that allowed pilots to replicate the motion of flight was developed by Ed Link (Nickerson & Pollard, 2010; Singh et al., 2013). Flight simulators today are a mandatory part of pilot training and have made air travel quite safe (Singh et al., 2013).

Modern healthcare simulation is modeled after early flight simulators (Singh, 2013). Surgical training was largely subjective in the early 20th century and based on unpredictable nature of patient needs. The IOM desired to improve the safety of surgical training and use of simulation was one of the solutions. Standard patients, software models, task-trainers and virtual reality simulation aids were developed in response. Gynecologic examinations have been taught utilizing standardized patients, actors playing the role of a patient, since 1968 (Rosen, 2008). Medical educators acknowledge simulation is the future of medical education (Rosen, 2008). Simulation can take many different forms including but not limited to: human patient simulation with mannequins and/or standardized patients, virtual and computer based experiences, role play and simulations to teach psychomotor skills (Durham & Alden, 2008).

Simulation in Nursing Education

Mannequins have been used to learn nursing skills for more than a century. In 1911, the Mrs. Chase mannequin was introduced at Hartford Hospital Training School and was described as having realistic features (Nickerson & Pollard, 2010). Using Mrs. Chase, students were able to practice giving shots and performing nursing actions. In the 1960's Resusci Annie was introduced by Laerdal to teach mouth to mouth resuscitation (Singh et al., 2013). Her face was

based on that of a famous drowning victim in 1880s France, to invoke sympathy on the part of the rescuer (Rosen, 2008).

In the 1990's more advanced simulators were described in the nursing literature (Nickerson & Pollard, 2010). Gaumard Scientific Company developed a birthing and newborn simulator (Rosen, 2008). Laerdal introduced the first SimMan mannequin in 2000 (Rosen, 2008). Since then, more advanced mannequins have been produced and are in use in nursing programs around the country. Advanced mannequins can simulate myriad patient conditions and stimulate students to think about solutions, which is the reason for their usefulness in nursing education.

Fidelity is the degree to which the simulator creates a real experience (Nickerson & Pollard, 2010). Low fidelity trainers are designed to teach a single skill, such as foley catheter insertion and are referred to as task-trainers (Nickerson & Pollard, 2010). Medium and high-fidelity patient simulators appeared in nursing education in the late 1990's (Hayden et al., 2014). Medium fidelity mannequins provide a higher degree of realism and allow for practice of multiple skills (Nickerson & Pollard, 2010) such as listening to heart and lung sounds (Hayden et al., 2014). The range of fidelity of simulation in nursing education provides increasing levels of realism, function and interaction (McCaughey & Traynor, 2010). High fidelity simulation uses a technologically advanced mannequin, such as the Human Patient Simulator (HPS), which are anatomically correct and are capable of producing accurate physiologic and pharmacologic responses in response to student interventions (McCaughey & Traynor, 2010; NCSBN, 2009).

Simulation in Nursing Education Today

In 2005, the NCSBN position paper on clinical education in nursing stated simulation should not take place of clinical, but noted that it can complement clinical experiences with

actual patients (NCSBN, 2005). In 2014, when their landmark study was published, the NCSBN stated up to 50% of clinical time could be replaced by simulation (Hayden et al.). In a survey of more than 400 nursing faculty, 99% indicated simulation is used in their program and 77.5% use it to count for at least some of the required clinical hours (Breymier et al., 2015).

In a study of 124 associate degree nursing (ADN) students in their last year of their programs at three schools across the country, those students who received 50% clinical hours in simulation in their obstetrics, pediatric, mental health and critical care course scored significantly higher on their exit exams than those students who attended only traditional experiences in healthcare settings (Curl, Smith, Chisholm, McGee, & Das, 2016). A similar study conducted with undergraduate students in a private university compared students who received only simulation training in postpartum and newborn care with a group who attended traditional maternal-newborn clinical experience plus the same simulations and their ability to intervene when necessary (n=84). There was no significant difference between the groups indicating the simulation group had equal ability to assess, determine appropriate interventions and intervene, and think critically (Veltri, Kaakinen, Shillam, Arwood, & Bell, 2016).

The ratio of clinical hours in a traditional experience to those in simulation has been a highly contested topic. The NCSBN study stated the ratio of simulation to clinical hours should be studied further (Hayden et al., 2014). In their study of simulation to replace traditional clinical hours, Curl et al, (2016) state one hour in simulation is equal to one hour in traditional clinical, when pre-lab and debriefing activities are included in the experience. Breymier (2015) et al. found 55% of schools do not have a standard ratio for simulation courses meaning each course might use a different ratio even within the same nursing program. Clinical learning objectives can be met in less time in simulation than in a traditional supervised clinical

experience, which is the reason for use of the 2:1 ratio (Breymier et al., 2015). In their new model, New York University faculty determined a 3 hour simulation was equivalent to an 8 hour day in clinical. They stated three hours in focused learning with an instructor in simulation was as valuable as the time students are actually engaged during clinical (Richardson et al., 2012). Currently, there is not a standardized recommendation for simulation hours counting toward clinical hours, nor are there consistent ratios from state to state or within states. Schools use simulation based on need as well as acceptance of simulation as an educational strategy.

Simulation Dictionary

In 2016, the Society for Simulation in Healthcare (SSH) released the *Healthcare Simulation Dictionary* (Lopreiato et al., 2016). The dictionary includes definitions of over 100 terms used in healthcare simulation. Definitions of terms related to this study are discussed in subsequent sections of this chapter. The dictionary was developed to enhance communication and clarity in healthcare simulation by compiling terms in one location (Lopreiato et al., 2016).

Standards for Simulation

Several organizations have presented standards and guidelines for simulation use in nursing education in the United States. INACSL published and then revised standards for use in nursing simulation. Along with the INACSL Standards of Best Practice: Simulation, an expert panel published guidelines for simulation use in undergraduate programs, the NLN has a vision for teaching with Simulation and a tool was created to assess instructor behaviors in simulation.

In 2015, an expert panel including representatives from INACSL, AACN, NLN, SSH, boards of nursing (BON) and the NCSBN developed and published guidelines for use of simulation in undergraduate nursing programs based on the results of their national study and a literature review, as well as the INACSL Standards of Best Practice: Simulation. These

guidelines include: a commitment on the part of the school for simulation, appropriate facilities for simulation, education and technological resources to meet objectives, lead faculty and personnel qualified to conduct simulation, faculty who are prepared to lead simulation, and an understanding by the program of policies and processes which are a part of simulation (Alexander et al., 2015). The panel provided a faculty and program checklist in the publication.

National League for Nursing: A Vision for Teaching with Simulation

The NLN (2015a) document endorses the findings of the NCSBN study for simulation to substitute for up to 50% of clinical experiences when conditions are comparable to the study. The NLN also emphasizes the need to imbed quality simulation throughout nursing education (NLN, 2015a). The vision document not only supports the continued and expanded use of simulation but gives recommendations for nursing program leaders, faculty members and the NLN for continued growth.

The Debriefing Assessment for Simulation in Healthcare (DASH)©

The DASH tool was developed to assess simulation instructor behaviors that facilitate learning and change in experiential context (Simon, Raemer & Rudolph, 2010). Although this tool is heavily focused on the debrief phase, the first evaluation element is establishing an engaging learning environment and includes activities which prepare students for simulation. Examples of behaviors which facilitate an engaging environment include: clarifying course objectives, environment, roles and expectations, attending to logistical details, and a commitment to respecting the learner (Simon et al., 2010).

INACSL

The INACSL Standards of Best Practice: Simulation were first developed in 2010 by the board of directors, published in 2011 and then revised two years later. In 2015, two new

standards were added (Sittner et al., 2015). Many of the standards are related to with student preparation. In Standard I: Terminology, the importance of consistent terminology is emphasized as it can provide clarity as well as reflect shared values (Meakim et al., 2013) and pre-briefing is defined as:

> An information or orientation session held prior to the start of a simulation-based learning experience in which instructions or preparatory information is given to participants. The purpose of the prebriefing or briefing is to set the stage for a scenario and assist participants in achieving scenario objectives. Suggested activities in a prebriefing or briefing include an orientation to the equipment, environment, mannequin, roles, time allotment, objectives, and patient situation (Meakim et al., 2013).

Standard III: Participant Objectives, states objectives should be provided to the participants prior to participating so they know what is expected of them and objectives should address domains of learning, be appropriate to level of learning, congruent with program outcomes, achievable, incorporate evidence based practice, and view the client holistically (Lioce et al., 2013). In Standard IV: Facilitation, the role of the instructor in engaging participants and ensuring they meet the objectives is described (Franklin et al., 2013). Standard IV also states the pre-briefing should occur prior to the simulation along with communication of the objectives and the length is dependent on the complexity of the simulation experience (Franklin et al., 2013). Standard V: Facilitator states faculty need to: orient students to the environment, clearly communicate the objectives and expected outcomes to the participants, create a safe learning environment, and foster student learning by providing appropriate support throughout the simulation from preparation through reflection (Boese et al., 2013).

Standard IX: Simulation Design states there are three parts to the simulation format: the

starting point, participant activities, and end point (Lioce et al., 2015). Objectives which provide general information should be shared with the learner, the situation and backstory may be given to the participants verbally, in a chart, or as the participants ask appropriate questions during the experience (Lioce et al., 2015). Criterion 7, of Standard IX, is the briefing and this period sets the stage by identifying expectations and can vary based on the level of the scenario. Briefing should be structured, planned, and completed immediately before the scenario (Lioce et al., 2015).

In December of 2016, INACSL released newly updated standards. Changes the Standards Committee made included: updating the format, combining of the facilitation and facilitator standards to decrease redundancy, removal of numbering to avoid interpretation of a hierarchy in the standards and incorporation of the terminology standard into the simulation glossary (Gore, 2016; Sittner, 2016). Pre-briefing, orientation, and preparation activities are referred to in four of the standards: Facilitation (INACSL Standards Committee, 2016a), Outcomes and Objectives (2016b), Simulation Design (2016c) and the Simulation Glossary (2016d).

NLN/Jeffries Simulation Framework

The NLN/Jeffries Simulation Framework (NLN/JSF) (2005) was first developed and proposed by Dr. Pamela Jeffries to guide in the process of designing, implementing and evaluating simulations in nursing. The NLN/JSF is supported and widely accepted as the framework for simulation development and implementation (NLN, 2015a). The model was intended for all types of simulations used in nursing education from low to high fidelity (Jeffries, 2005). In 2011 a task force was assembled to review the NLN/Jeffries Simulation Framework components (Ravert & McAfooes, 2014). In 2013, phase two began and a theory was developed

from the framework, which was subsequently published in 2015. This updated framework is now referred to as the NLN/Jeffries Simulation Theory (NLN/JST) (Appendix A) (Jeffries, 2015).

A recommendation from Adamson's (2015) literature review related to the NLN/JSF was to update the simulation design to include a clear beginning and ending, which meant adding two new elements i.e., brief and simulation, compared to the original inclusion of debrief only. A description of the theory states the briefing and debriefing strategies should be determined during the simulation design phase (Jeffries, Rodgers & Adamson, 2015).

Simulation Format

There are three basic phases to a simulation experience for the learner: the student preparation phase, the hands-on simulation, and the phase that follows the simulation (Adamson, 2015). The starting point is where the participants begin their encounter with the simulation. The participant activities are designed to engage the participants. The end point is when the simulation is over, either when the objectives have been met, time is up, or the simulation can go no further (Lioce et al., 2015). Cant and Cooper (2010) established the three core components to simulation as the briefing, simulation, and debriefing. Each phase of the simulation experience is important, but the briefing phase has been less extensively studied compared to simulation itself and debriefing.

The simulation involves the clinical scenario (Meakim et al., 2013) and learners participating in patient care while practicing skills, critical thinking and clinical decision making (Hayden et al., 2014). The phase that follows the simulation is known as the debriefing which is defined by INACSL as:

An activity that follows a simulation experience and that is led by a facilitator.

> Participant reflective thinking is encouraged, and feedback is provided regarding the participants' performance while various aspects of the completed simulation are discussed. Participants are encouraged to explore emotions, question, reflect, and provide feedback to each other. The purpose of debriefing is to move toward assimilation and accommodation in order to transfer learning to future situation (Meakim et al., 2013).

Terminology

The term for the time period that occurs before simulation is not well defined and varies from author to author. Briefing (Cant & Cooper, 2010; Lopreiato et al., 2016), pre-briefing (Chamberlain, 2015; Lopreiato et al., 2016; Page-Cutrara, 2015), and presimulation (Chamberlain, 2015; Page-Cutrara, 2015) have all been used, as well as prescenario (Waxman, 2010), preparation, prescenario huddle (Chamberlain, 2015), presimulation briefing, orientation, introduction (Rudolph, Raemer, & Simon, 2014), preconference (Richardson et al., 2012), predebrief (Veltri et al., 2016) and establishing an engaging learning environment (Simon et al., 2010). Though INACSL Standards of Best Practice: Simulation, Standard 1: Terminology states the importance of clear terminology, the definition is listed for the term pre-briefing as well as briefing. In Standard VIII (Lioce et al., 2015) and Standard IX (Lioce et al., 2015) there is again confusion as the terms briefing and pre-briefing are used to refer to the preparation phase.

Purpose of Student Preparation Phase

The purpose of the student preparation phase is defined many different ways. Page-Cutrara (2015) described it as an opportunity to clarify the process of the upcoming scenario. The INACSL Standards of Best Practice: Simulation, define it as a time to set the stage for a scenario which will assist participants in achieving the scenario objectives (Meakim et al., 2013).

The updated Simulation Glossary (INACSL Standards Committee, 2016d) states the purpose is to establish a psychologically safe environment for participants. This preparation phase has also been described as a time to create a safe and trusting learning environment (Chamberlain, 2015; Rudolf et al., 2014) when facilitators can identify learning objectives and student objectives (Chamberlain, 2015; Simon et al., 2010). The difference between the reality the simulation is portraying and the real clinical situation can be explained during the student preparation phase (Husebø et al., 2012) along with an orientation to the environment and completion of activities to prepare for the simulation (McDermott, 2016). Curl et al. (2016) said all simulations should include a pre-lab activity to establish baseline knowledge and Arthur et al. (2013) describe this phase as a quality indicator in simulation learning activities.

Definition

The INACSL Standards of Best Practice: Simulation, Standard I: Terminology definition of the pre-briefing, which is also cited by Page-Cutrara and Chamberlain in their concept-analysis, is: "An information session held prior to the start of a simulation activity and in which instructions or preparatory information is given to the participants" (Meakim et al., 2013, p. S5). Then in Standard IX: Simulation Design, there is a separate definition of briefing: "Sets the stage (for simulation) by identifying participants' expectations and may differ depending on the level of experience of the participant(s) and theoretical framework. Briefing is structured, planned for consistency, and completed immediately before the scenario/case" (Lioce, 2015, p. 311). Husebø et al. (2012) points to the definition drawn from nursing textbooks; i.e., orientation to learning objectives, patient simulator characteristics, and student roles and responsibilities. Chamberlain (2015) and Page-Cutrara (2015) both make suggestions for revising the definition in their concept analyses. The updated definition in the Simulation Glossary (INACSL

Standards Committee, 2016d) is “an information or orientation session immediately prior to the start of a SBE in which instructions or preparatory information is given to the participants. Suggested activities include reviewing objectives; creating a ‘‘fiction contract’’; and orienting participants to the equipment, environment, mannequin, roles, time allotment, and scenario. With so many different ideas about the purpose of the student preparation stage as well as varying definitions, it is not surprising there is confusion as to the role this preparation phase should be serving.

In the *Healthcare Simulation Dictionary* (Lopreiato et al., 2016) definitions of briefing, orientation and pre-briefing are provided. At the beginning of the definition for briefing, it is noted the term is not clearly distinguished from orientation or pre-briefing. The briefing provides essential information such as background, vital signs, instructions or guidelines immediately before the simulation activity. Briefing also includes information given to the faculty or simulation patients in a scenario. Orientation has two definitions with the first being “the process of giving participants information prior to a simulation event to familiarize them to a simulation activity or environment, such as center rules, timing, and how the simulation modalities work, with the intent of preparing the participants” (p. 25). The second definition of orientation is “an activity that occurs prior to a simulation activity to prepare the faculty/instructors or learners” (p.25). The example of a PowerPoint presentation to review is given. Pre-brief includes three definitions which include: 1) an information or orientation session held prior to the simulation activity to set the stage, 2) time used to plan roles prior to simulation with suggested activities of an orientation to the equipment and environment, time, objectives and patient situation, and 3) collaboration and planning of co-facilitators/co-debriefers.

Antecedents

The first step in creating a simulation experience is a needs assessment (Lioce et al., 2015). This is the planning phase for the instructor (Dieckmann, n.d.; McDermott, 2016). Then, before the student preparation activities for participants can be designed, the instructor needs to establish clear and relevant objectives that connect the experience to coursework or other clinical experiences (Lioce et al., 2015; Page-Cutrara, 2015) and determine the format and clinical scenario as well as fidelity approach (Lioce et al., 2015). Once the instructor has prepared the simulation, the student preparation phase for the learner can be designed.

Components

The necessary components of the student preparation phase are as confusing and varied as the terminology, purpose, and definitions. Many authors have described different stages as well as activities. All of the activities as well as discussions, assignments and hands-on practice are designed to prepare the learner to be comfortable and successful during the simulation experience and can be separated into orientation and engagement activities (Chamberlain, 2015). Orientation activities introduce the learner to the setting while engagement activities involve student preparation assignments given prior to arriving at the simulation and collaborative activities between the learners on the day of the simulation (Chamberlain, 2015).

Standard IX: Simulation Design states preparation will provide the best opportunity for success in meeting objectives and should be completed before the briefing (Lioce et al., 2013). Preparation activities address any required knowledge, skills, attitudes and behavior for success in the simulation and may include reading and learning materials such as articles, worksheets, or videos, expectations, practicing assessment or use of devices that will be used in the simulation (Chamberlain, 2015; Dieckmann, n.d.; Lioce et al., 2013).

Orientation activities introduce the student to the lab, mannequin, equipment, supplies, expectations, roles, and objectives (Chamberlain, 2015; Franklin et al., 2013; Jeffries; 2005). INACSL Standard IV: Facilitation, states it is the responsibility of the facilitator to orient the learner to the simulation lab and mannequin and to provide ground rules and expectations (Franklin et al., 2013).

Engagement activities that occur on the day of simulation include activities to establish a safe and trusting environment (Chamberlain, 2015; Franklin et al., 2013; Page-Cutrara, 2015). The scenario briefing (Dieckmann, n.d.) or patient introduction can occur through methods such as verbal report or providing the patient chart (Franklin et al, 2013; Husebø et al., 2012; Lioce et al., 2013; Page-Cutrara, 2015) and should include time for participants to collaborate and develop a plan (Chamberlain, 2015; Franklin et al., 2013; Page-Cutrara, 2015)

Summary

Merriam Webster (n.d.) defines preparation as "the action or process of making something ready for use or service or of getting ready for some occasion, test or duty". The student preparation phase of simulation is not usually reported in the literature. A search for information about student preparation and simulation results in articles that describe how to prepare students for practice using simulation. Although simulation is used in other fields such as military and aviation to prepare for real situations, information about how to prepare for the simulation is not reported. It seems ironic that simulation is used so widely as preparation for practice, but there is limited information or a clear recommendation about how to prepare students for the simulation itself.

Simulation is occurring in many U.S. schools in undergraduate nursing clinical education. Simulation has been used in many different fields for years and in nursing education for over

twenty years and is continuing to grow. The value of clinical education via an apprenticeship model is not supported by literature yet continues to be the predominant method for clinical experiences. As simulation is used for a portion of clinical time, standardization and identification of best-practices in education and faculty training are increasingly important to ensure students are receiving quality educational experiences. Entities such as the NLN, NCSBN, SSH and INACSL have published recommendations and standards for simulation design and implementation, but none has identified the components necessary for student preparation. In the INACSL Standards for Best Practice: Simulation, even though the suggestion is for terminology to be consistent, the definition is listed for pre-brief and brief in parenthesis and the phase is referred to as brief in Standard IX with a separate description of preparation. This is confusing and does not address the question of the appropriate preparation for students.

In the NLN/JST, student preparation is not included or mentioned as a separate component of the model, but is referred to within the other components. Though it was recommended to add briefing to the NLN/JST, the new visual does not include it. Brief may be in the added design component, which is prior to the simulation experience, but it is not emphasized nor made clear what the brief would entail. There are numerous accounts of the definition, purpose and components of student preparation for simulation. The activities can be categorized as pre-requisites, occurring prior to arrival, and orientation and engagement that occur at the site. The components of each of these are still being investigated.

As simulation is continuing to grow and increasingly be an integral part of undergraduate nursing education, it must be used to the fullest potential. Much emphasis has been placed on debrief and the effect it has on learning with little attention paid to the student preparation phase and its potential to influence learning. The simulation itself as well as the debriefing may be

improved through use of a structured and pre-planned student preparation phase. It is imperative to find out.

Gaps in Literature

The student preparation phase has been largely ignored in the literature (Page Cutrara, 2015). INACSL conducted a survey of their members in 2015 to identify research priorities and pre-briefing and briefing were identified as priorities (Fey, 2016). Then, in a survey of 90 INACSL members, simulation design was identified as a gap in simulation research but pre-briefing and debriefing were identified as well-studied (Mariani & Doolen, 2016). The greatest need for research was identified in patient and/or student outcomes related to simulation use (Mariani & Doolen, 2016). A large gap in relation to the student preparation phase is apparent by the lack of mention of the preparation phase in the NLN/Jeffries Simulation Theory even after the suggestion for revision by Adamson (2015). Fey (2016), suggests that pre-briefing is a fuzzy concept in simulation with need for a conceptual definition. Fey also states the reason research in simulation is lagging behind the use of simulation, is its integration into curricula has occurred faster than researchers can keep up with (2016).

Chamberlain (2015) and McDermott (2016) identified a gap in the literature related to the terminology and process/practices of pre-briefing. Husebø et al. (2012) identified the pre-brief as understudied, and said it was often given little attention or not described at all. The student preparation phase in simulation has been ignored in comparison to the high value placed on the debrief (Adamson & Rodgers, 2015) as well as the simulation itself. Understanding of the factors contributing to student learning and achievement of outcomes, simulation design, and participant preparation are key reasons for continuing to study this preparation phase in simulation.

CHAPTER 3

METHODS

The purpose of this qualitative descriptive (QD) study was to explore current practices in the student preparation phase of simulation in pre-licensure nursing programs in and around the Denver, Colorado area, from the perspective of nursing faculty who have experience teaching in these programs, as well as to synthesize faculty recommendations for practice. This chapter presents the methods used in the study. The design, aims and research questions, sample and setting, data collection and analysis will be described along with rationale. Efforts to maintain study rigor and protect human subjects also are described.

Design

The student preparation phase of simulation, based on faculty descriptions and perceptions was explored in this study using a qualitative descriptive (QD) approach. Semi-structured interviews using open ended questions, observations and document review were used to answer the research questions. In general, qualitative methods are useful when little is known about a phenomena and a thick, rich description is desired (Bowen, 2010). The qualitative tradition aims to describe the perception and experience of the world and its phenomena by the participant (Neergaard, Olesen, Andersen, & Sondergaard, 2009). More specifically, QD is used when low inference is desired and facts are presented as a summary in everyday language (Sandelowski, 2010). QD is based in naturalistic inquiry, which means a commitment to studying something in its natural state (Lincoln & Guba, 1985; Sandelowski, 2000). The researcher does not penetrate deeply into the data but provides a comprehensive summary that is preferable when a straight description is desired (Milne & Oberle, 2005; Neergaard et al., 2009). QD allowed for minimal inference and provided a rich description of the student preparation

phase of simulation, building from nursing faculty's words.

Content analysis is the process of data aggregation by which large volumes of data are reduced to themes (Polit & Beck, 2017) and was used in this QD study (Neergaard et al., 2009; Sandelowski, 2000, 2010). Conventional content analysis is used to summarize the information found in the data (Sandelowski, 2000), and is appropriate when the literature is limited on a subject (Elo & Kyngas, 2007; Hsieh & Shannon, 2005). The goal is to have no preconceived categories as categories are derived from the data during analysis (Elo & Kyngas, 2007; Hsieh & Shannon, 2005). The seven classic steps of content analysis that were followed are: formulating the research question, selecting the sample, defining the categories to be applied, outlining the coding process, implementing the coding process, determining trustworthiness, and analyzing the results of the coding process (Hsieh & Shannon, 2005).

Aims and Research Questions

The primary aims of this study were to: a) describe current practices and faculty perceptions of student preparation for simulation, and b) synthesize faculty recommendations for practice in student preparation for simulation. The secondary aim was to identify a single term for describing the student preparation phase of a simulation experience.

The research questions of this study are:

RQ1: How do faculty describe current practice in the student preparation phase of the simulation experience?

RQ2: What are faculty perceptions of current practice in the student preparation phase of the simulation experience?

RQ3: What are faculty recommendations for the student preparation phase of the simulation experience?

RQ4: How do faculty currently refer to the student preparation phase of the simulation experience?

RQ5: What term do faculty recommend to refer to the student preparation phase of the simulation experience?

Sample and Setting

Purposive sampling is used most often in nursing studies and is characteristic of a qualitative design (Polit & Beck, 2017). Participants who can provide rich descriptions of the phenomenon and can confirm findings as the study progresses are sought (Polit & Beck, 2017). A purposive sample of nursing faculty who teach using simulation methods in undergraduate nursing programs were invited to participate in the study. The terms 'school' and 'program' are used throughout the rest of this paper and both are referring specifically to the undergraduate nursing programs at the schools where faculty participants were interviewed.

Purposive sampling is based on the researcher's belief their knowledge can be used to pick the sample (Polit & Beck, 2017). Because the investigator was seeking to describe the perceptions of nursing faculty working in simulation, faculty with experience using this teaching method in undergraduate nursing programs were invited to participate. To facilitate in-person interviews, eligible faculty within a 150 mile radius to the student investigator in Denver, Colorado were invited to participate. Snowball sampling, a form of convenience sampling, was also used as participants were asked if they knew others who would qualify and be interested in participation.

Purposive sampling may result in an atypical or unrepresentative sample (Polit & Beck, 2017), but is necessary to identify those participants who can provide information about the student preparation phase of simulation. To avoid this potential pitfall, faculty from public,

private, for-profit, associate degree, community college, small public universities and large academic medical centers were invited. The selection of participants from multiple schools was completed with the goal of maximum variation in mind (Polit & Beck, 2017; Sandelowski, 2000, 2010). The pool of nursing school simulation centers in Colorado varies in size, number of faculty, workload and the sample of faculty participants represented schools with much variation.

Inclusion criteria: nursing faculty members with at least a bachelor's degree in nursing and 6 months experience teaching using simulation in pre-licensure registered nursing (RN) programs. Faculty teaching in licensed practical or vocational nursing programs (LPN or LVN) are excluded from the current study.

Data saturation was the goal of the sampling strategy and occurs when no new themes or information is being uncovered from the data that adds to the findings (Mason, 2010). Redundancy and sample size can be affected by the quality of the participant contributions and the scope of the research question (Polit & Beck, 2017). The current study invited participants who are experienced simulation teachers in a single region, which may decrease the number of participants needed to reach data saturation (Mason, 2010).

Patton (2015) suggests establishing a minimum expected sample size and adding to the sample as fieldwork unfolds or decreasing the sample if participants are more information rich than estimated while taking into account time and resource constraints. When data are obtained from sources who are rich in knowledge of the phenomenon, fewer participants may be needed to reach data saturation (Morse, 2000; Patton, 2015). In studies of similar QD design, the sample sizes ranged from eight (Berry, Firth, Leeming & Sharma, 2014) to 12 (Atay, Vurur, & Erdugan, 2016) to 19 (Meyer et al, 2014). The size of the sample will be adjustable based on what is learned and as fieldwork is completed (Patton, 2015). The minimum number of participants

needed for this study was estimated at 8, based on the scope and expertise of the participants. However, a total sample of 12 was interviewed and then reduced to a final number of 8 to prevent over-saturation from one school and one interview which was not informative to the study.

Recruitment of participants

Participants were recruited using multiple strategies. First, the student researcher attended a quarterly Alliance for Clinical Education (ACE) meeting in Denver, CO in October, 2016, to recruit participants in person by handing out flyers (Appendix B). The ACE meeting included representatives from healthcare, educational and regulatory agencies in Colorado who come together to address clinical nursing education issues. Second, the researcher contacted nursing faculty who attended the 2016 Laerdal Simulation User Network (SUN) session in Denver or Pueblo by email through the Laerdal representative. The student researcher provided the flyer (Appendix B) and invitation letter (Appendix C) to the SUN coordinator who emailed all attendees as a follow-up. Third, the researcher requested referrals from the early interview participants for other eligible faculty participants. These three strategies were used and enough participants were identified through these methods.

The setting for this study was determined by each participant. The student researcher requested each participant identify a quiet location of their choosing for the interview. Locations faculty choose included the participant's personal office, a quiet corner of a common area, and a study room in a library. The quiet setting is important not only to minimize distractions but also to allow for the audio recording to be clearly heard for transcribing purposes (Polit & Beck, 2017). Once the faculty member agreed to participate, the researcher asked them where they would like to meet and when. The researcher asked for permission to observe student

simulations at the individual simulation labs where the participants are teaching. Appendix D contains a worksheet the researcher used when observing simulation. Topics were adapted from suggested aspects for observation from Polit and Beck (2017). The participants who agreed to participate dictated the actual makeup of the settings in relation to the type of school, university, private, community college or for-profit and degree type: baccalaureate or associate. Programs included nursing schools along the Front Range in Colorado and Wyoming from Cheyenne to Pueblo and into the Rocky Mountains at Glenwood Springs.

Data Collection

After Human Subjects Committee (HSC) approval was obtained from the University of Kansas Medical Center (KUMC) (Appendix E), primary and secondary data collection began. Primary data collection in qualitative design is typically through interviews, with observation of participants during the student preparation phase and concurrent simulation experience as secondary data collection strategies. The researcher initially completed two interviews with faculty members who met the inclusion criteria but were not included in the study because they work with the researcher. These interviews were used to refine the interview guide and to allow the researcher to gain further experience with the process of interviewing and recording.

Data collection techniques in QD include minimally to moderately structured open-ended individual or focus group interviews (Sandelowski, 2000). Focused or semi-structured interviews utilize a topic guide or list of areas or questions to be covered with the participants (Polit & Beck, 2017). This study used open-ended questions from the interview guide during individual interviews to elicit information about faculty perceptions of current practice in student preparation for simulation as well as to obtain recommendations. The interviews were semi-structured and conducted with the faculty participants at the location of their choosing. For two

faculty participants, the location of the interview was a virtual room where the researcher and faculty could see and hear each other but were not in physical proximity. Before each interview, the student researcher sent an email and requested the faculty person complete the demographic questionnaire (Appendix F), which was included as an attachment. The interview guide is found in Appendix G and includes some questions adapted from a similar previous study Appendix H). All interviews were audio recorded, transcribed verbatim, and then analyzed. Data collection and analysis is commonly ongoing and overlapping in QD (Sandelowski, 2000). In this study, the interviews were completed over a period of about one month from November 2nd through December 8th, 2016 and data analysis was completed beginning in January 2017.

Questions are separated into categories in the interview guide. The first two categories, person and organization, provided demographic data about the participant and the school where they taught. The information collected from these questions was compiled along with information from the demographic questionnaire and presented in Chapter 4 using descriptive statistics. The third and fourth category, general preparation questions and current practice, provided the data to answer RQ1, RQ2 and RQ3 related to current practice and perceptions in student preparation. The answers to these questions were analyzed for themes and patterns using content analysis techniques. The fifth, sixth and seventh categories in the interview guide are perceptions, instructor preparation and recommendations and provided data to answer RQ2 and RQ3. The final category is terminology and the data collected from the answers to these questions allowed the student researcher to answer RQ4 & RQ5. Current terms used to refer to the student preparation phase were evaluated and reported in Chapter 4 and recommendations were compiled to try and determine a single term suggested by the majority of participants and recommended for future use.

The researcher set up individual interviews according to the availability of the faculty participants. During the interview, the researcher took field notes about the interview. The audio recordings were used for in depth analysis of the verbal data and field notes were used to record observations.

Data collection in QD can also include document or artifact review and observation (Sandelowski, 2000). The student researcher requested to observe student preparation sessions if they were scheduled around the time of the interview. Due to the time of year, close to the holiday break, there were not classes in session at four of the schools and there were no opportunities for the student researcher to observe student preparation. For two of the schools with classes in session, the faculty participant was not available for an interview on the same day as a session, so no student observation was completed. Two locations had simulations available for the student researcher to observe but due to timing, the student preparation was not a part of either observation. With only one school conducting the full student preparation session on campus, it was not possible for the student researcher to observe the preparation activities completed independently by students off-site. During each interview, the student researcher requested an example of student preparation assignments and activities. The majority of the schools were able to provide a copy of one assignment and others described or showed examples to the student researcher. After each interview, the student researcher recorded her overall impressions about the experience. For those faculty who either did not have a current simulation course for observation or were unable to provide an observation experience for this study, the researcher still collected the applicable demographic data.

Data storage

All interviews were recorded on digital recording devices as mp3 files. The student

researcher discussed with each participant the use of a pseudonym of the participants' choosing prior to starting the recording so the participant would not be identified in the recording or in the transcripts. Data files including the digital recordings, transcripts, documents, and participant demographic data were stored on the student researcher's home computer and an encrypted flash drive. All observation worksheets, field notes, jump drive, digital recorders and any other physical study materials were contained in a locked drawer in the student researcher's home office except for when out in the field where they were in the possession of the student researcher.

Data Analysis

Data analysis in qualitative studies is done to organize, provide structure to and elicit meaning from the data that have been collected and often occurs concurrently with data collection (Polit & Beck, 2017). The goal is to provide knowledge and understanding of a phenomenon (Hsieh & Shannon, 2005). The first step of data analysis was data management and organization (Polit & Beck, 2017). Digital recordings of the interviews were converted to transcripts and then verified for accuracy by the student researcher. The unit of analysis was the interview, which was suggested as the most appropriate by Graneheim and Lundman (2004).

Conventional content analysis as described by Hsieh and Shannon (2005) was used to analyze the data. The first step of data analysis involved the student researcher reading the transcripts, field notes and documents repeatedly to achieve immersion and a sense of the whole, then rereading the transcripts word-for-word to derive codes, using highlighting of exact words to capture key concepts. The student researcher made notes of first impressions and thoughts on the data. Labels emerged that were reflective of more than one key thought from multiple participants and became the initial coding scheme. Codes were separated into categories based

on relationships and used to create meaningful clusters. Open coding of four interviews was completed to identify the initial codes. These codes were grouped into ten categories or meaningful clusters and definitions were derived from the data. Once the initial coding scheme was completed, the other four interviews were coded. Categories that were not initially identified often emerge. Then the researcher reread all previously coded material to grasp the new category. The final step is discussion of the findings in relation to current knowledge and suggestions for practice and future research, which is located in Chapter 5.

Peer debriefing, triangulation and member checks are strategies that can be used to ensure the researcher has a complete understanding of the phenomena (Hsieh & Shannon, 2005). Peer debriefing occurred with the student researcher's methods committee member and committee chair as data analysis occurred. Triangulation was going to occur through comparing the interview data with the observations, but was not possible due to the lack of ability to observe simulation preparation. Member checks occurred after data analysis by the student researcher contacting two faculty who participated to confirm the findings. The observation worksheets completed by the student researcher were reviewed with the data for context and to determine if any further themes or patterns emerge.

Rigor

The goal of QD research is to stay close to the data and capture all elements of the experience in the description of the phenomenon. The rigor of a QD study is directly related to the ability of the researcher to accomplish this goal (Milne & Oberle, 2005). Qualitative researchers have distinct criteria to judge the trustworthiness of the study (Milne & Oberle, 2005) which have been titled credibility (Lincoln & Guba, 1985), trustworthiness and authenticity (Lincoln & Guba, 1985). Sandelowski (2000) refers to the accurate description of

the events which occurred as descriptive validity and the meanings as interpretive validity.

There are several frameworks of quality criteria used in qualitative research including those as proposed by Lincoln and Guba (1985) with revisions in 1994 (Guba & Lincoln) and later in 2001 by Whittemore, Chase and Mandle. In this study, the primary validity criteria as proposed by Whittemore et al., (2001) for qualitative research including authenticity, credibility, criticality and integrity was used.

Authenticity and Credibility

Authenticity involves portraying the meanings and experiences that are lived and perceived by the participants (Whittemore et al., 2001) and is the attention to the voices of the participants (Milne & Oberle, 2005). Credibility is directly related to the purpose of the study and whether it accomplishes what it designed to achieve and if the results believable (Milne & Oberle, 2005). Data saturation demonstrates validity and an accurate interpretation of the findings is essential to credibility (Whittemore et al., 2001).

This purpose of this study was to describe the student preparation phase of simulation from the nursing faculty perspective. Threats to credibility and authenticity include: distortion bias, and inadequate portraying of the phenomenon (Whittemore et al. 2001). To make the results credible, the researcher needed to capture the true perceptions of the faculty and accurately describe them. Strategies to enhance credibility and authenticity used include: comprehensive field notes, theoretically driven sampling, audio recording and verbatim transcription, data saturation, member checks, peer review/debriefing, and reflexivity (Polit & Beck, 2017).

Techniques used to enhance authenticity include: participant freedom to speak, participants being heard and participants perceptions being accurately represented (Milne &

Oberle, 2005). The use of purposeful, flexible sampling increases the authenticity (Neergaard et al., 2009). This study used a purposeful sample with the flexibility to add participants as identified to enrich the data. Agreement between the participants may not be possible and is not expected as each person would impart their own personal experience and knowledge into the analysis, which could result in different interpretations. Faculty working at different schools with varying approaches to simulation as well as different levels of funding had a wide range of experiences with the student preparation phase.

Criticality and Integrity

Criticality involves the careful appraisal of all decisions made in the research process (Milne & Oberle, 2005). Techniques used in this study to enhance criticality include: careful documentation & audit trail, member checking, transcription rigor, searching for confirming evidence, and peer review (Polit & Beck, 2017). Integrity is a reflection of criticality (Milne & Oberle, 2005) and can be achieved through ongoing reflection and self-criticality of the researcher as well as humble presentation of findings (Whittemore et al., 2001). Integrity is enhanced through reflexivity, careful documentation, comprehensive field notes, documentation of quality enhancement efforts and reflexivity (Polit & Beck, 2017).

Ethical Considerations

Approval was requested from the KUMC Human Subjects Committee before starting data collection. After approval, letters of invitation were sent to the identified participants. Those who agreed to participate were contacted and an interview time and place was established. Information about the study and the student researcher's contact information is found on the flyer (Appendix B) and letter (Appendix C) and serves as the consent text for this study. Each participant was assigned a pseudonym to protect their identity.

CHAPTER 4

FINDINGS

This chapter presents demographic data about the sample of faculty participants, results of the content analysis, and answers to the study's five research questions: 1) How do faculty describe current practice in the student preparation phase of the simulation experience? 2) What are faculty perceptions of current practice in the student preparation phase of the simulation experience? 3) What are faculty recommendations for the student preparation phase of the simulation experience? 4) How do faculty currently refer to the student preparation phase of the simulation experience? 5) What term do faculty recommend to refer to the student preparation phase of the simulation experience?

Semi-structured interviews were used to collect the data followed by content analysis as described by Hsieh and Shannon (2005) to examine the data. Interviews were audio recorded, transcribed verbatim and then checked for accuracy by the student researcher. Data analysis began following completion of all interviews. Five categories were identified in the data analysis and include*: 1) Student Preparation Phase, 2) Spectrum of Preparation, 3) Faculty Insights, 4) Learning along the Way, and 5) What's in a Name?*

Sample

Twelve nursing faculty members from across Colorado and Wyoming participated in this study. A radius of 150 miles from Denver (drivable distance for the student researcher), was used, which included Colorado and the southern part of Wyoming. Demographic data are included in Table 1. All 12 faculty participants were women. Eight of the twelve interviews were used in the data analysis representing eight different nursing programs. Three faculty interviews were not analyzed since they represented multiple faculty at the same site with similar

perspectives.

Table 1

Sample Demographics (N=8)

	N	Percentage
Experience Teaching in Simulation		
6 months to 5 years	1	12.5%
6-10 years	6	70%
Over 10 years	1	12.5%
Level of Education		
Master's Degree in Nursing/Nursing Education	4	50%
Doctoral Degree	4	50%
Type of School/Nursing Program*		
Associate Degree	6	
Baccalaureate	4	
Accelerated BSN	2	
Public	5	
Private/For-profit	3	
Faculty Membership in Professional Organizations*		
INACSL	5	
SSH	1	
Type of Simulation Used*		
High Fidelity	8	
Moderate of mid-level fidelity	4	
Low-fidelity	5	
Standardized patients	4	
Human Patient Simulators	3	
CD or DVD	1	
Virtual Simulations	3	

*Total does not equal N as no option or more than one option could have been selected per faculty person or school

When there was more than one faculty participant per school, the most informative interview was chosen for analysis, to prevent over-representing one school in the results. One additional interview was not included because the faculty participant was new to simulation and did not have an understanding of the simulation practices at her facility. Though she met the inclusion criteria and had been teaching for more than 6 months in simulation, she was not yet familiar with simulation design and was not a knowledgeable informant for this study. Interviews took

place face to face in a location of the faculty's choosing, usually their office, except for two, which were done via Skype due to winter weather conditions. The average length of the interviews was 48 minutes with a range from 22-100 minutes.

Faculty training in simulation was variable. One faculty participant had attended the NLN Leadership Development Program for Simulation Educators and one had attended DASH debriefing training. Other types of simulation training included: Mannequin Company training classes, INACSL conferences, Washington University online modules, SSH, and AACN and other webinars. All faculty reported incorporating INACSL Standards of Best Practice: Simulation into the simulation practices at their facility.

Faculty participants represented rural mountain schools and urban universities and included: six associate degree programs, four BSN and two accelerated BSN programs, five public and three private/for-profit schools. Faculty in this study used all levels of simulation, from low to high fidelity, human patient simulators and standardized patients. Three faculty reported using virtual simulations in their programs.

All faculty were from pre-licensure nursing programs. The number of students in the programs ranged from 60 to 400 with 164 as the average. Two of the 8 schools offered graduate degrees but student numbers were pre-licensure only. Schools had used simulation from 3 to 13 years, averaging 6.9 years. Simulation counted for clinical hours at all schools and the percentage of clinical time spent in simulation ranged from 5-25% of clinical hours with an average of 15.6%. The ratio of simulation hours to clinical hours varied from 1:1 to 2:1 between schools and courses within individual schools but the majority used a 2:1 ratio.

These faculty participants shared information regarding their perceptions of current practice in student preparation for simulation and recommendations for practice. Current

terminology and suggestions for a term for the phase were also communicated. The following categories emerged through the content analysis process.

Category 1: Student Preparation Phase

The first category, *Student Preparation Phase,* included faculty descriptions of current practice in student preparation for undergraduate nursing simulations. This phase occurred prior to participating in the actual simulation and was designed to address the changing needs of students as they progressed through nursing school. The student preparation phase included all activities completed by the student either independently, in student groups, or with simulation staff or faculty prior to entering the simulation. Three subcategories were identified related to the *Student Preparation Phase* including: *1) Characteristics, 2) Elements of Student Preparation, and 3) Faculty Role.*

Characteristics

All faculty participants described the student preparation phase as having two consistent characteristics: variability and leveling. The student preparation phase had variation in many different aspects across faculty and programs. Student preparation changed based on the level of the student.

Variability. The student preparation phase varied from class to class, instructor to instructor and site to site. The individual faculty mentioned the variability at their facilities and much variation was identified across sites. Variation occurred in the type of activities students completed as preparation for simulation, the amount of time students spent in preparation, content of orientation and pre-brief. Examples of the variability are seen in Table 2.

When asked to describe the preparation phase in general, many of the faculty participants noted that it would depend on the course and the instructor. Faculty described the variability

between instructors saying each instructor does it differently based on their own beliefs about what is important and what they want to teach in their course. The variability between courses was also described "it really depends on the course and what we are trying to achieve" (UY9). Faculty quotes are labeled with the pseudonym assigned by the student researcher and numbered statement as labeled in the original transcript. The variability from site to site was evident when comparing the descriptions participants gave of the specifics of the phase which will be discussed in further detail in the elements section of this chapter.

Leveling. The preparation activities changed according to the level of the students as they progressed through nursing school. The leveling could be volume of information or preparation required which decreased as student progressed through the program. Or, leveling can be a change in what the faculty were looking for from the students in relation to patient care. In several programs, students who were earlier in the program received a lot of preparatory information and as they advanced through school, the amount of preparation decreased to little or no preparation. For newer nursing students, the preparation could be more basic, focusing on assessments and skills. As students advanced, the preparation changed towards prioritization and anticipating complications. The amount of time for the pre-brief would often change as students progressed: "So at (med-surg 1) pre-briefing, may be a full hour, but as you progress through the curriculum, it (pre-briefing) gets shorter and shorter" (EE 42).

Elements of Student Preparation

Elements of the student preparation phase were identified and included: preparation activities, orientation, and pre-brief. Preparation activities were generally student led and completed independently or in student groups. Orientation was the second element and included the introduction to the lab and environment as well as discussion of rules. The pre-brief was

faculty led and occurred on-site immediately prior to the simulation. All three elements were present for all simulation labs described but the details of the elements varied greatly among interviews.

Preparation activities. Preparation activities included different types of information and student activities and were used to prepare the student to take care of the assigned patient for the simulation scenario. The students generally completed these activities before arriving at the simulation center, except for one school that had students do this work as a group on-site. Students completed preparation activities on their own with use of resources such as textbooks, the internet, and simulated electronic health records (EHR). Preparation activities could include: articles, reviewing procedures, general questions, pre-quizzes, mannequin videos, confidentiality agreements, pre-written simulation preparation materials from mannequin or textbook companies, review of EHR, objectives, developing priorities for the simulated patient, familiarizing themselves with a list of terms, mindfulness activities, skills drills and/or case specific videos. Preparation activities were available to students anywhere from a week prior to the simulation for the first group scheduled in the class to immediately upon arrival to the simulation center. Though students had access to the materials ahead of time in many cases, faculty generally believed students were completing the preparation assignments in the last day before simulation and spending about one to three hours on them. Examples of faculty responses are in Tables 2 and 3.

Orientation. The second element of the student preparation phase identified was orientation. As was discovered with the rest of the preparation, this element was variable between faculty, programs and classes in content and length of time. The purpose of the orientation was to help students to understand the environment and what was real or not along

Table 2

Faculty responses related to Variability and the Student Preparation Phase

Characteristic	Element	Faculty Response
Variability	Preparation activities	"Typical preparation, depending on the course. I would say, they're given-- It really depends on the course and what we are trying to achieve." (UY)
		"They get it (preparation activities)at least a week before" (LB)
		"Open two days before (the simulation), and then close two days after for each particular clinical group." (EE)
	Orientation	"My sim tech will show them the Pyxis and say, "Here is how you log in, here is what the mannequin does, here's your oxygen, here is your IV fluids, here's this and here's that." So it's like maybe a 15 minutes but we capture all of them" (EE)
		"They get a simulation orientation. They also get a simulation handbook. Uh, so-- and it is mandatory for us because we're in a hospital setting. So, we have-- where we have to follow JCAHO standards. So It would be just as though they were coming into a patient care area." (GV)
	Pre-brief	"Because each and every one of us has a different um belief system, different ideas of what is briefing" (EE) "Again, everyone does it (pre-briefing) differently" (GV) "At pre-briefing, we believe to be in-- the day in the room. Just so they know what they have in their environment. Three, four minutes" (UY)

with setting the stage. Rules of simulation were introduced in the orientation. The orientation could include information about the setting, including the supplies, equipment and mannequins, rules of participation, general simulation guidelines and might occur partially off-site and partially in the lab or all in the lab.

All schools that had preparation assignments had a rule related to completion of the assignment as a requirement to attend simulation: "they have to fill it out (preparation assignment) in advance in order to come into simulation" (UY16). The assumptions of a safe

Table 3

Faculty responses related to Leveling and the Student Preparation Phase

Characteristic	Element	Faculty Response
Leveling	Preparation activities	"Our second semester students are given quite a bit of information and support before they come in. Sometimes they even get to see the written report that the nurse is going to give them before they go in, sometimes not. But it's a, it's an extensive amount of information. Third semester gets lots of information about the condition that they're gonna be looking at. But they don't get anything about the patient. They don't know how old in the patient is, they don't know. And then in fourth semester they don't get any prep." (LB)
	Orientation	"They-- we do orientation for them a couple-- in a couple of ways. We kind of layer it. We start with the first day of orientation in the summer before they're ever enrolled in the program. Then, they get an orientation to the lab in the simulators during their first semester. But we do use our simulators in the labs and start to say, 'Okay we're trying to build on this.'" (UY)
	Pre-brief	"Whenever that they get to priorities, it's amazing and it definitely demonstrates the different level, such as in our first year med-surg, it's always risk for infection, skin integrity, and all of these different nursing type of diagnosis, nutrition, and because they are still kind of part of the old school, we gotta have a psychosocial. By the time they (advance) to (med-surg 2), it is amazing, and I would like to actually track this in a research sometime, because they come in (to advanced med-surg), you give them the same patients, and they finally are getting it. (EE)

learning environment free of judgement were discussed in orientation "explain to them for the safe container of learning, that I am not judging them, I'm not grading them" (EE44). This was different in the single site where high-stakes simulation was used. Faculty did not have the same assumptions of a safe setting that was judgement free and mistakes were okay. All faculty informants described the orientation as separate from the pre-brief.

Pre-brief. The pre-brief was a time period that occurred with the students and faculty present together at the simulation lab. As with all the other elements, the length of time and

content of the pre-brief varied between courses, instructors and schools. In comparison to the preparation activities, which students complete independently, the pre-brief was faculty driven. Pre-brief ranged from 3-4 minutes with a quick overview of the environment for that scenario to a 15 minute question and answer session between students and instructors to 45-60 minutes and an in-depth discussion of the patient the students would be caring for. Topics for the pre-brief included: specifics in the environment for that day/patient, patient report, discussion of preparation activities or questions and review of the patient to be cared for in-depth. For some schools, the pre-brief was simply a review of the environment for the specific simulation, i.e., where the supplies were and what was available to them; "Here is what you're working with" (UY25). At other schools, faculty provided guidance and direction to the students during the pre-brief. Prioritization, anticipating patient needs and potential complications, as well as answering student questions about the preparation activities or patient care all occurred during this time. One faculty participant described pre-brief as the "bridge between theory to practice" (EE72).

Faculty Role

The faculty role had some variation across schools but also many similarities (Table 4). At all schools the faculty were responsible for the pre-brief, though the specifics of time and content varied. Faculty were also responsible for checking the work of students. Some would just look at a few to see if they were complete or to look for wrong answers while others would evaluate the responses to determine if there was a knowledge deficit to address beforehand. The pre-brief often involved the faculty and students discussing the preparation activities and questions together and the faculty facilitating or role modeling how to critically think or think like a nurse to develop priorities for the patient and anticipate complications. At some schools

the faculty

Table 4

Faculty responses related to Faculty Role and the Student Preparation Phase

	Element	Faculty Description
Faculty Role	Preparation activities	"They could see an article, they could see a reminder to review this pro, procedures, review the procedure to insert a fully uh, they could see um, general questions" (LB)
		"They have the questions -- the prep questions for that simulation experience. They can pull out the chart digitally, so it's an electronic chart. And they have -- they can review labs, they can review the patient history, they can review the orders from the beginning of the simulation, and then that's where they do all their prepping where they have all -- all the books available that they would need for that simulation right there in the room, their prep room. And then if I have a video, online video that would help them with the understanding of that patient diagnosis, then I would present that at that time too." (PU)
		"The role of the faculty member in simulation is to develop the work that the students need to do prior to coming." (LB)
	Orientation	"We did both, we did scavenger hunt, and then we do, then we did a tour, scavenger hunt, and then practice." (OD)
	Pre-brief	"So they write down their prep work and then they come in to the briefing/pre-briefing and then I say okay, well what about their airway? Is their skin going to kill them or is their air way? And then-- so then lights start to come on. And then they make-- it's a literal bridge between theory to practice" (EE)
		"To bring the pieces of their theory together and the pieces, uh, the prep together and get those aha moments." (LB)
		"Faculty are assessing our students (assignments). So that way they can assess or see if there's a deficit to um, address beforehand." (LI)

developed the preparation work the students would do but for the majority, materials were pre-

packaged and purchased. These materials could include the scenarios as well as preparation questions and even the patient's EHR. Faculty in all programs were responsible for providing the assignment to the students, whether or not they had developed the materials.

Category 2: Spectrum of Preparation

The second category, *Spectrum of Preparation*, had two subcategories: 1) failing to protect students and 2) giving away too much. This category represents the struggle faculty experience when trying to decide the appropriate amount of preparation for students participating in simulation, i.e., ranging from no preparation at all to so much preparation that students don't learn. The two subcategories are at opposite ends of the *Spectrum of Preparation*.

Failing to Protect Students

Faculty participants expressed concern over providing too much information to the students and in the same interviews, they would state how a failure to provide preparation left students floundering. "Throwing them in" (UY), "flying by the seat of their pants" (EE), and "sent to the wolves" (GV) were phrases used to describe the practice of not preparing students adequately for simulation, e.g., "Go drive the car, here's the keys" (EE). When preparation was minimal, faculty described feeling bad for the students and failing to protect them.

With more time and experience teaching in simulation, most faculty changed their practice to increase the preparation students completed. For example, one participant said, "They're not nurses yet. So you can't expect the same thing" (GV49). Faculty saw decreased anxiety, increased learning and performance of the students which "skyrocketed" (UY) with increased preparation.

Giving Away Too Much

For a majority of the faculty participants, the feeling of giving away too much was

described when referring to the amount of preparation students should have to participate in simulation. They felt as if they would be "giving away" the scenario or the answers, which would lessen the amount the students learned. "If you just tell them what they are going to do, you know, then what good is it of doing it?" (GV45). Faculty said that students should just be able to care for the patients as nurses would have to in the hospital. Many faculty also described a change in their belief about disclosing too much information over time and with experience teaching in simulation. As they gained experience, the amount of information and preparation they provided to the students grew.

Category 3: Faculty Insights

Faculty Insights includes the impressions of faculty participants regarding the significance of preparation and potential for student achievement. This category has three subcategories: 1) importance of preparation, 2) expectations of students, and 3) student success predictors.

Importance of Preparation

All faculty participants agreed preparation for participation in simulation was essential. Preparation was seen as a tool to help students get ready for the patient they would see in simulation because while the students complete the preparation activities they think about the patient and how to care for the patient. When students come to simulation adequately prepared, their anxiety is decreased and confidence is increased. Preparation was also described as a way to increase the safety of simulation for students. When students are prepared, they do not feel as if they are being thrown in with no support and are therefore safer. When students are prepared, they know what they are doing and talking about, and their performance improves.

Preparation also reduces distractions for students. When students are not adequately

prepared for a scenario, they can get caught up on a small detail that is not the intention of the simulation but may lead them in the wrong direction. GV gave an example: "They (the students) did a glucose check. And I told them it was 78. In my head, 78 is good. And they should move on. But in their limited ability, normal glucose is 80 to 110. They got very distracted and wanted to force him to eat." The faculty participated noted that when normal blood glucose values were included in the preparation materials, the same distraction did not occur. "And so that lack of preparation sent them in the wrong place" (GV).

Expectations of Students

Faculty expectations of students changed with increased faculty experience teaching in simulation. When faculty first start teaching simulation, they generally expect the students to know and be able to do more than the students are capable of. After time, and experience, faculty realize the students often need more guidance and role-modeling to be successful. The unrealistic vision about what students are able to do independently can lead to the failure to protect that was discussed in the previous category. Faculty described their experience over time and the realization that students "have no idea" (EE71) about how to prepare for a simulation. Student inexperience results in faculty providing increased preparation materials, especially to beginning level nursing students to help them be more successful in meeting the simulation objectives.

Student Success Predictors

Faculty described the typical students who were successful in simulation and those typically unsuccessful in simulation. Those who were successful were generally described as the "type A" student, i.e., the one who is always on time, consistently prepared and does well on in-class exams. Students who do not perform as well in simulation were generally not as prepared

upon arrival at the simulation. They may have commitments outside of school such as work, family or other obligations which vie for their time and decrease the amount of time they have to prepare. Students who do not see the value in simulation are also generally not as well prepared and do not perform as well. Faculty also described the student who over-prepares. This student comes in with pages and pages of preparation and memorized the drug cards and knows every detail from the book. This student can also struggle in simulation, particularly when the experience does not match exactly what the book says. The over-preparation can be compensation for a lack of understanding or ability to critically think and may lull this student into false security because true understanding is limited.

Category 4: Learning Along the Way

The fourth category is *Learning along the Way* and was described by all faculty participants. When faculty participants started teaching in simulation, they did not have any experience or formal training and were forced to learn effective strategies for teaching simulation through trial and error. One participant stated "with my experience most educators are just thrown in with no training" (OD). The faculty participants noted that when formal training occurred, it was generally after several years of teaching in simulation. One faculty participant learned by participating in a national simulation education course. Several others had attended simulation conferences. However, the overall method of learning to teaching simulation was on the job and along the way with experience.

In describing the preparation of students, the faculty shared how it had evolved over time, as they learned more about the method. GV shared "As I got to really start learning simulation, I really did see the importance of having objectives." For most faculty, the amount of student preparation they provided was very minimal when they started teaching and has grown over

time. Participants described their own learning about student performance, i.e., when students are prepared to participate in simulation, they perform better, have decreased anxiety and increased confidence. Faculty described the experience of making their own way, learning from mistakes, and changing their practice based on failures and new knowledge gained. SW explained "when I first started as simulation faculty, this is my fifth year, we tried different techniques. We've learned a lot of lessons over the years."

Category 5: What's in a Name?

The fifth category refers to the lack of a single terminology with which faculty teaching simulation refer to different aspects of the preparation process. Current terminology faculty in this study used to refer to the elements of the student preparation phase included: pre-brief, homework, course competencies, objectives, ticket into simulation, orientation, briefing, preparation, clinical learning opportunity, pre-sim, prepping, and simulation prep-sheet. These faculty participants were asked about a recommendation for an appropriate term to identify the session held prior to a simulation session. Two faculty said they didn't care, one said the concept was the same no matter what you called it, one said they would like to know what others call it. Overall, faculty participant recommendations included pre-simulation preparation, prepping, briefing and orientation. Faculty did make an important distinction that there are three separate elements included in the time frame before the simulation experience: preparation activities, orientation and pre-brief.

Summary

The main purpose of this qualitative descriptive (QD) study was to describe current practices in the student preparation phase of simulation from the perspective of nursing faculty with current knowledge of simulation education who teach in pre-licensure nursing programs in

the Denver, Colorado area. Another aim of the study was to synthesize faculty recommendations for practice. Based on faculty suggestions, a recommendation for a common term to refer to this phase was also made. The research questions for the study were answered through the information gained in the interviews with faculty participants with answers summarized below:

Research Question 1: How do Faculty Describe Current Practice in the Student Preparation Phase of the Simulation Experience?

Faculty descriptions of current practice in student preparation for simulation included time spent completing activities independently by the student at home as well as in groups with the faculty member at the simulation lab. Category 1, *Student Preparation Phase*, described the characteristics of variability and leveling; the three elements that include preparation activities, orientation and pre-brief; and the faculty role in student preparation. Though the details of each element varied in time and content from school to school, preparation activities, orientation and pre-brief were present at each school. The faculty role was one of facilitation and role modelling with faculty being responsible for assigning preparation activities as well as leading the orientation and pre-brief.

Research Question 2: What are Faculty Perceptions of Current Practice in the Student Preparation Phase of the Simulation Experience?

The faculty perceptions of the student preparation phase were described in Category 2, *Spectrum of Preparation* and Category 3 *Faculty Perceptions of Student Preparation*. Faculty felt a struggle between not giving students enough information to be successful and over-preparing them. Faculty teaching practices generally evolved over time, as they gained experience teaching in simulation, and moved from providing less information to providing more information. Faculty perceptions of current practice in preparation were that it is an essential

phase in the simulation process. Faculty reported that students were more successful, less anxious and learn more when they were adequately prepared.

Research Question 3: What are Faculty Recommendations for the Student Preparation Phase of the Simulation Experience?

Faculty recommendations for practice in simulation preparation come from the second, third and fourth categories. The second category is *Spectrum of Preparation* and from the faculty descriptions of their experiences over time, the recommendation for preparation to be included was inferred. Even though many faculty described how they began teaching simulation with little preparation for students for fear of giving too much away, they all learned along the way when they did not prepare students adequately they were failing to protect the students. Faculty described their experience with a growth in student performance and learning and decrease in anxiety when they increased student preparation activities.

Research Question 4: How do Faculty Currently Refer to the Student Preparation Phase of the Simulation Experience?

Similar to findings from the literature review, no two faculty referred to the preparation phase by using the same terminology. Terms that faculty used to describe the student preparation phase included "orientation, ticket to sim, preparation, homework, learning opportunity, pre-brief, briefing and I don't care." No single term which was used by the majority of participants. However, "orientation" was described by every faculty person as a part of the preparation.

Research Question 5: What Term do Faculty Recommend to Refer to the Student Preparation Phase of the Simulation Experience?

Multiple recommended terms were suggested but no consensus occurred and several

participants had no suggestions at all. As there was no term used by the majority of faculty participants and the faculty recommendations for terms to use were varied, no faculty recommendation for a term to use moving forward was made.

CHAPTER 5

DISCUSSION, IMPLICATIONS, and CONCLUSION

This chapter includes a summary of the study, discussion of findings, review of limitations, recommendations for future research, implications for nursing education and concluding statements.

Standardization in simulation in undergraduate nursing programs is lacking (Breymier et al., 2015). The student preparation phase of undergraduate nursing simulation has not been as well studied or as clearly defined as the simulation and debriefing phases. When the literature review for this study was conducted, a gap was identified around the preparatory phase (Chamberlain, 2015; McDermott, 2016; Page-Cutrara, 2015). Without clear guidelines for implementing simulation, nursing students may not be receiving the best educational experiences and may not be as prepared to care for patients, as they could be. Faculty who have not been adequately trained to facilitate simulation also may not be providing the best experiences for students.

The purpose of this qualitative descriptive study was to describe current practices in the student preparation phase of simulation in pre-licensure nursing programs in and around the Denver, Colorado area from the perspective of nursing faculty currently teaching simulation. In addition, the study purpose was to synthesize faculty recommendations for practice and to identify a common term to describe the student preparation phase of simulation.

The research questions were:

RQ1: How do faculty describe current practice in the student preparation phase of the simulation experience?

RQ2: What are faculty perceptions of current practice in the student preparation phase of

the simulation experience?

RQ3: What are faculty recommendations for the student preparation phase of the simulation experience?

RQ4: How do faculty currently refer to the student preparation phase of the simulation experience?

RQ5: What term do faculty recommend to refer to the student preparation phase of the simulation experience?

Faculty participants who had experience teaching simulation in undergraduate nursing were recruited using several methods. While twelve faculty participants agreed to participate in interviews, eight were selected for data analysis. All of the faculty participants were women, four with a master's degree and four with doctoral degrees. The faculty participants came from pre-licensure associate and baccalaureate degree schools in Colorado and Wyoming. Participants were from schools located in rural and urban areas. The student researcher developed an interview guide and conducted semi-structured interviews with faculty participants followed by content analysis to describe the pertinent categories.

Discussion of Findings

The sample for this study was 100% women, which is characteristic of the demographic composition of nursing faculty. According to the NLN (2015c), 94% of full-time nursing faculty in 2015 were women. The NLN also reported that 64% of nursing faculty had master's degrees and 33% were doctorally prepared (2015b). The current study was 50% masters and 50% doctorally prepared faculty, which is in alignment with the national average.

Faculty descriptions of the student preparation phase collected during the interviews were reviewed using content analysis and formed the five Categories: *Student Preparation Phase,*

Spectrum of Preparation, Faculty Insights, Learning along the Way and What's in a Name? Ten subcategories helped to explain the facets of student preparation more fully.

The first Category, *Student Preparation Phase*, provided information for the first research question (RQ1) and described current practice in the student preparation phase of simulation for faculty participants who taught in schools in Colorado and Wyoming. Four subcategories described the variability and leveling of the student preparation phase as well as the specific elements and faculty role.

The second Category identified was *Spectrum of Preparation*, which helped to answer the second research question (RQ2). Two subcategories showed the two sides of the preparation spectrum, i.e., from no preparation to extensive preparation.

The third Category was *Faculty Insights* and helped to answer research question 2 (RQ2) along with the second category. This category described the faculty impressions of student preparation and included three subcategories related to the importance of student preparation, faculty expectations of students and student predictors of success in simulation.

The fourth Category was *Learning along the Way* and helped answer research question 3 (RQ3). This category describes the experience of nursing faculty with the preparation of students for participation in simulation and, specifically, how their practice changes over time with increased knowledge of simulation facilitation, the preparation phase and student needs.

The fifth Category was *What's in a Name?* This category helped to answer research questions 4 and 5 (RQ4 & RQ5). This category describes the terms used to refer to the student preparation phase. The terms currently used to refer to this phase varied at each school and for each element of the phase. Recommendations for terminology were also varied. No recommendations for terminology moving forward were made based faculty descriptions in this

study.

Category 1: Student Preparation Phase

One of the primary aims of this study was to describe current practices and faculty perceptions of student preparation for simulation. The data used to create Category 1 answered RQ1. Faculty participants were able to provide a rich description of the elements of the student preparation including variations in practice, leveling of content and faculty role.

Characteristics. The characteristics of the student preparation consistently described by faculty participants included variability and leveling. Variability occurred in many different aspects of the student preparation phase. Leveling was used to design preparation activities appropriate to the experience of the students participating in the simulations.

Variability. Lioce et al. (2015) defines the briefing as a consistent, structured time immediately prior to the simulation experience to set the stage for what will be expected during the simulation experience itself. INACSL Standards for Best Practice: Simulation, Simulation Design (INACSL Standards Committee, 2016c) states "standardized simulation design provides a framework for developing effective simulation-based experiences" (p.S5). Use of a consistent facilitative approach and consideration of the use of a written or recorded pre-brief to standardize the process is also suggested (INACSL Standards Committee, 2016c).

Just as the purpose, definition and elements were varied in the review of literature, the same variation was described by faculty participants and observed by the student researcher throughout this study. Though most of the faculty participants in this study were able to describe the basic structure of the student preparation activities at their school, they also noted that it differed between classes and instructors. The data reflected variation both within and among schools.

A single, clear definition of the activities that precede simulation including recommendations about the order, specific items, length of time and specific terminology for each element could make the phase more standardized across classes, faculty and facilities. It is unclear whether publishing the definition and recommendations as a part of the INACSL Standards of Best Practice: Simulation would suffice. Many of the faculty who participated were aware of these standards but did not know the specifics of them or how they were applied to their simulations. They are using simulation materials produced by national companies as their main resources for teaching simulation. Faculty also begin teaching in simulation generally before any formal training occurs and may not see the standards or even know of them for a while.

Even though the majority of the 2014 NCSBN simulation study (Hayden et al., 2014) was very highly standardized and controlled for the majority of the student simulation experience, the preparation phase was still variable. Each site had flexibility in whether they held a pre-conference or not and whether they made the students prepare for the simulated patient or not (Hayden et al., 2014). This is certainly a limitation of the study. The variation in preparation for the simulations may have altered the results of the study. For example, as viewed through the findings of the current study, students receiving 50% of their clinical time in simulation may have had thorough preparation, which resulted in better outcomes. These outcomes led to the final recommendation that up to 50% of clinical time could be completed in simulation. Given how important yet variable the preparation phase is, students experiencing 50% of clinical time in simulation may have inconsistent or variable quality of preparation, which may affect learning. This will be a critical question to address in future research.

Consistency in the preparation phase would allow nursing students to have clear understanding of the expectations of them for preparing as well as the structure of the simulation

preparation. The school that used high-stakes simulation also had the most structure in their preparation activities. The next most structured preparation activities were those which occurred all on site with the faculty present and facilitating, followed by those which used pre-produced software programs (EHR, SLS) as their prep work across the curriculum and finally the least consistent were those which were hand-written by faculty for their individual courses.

Leveling. Faculty participants repeatedly described the leveling that occurred in preparing students for simulation. The INACSL Standards of Best Practice: Simulation refer to the level of student or participants many times (INACSL Standards Committee, 2016a, 2016b, 2016c, 2016d). In the Facilitation standard, the approach of the facilitator is described as directly based on the participant's knowledge or level of expertise (INACSL Standards Committee, 2016a). The Outcomes and Objectives standard (INACSL Standards Committee, 2016b) specifically discusses the use of Bloom's Taxonomy as a framework to develop and level objectives appropriate to the learner from lower levels of remembering and memorization through higher levels of analyzing and application. The objectives are also required to be specific to the level of the participant's knowledge, skills and attitudes (KSAs), and therefore achievable due to appropriate leveling (INACSL Standards Committee, 2016b). The Simulation Design standard, Criterion 6, states the facilitation approach must be driven by participant knowledge and level of expertise with the level of facilitator involvement inversely proportional to the level of student knowledge and experience (INACSL Standards Committee, 2016c). In the Simulation Glossary (INACSL Standards Committee, 2016d) there is a figure depicting Skill Development and Clinical Judgement© showing the complexity of development of skills necessary to progress from psychomotor skills through critical thinking (Appendix I). This figure is a visual representation of the complexity and growth that must occur through the

nursing education experience and supports the use of levels through simulation.

The leveling described throughout the INACSL Standards of Best Practice: Simulation matches the findings at most schools in this study. Participating schools with the highest level of structure in their preparation assignments and simulations had less leveling in time spent preparing than those schools with less structure. This may be due to a standard assignment for all students prior to simulation. The complexity of the simulation patient did change at all schools. For example, GU described moving from a basic assessment of a stroke patient to management of a stroke patient who was given TPA and assessed for effectiveness. The patient did not change, but the level of complexity of the scenario increased as the student advanced in coursework. It would be important for faculty to review the objectives of the simulations they use from prepackaged scenarios to determine if they are appropriate to the level of student as well as increasing in complexity throughout the curriculum.

Moving from simple to more complex patients and simulations makes sense for nursing students as they get closer to graduation and will be expected to care for patients independently. It would be appropriate to integrate leveling of not only the patient's condition but the critical thinking or reasoning necessary to care for the patient. In an early simulation students may simply have to notice a lab value which is out of range and make the decision to notify a provider, the same simulation patient could be seen in subsequent courses with the objective of not only recognizing the out of range lab but intervening and assessing the effectiveness of the intervention as well as notifying the provider.

Elements of Student Preparation. The elements of student preparation varied in the specifics but the three elements of preparation activities, orientation, and pre-brief were consistent across all faculty. The preparation activities are not routinely included as a part of the

discussion about the first phase of simulation in literature as compared to orientation and pre-briefing (Chamberlain, 2015; Franklin et al., 2013, INACSL Standards Committee, 2016c). The preparation activities are usually separated. Findings in this study support the recommendation of Adamson (2015) for addition of the student preparation phase to the NLN/JST so this phase is formally recognized as a necessary part of the simulation design.

Preparation activities. Preparation activities and resources help participants to meet objectives and achieve outcomes of the scenario. All faculty except for one provided preparation activities and resources prior to the scheduled simulation session with the one outlier providing it on-site when students arrived as a part of their simulation experience. The time which preparation activities were available to students prior to simulation and the specific items varied. Preparation activities did vary based on student level at the majority of the schools.

According to the Simulation Design standard, Criterion 10, preparation activities and resources should be included to promote participant ability to meet the objectives and achieve expected outcomes (INACSL Standards Committee, 2016b). Since preparation activities is a separate criterion from the pre-brief, they appear to be two separate activities. The timing of preparation activities says in advance of the pre-briefing (INACSL Standards Committee, 2016c). Specific examples from INACSL include: readings, concept map, course work, answering questions, videos, pre-test, reviewing EHR, skills review and practice (INACSL Standards Committee, 2016c).

Faculty at all sites were using preparation activities according to the INACSL Standards of Best Practice: Simulation guidelines. It is in the role of the faculty to create/assign the preparation activities so specific examples will be discussed further in the faculty role section. Though the preparation activities differed greatly between schools, the assignments at each

individual school were generally similar across courses. The schools with higher standardization of the entire simulation process described more consistency in preparation assignments across courses than those schools where individual faculty were responsible for creating the assignment. The range of time spent in pre-brief was from a 4-5 minute overview of the day's environment to a 45-60 minute discussion about the patient by students and the instructor.

Orientation. The orientation was separated from the student preparation activities and the pre-brief at all schools and included general introduction to simulation, the mannequins, the environment, the rules and any technology (EHR, IV pumps, monitors) which would be used. The orientation is included as a part of the pre-brief within the INACSL Standards for Best Practice: Simulation but the pieces which should be included in the orientation seem to vary between standards. In the Simulation Design standard (INACSL Standards Committee, 2016c), an orientation to the space, equipment, simulator, roles, time, objectives, patient situation and limitations is discussed, then in the Facilitation standard (INACSL Standards Committee, 2016a), orientation is to the environment, modality of simulation, manikins and equipment. There is no definition of the orientation in the glossary.

Orientations as described by these faculty participants included tours of the lab, review of the mannequins, the room, equipment available, introduction to simulation methodology, EHRs and ground rules. The faculty appeared to be covering the necessary components of orientation as outlined in the INACSL Standards of Best Practice: Simulation with the main difference being that the orientation is separated from the rest of the preparation and scenario itself. The reason orientation is generally separated from the rest of the student preparation phase in nursing schools and occurs primarily in the first course with a simulation component, could be because nursing students will use simulation throughout their program rather than a one day event. The

orientation can be separate from simulation, longer and broken into several sessions so students don't have as much to learn on the first day.

Pre-brief. In the simulation glossary, the definition of pre-brief includes orientation as well as information and a general introduction (INACSL Standards Committee, 2016d). The Outcomes and Objectives standard states the objectives are to be communicated to the participant prior to the simulation (INACSL Standards Committee, 2016b). The Simulation Design standard describes the pre-brief most thoroughly and in criterion 7, states simulations are to begin with a pre-brief (INACSL Standards Committee, 2016c). The purpose of the pre-brief is to set the stage by identifying participant expectations, which are dependent on the level of participant. The pre-brief should be structured, consistent and conducted immediately before the scenario with activities to promote an environment of integrity, trust and respect. It is a time to identify expectations of participants and the facilitator, establish ground rules and the fiction contract, and should incorporate an orientation to the space, equipment, simulator, roles, time, objectives, patient situation and limitations (INACSL Standards Committee, 2016b). The consequence of not adhering to these standards is ambiguity and potentially not meeting the objectives of the scenario (INACSL Standards Committee, 2016a).

Some parts of the pre-brief as described by faculty met the INACSL Standards of Best Practice: Simulation definition, but many of the schools included some parts within the orientation and left out other parts entirely. The establishment of a fiction contract and environment of integrity, trust and respect was most often missing and objectives for the simulation were often included in the preparation activities but not necessarily discussed during the pre-brief. According to the faculty participants, the pre-brief activities centered more on the patient situation students were about to encounter versus ground rules, expectations, and

orientation.

The formal process of establishing a fiction contract and creating the safe place for students to learn is very important in simulation and was either briefly covered during orientation or sometimes not at all, among study participants. The fiction contract is a contract between the instructor and learner where each agree to do their part in the simulation. The learners agree to engage in the simulated environment and suspend disbelief by accepting the simulated exercise as real during the scenario (Lopreiato et al., 2016). It would support student learning and performance for faculty to incorporate the fiction contract and safe place as a part of a structured, planned pre-brief, possibly written or recorded at each simulation session. One faculty participant said that students don't always believe them about being in a safe place and making mistakes, but think they are being judged and can fail. This is potentially a result of faculty not being diligent enough with creating the safe space for students. Certainly in the high stakes simulation environment, the goal was testing for knowledge/competence, not creating a safe environment where students could not fail but the majority of sites had a low stakes environment. In addition, several faculty mentioned how students could get hung up on the manikins not being real. This could also be a result of failure to establish the fiction contract and discuss limitations.

Faculty Role. The faculty role in preparing students for simulation varied across schools and courses. Some faculty were responsible for creating preparation activities designed to get the students ready to participate in simulation and some faculty utilized prepared instructor materials which decreased their workload as well as variability between assignments. Some faculty are responsible for facilitating a longer pre-brief with students, up to 45-60 minutes, where they answer questions and bridge the gap between student preparation and patient care and some faculty only gave a short, 3-4 minute, introduction to the scene prior to simulation.

The faculty person assumes the role of the facilitator in simulation. They may have help from a simulation technician for some parts. The facilitator can be real time with faculty and students or virtual with a computer assisted simulation. Facilitation prior to the simulation includes preparatory activities and a pre-briefing to prepare participants for the simulation based experience.

According to the Simulation Facilitation standard, the facilitator's method will vary based on the level of the student, objectives of the simulation, cultural and individual differences (INACSL Standards Committee, 2016a). The facilitator's roles is described as "to help participants in their skill development and explore their thought processes in critical thinking, problem solving, clinical reasoning, and clinical judgement and apply their theoretical knowledge to patient care in a range of healthcare settings" (INACSL Standards Committee, 2016a, pS16). The Facilitation Standard states the role of the facilitator prior to simulation is to conduct the pre-brief along with notifying students of who they can contact during the simulation for help and providing time to prepare if appropriate (INACSL Standards Committee, 2016a).

In the NCSBN study the activities that were a part of preparation were divided between the study team and the faculty members (Zulkosky, Husson, Kamerer, & Fetter, 2014). This was due to the specific training the study team experienced, which made them better able to conduct certain aspects. The study team prepared the scenarios, clarified objectives and gave faculty access to the scenarios. They also led the pre-brief including orientation to scenario, simulator and simulation lab. The clinical faculty reviewed the scenarios and objectives prior to the simulation and shared with their students, and led the preconference report with students regarding data collection and knowledge of patient information (Zulkosky et al., 2014). In this example, the duties of facilitation were split between the study team as the simulation experts

and clinical faculty. In most of the programs in this study, the faculty was responsible for all of these duties.

The facilitator is responsible for ensuring preparation activities address knowledge, skills, attitudes and behaviors expected of participants (INACSL Standards Committee, 2016c). Necessary preparation is determined during the simulation design phase and should promote the best opportunity for success in meeting simulation objectives (INACSL Standards Committee, 2016c). This work which would fall under the faculty role may be already completed and included in pre-packed simulation materials. All of these items are things faculty are doing.

The variation in faculty role echoes the subtheme of variability in all areas of student preparation. There is no consistency from site to site for the faculty role. This is likely true of many faculty positions within nursing education as well as faculty workloads. Clear expectations of faculty in preparing students for simulation would allow for standardization across sites as well as between faculty and courses as well as faculty who are trained to prepare students to participate in simulation regardless of the school or simulation lab they work for.

Category 2: Spectrum of Preparation

A second aim of this study was to describe faculty perceptions of student preparation for simulation. The category of spectrum of preparation spans faculty perceptions about how much students should be prepared from the minimum of leaving the students with almost no information to figure it out for themselves to the opposite feeling of giving away too much. In the Facilitation standard (INACSL Standards Committee, 2016a), the level of detail revealed in the pre-brief depends on the purpose, goal and or objectives of the-simulation based experience. At the same time, the Simulation Design standard says it is the faculty or facilitator responsibility to make sure preparation activities address the knowledge, skills, attitudes and behaviors

expected of students (INACSL Standards Committee, 2016c).

Failing to protect students. Many faculty describe their early experiences with simulation and a potential lack of preparation provided to the students. They would give students little to no information about a situation and send them in to care for the patient, expecting them to figure it out. This method would be contradictory to providing the best possible opportunity for participants to be successful in addressing the simulation objectives (INACSL Standards Committee, 2016c). Faculty described the increase in performance and decrease in anxiety with adequate preparation which is consistent with a study by Beischel (2013) which showed student preparation for simulation was directly related to their anxiety.

Giving away too much. On one extreme of the spectrum, faculty were feeling like they were giving away too much. The simulation design standard says to give activities and/or resources to develop understanding of the concepts and content related to the simulation (INACSL Standards Committee, 2016c). It is also expected to provide the objectives prior to the simulation. If the objectives are SMART and clear, the students should be able to understand what their goals are and achieve the expected outcomes. This does not mean telling the students the entire scenario and how it will play out, but it might, depending on the level of the student and the objectives. Based on the leveling according to student experience, less information may be necessary prior to the simulation but the students should still be just as prepared and know the objectives they are expected to complete.

Category 3: Faculty Insights

Faculty insights about student preparation included the importance of preparation, expectations of students and student success predictors. Faculty described an understanding of the importance of preparing students for simulation though they did not always provide adequate

preparation early in their experience teaching simulation. Many expressed how student performance was improved with better preparation. Faculty expectations of students evolved over time and led to providing increased preparation. Faculty realized they had unrealistic expectations of students to be able to complete simulations and be successful without preparation as new simulation educators but as they gained experience they realized preparation enhanced student performance. Faculty expect students are completing their preparation assignments in the day before the class and that they will come to simulation with preparation complete. Faculty have learned over time how to identify characteristics of those students who will be successful in simulation. Faculty should come up with strategies to help clarify expectations according to student level and help students who are identified early as ones who will not get as much from simulation. Faculty may even incorporate into the orientation tips for success in simulation and description of how important the preparation is.

Due to the general lack of training faculty described receiving in simulation methods, the insights were all developed over years of experience with trial and error. It is not surprising the amount of variation that has developed with so many individual faculty members trying to learn and make their way on their own.

Category 4: Learning along the way

Many of the faculty expressed the experience of teaching in simulation without receiving training themselves. This led to the faculty learning along the way through success and failures. Most described how they began with little or no preparation for students and realized this was not working so the preparation increased and they saw improved performance, decreased anxiety and increased self-confidence in the students.

The Facilitation standard says facilitators much have the education, skill and ability to

guide, support and assist participants to achieve expected outcomes (INACSL Standards Committee, 2016d). Continuing education and assessment of facilitation skills are necessary to maintain skills as an effective facilitator. Criterion 1 specifically states the facilitator should acquire specific initial education on use of simulation through formal coursework and training and participate in ongoing education and/or work with an experienced mentor. The simulation study conducted by the NCSBN began with initial orientation and debriefing training and included ongoing evaluation of the simulation faculty throughout the study (Rutherford-Hemming, et al., 2016). These examples both demonstrate how important adequate faculty training is for simulation.

Faculty training to facilitate simulation is clearly listed as important not only in the INACSL Standards for Best Practice: Simulation, but in the NCSBN study as well. Though two of the 8 faculty had some formal training in simulation, it was not before they began teaching in simulation and all eight faculty described the process of learning along the way from their experiences which were not successful. Students who are working with inexperienced faculty, may not be getting the best learning experience. In an article published after the NCSBN study, the authors stated that many programs tend to gloss over the details which produced the results of the study including faculty training and that most programs do not have the resources or trained faculty to provide the same level of simulation (Rutherford-Hemming et al, 2016).

Category 5: What's in a Name?

The variation in terminology related to student preparation for simulation is well documented (Chamberlain, 2015; Page-Cutrara, 2015), and the INACSL Standards of Best Practice: Simulation continue to use multiple terms. Lack of standardized training for faculty teaching in simulation has led to numerous different terms being used to refer to the elements of

this phase as demonstrated by the results of this study. In the newest version of the standards, brief or briefing is no longer included and preparation activities and orientation are considered a part of the pre-brief. The definition of the pre-brief in the glossary (INACSL Standards Committee, 2016d), as discussed in Category 1 does not include preparation activities but includes the orientation to rules and equipment.

Limitations of the Study

The limitations of this study included: small region of participating schools, lack of experience of the student researcher, timing of the interviews, and general lack of training of the faculty participants. The locations of the interviews completed were all within a half-day's driving distance of Denver, Colorado. This geographic restriction may result in findings which are regional. The student researcher's purpose was to interview faculty in this region and determine current practices based on local practice.

A second limitation of the study is the inexperience of the researcher. Several practice interviews were conducted to help the student researcher prepare but she also continued learning even after these initial practice interviews. A third limitation was the time frame of the interviews. All interviews were completed in November and December of 2016. As the setting for the interviews was at nursing schools, the schools were closed or not in session from mid-December through January. The student researcher wanted to conduct the interviews with those faculty who responded to the recruitment attempts prior to the winter break, for fear they would not be able to participate during the break and may not have availability in the new year. The timing of the interviews was also a limitation as many schools did not have simulations running at that time of the year for the student researcher to observe.

The lack of formal simulation training the faculty participants had was a limitation to this

study. It was not surprising there was such variation in practice with so many faculty learning on their own. Each person developed a strategy that worked for them. Although through time many came to similar conclusions about the importance of preparation, their methods and terminology were all different. In a study completed with faculty who all had formal training in simulation teaching methodologies, the variation might not be as striking.

Implications for Nursing Education

Recommendations for Practice

Preparation is essential and it should be included in every simulation. As evidenced in this study, the location can vary as well as time students spend preparing but the content should be similar. Variation between individual instructor's expectations and assignments within one nursing school could be confusing for students. Based on the findings of this study, faculty at each school should be encouraged to define the preparation assignments and adhere to a general timeline and type of assignment, while discussing how to level the assignment for students as they progress through the program. A formal, written simulation outline should be used by undergraduate nursing programs to help standardize the process. The outline would include orientation, preparation activities and pre-brief. Although there is still room for variation and freedom to adjust based on faculty desire and student need, these three essential student preparation items should always be addressed in a standardized way.

Based on the descriptions from the faculty informants, an interesting point was uncovered. Although faculty work hard to make sure students are prepared to attend simulation, schools may not put equal emphasis on faculty training that is required teaching simulation. Out of the eight faculty interviewed, only one had formal simulation training, one had been to a debriefing training and a few had attended conferences. These training opportunities also only

happened after the person had been teaching in simulation, rather than as an orientation to the method. The majority of simulation facilitation knowledge was learned on the job. Outcomes for students who are learning in simulation might not be as good when faculty are not appropriately trained.

The NCSBN study that addresses increased use of simulation for up to 50% of clinical time has very specific prerequisites, i.e., faculty training. The study used the NLN/Jeffries Simulation Framework as a foundation and included structured debriefing using Debriefing for Meaningful Learning (DML) (Hayden et al., 2014). The faculty who participated all received initial orientation, debriefing training and ongoing evaluation during the NCSBN study, yet very few programs have the trained faculty and standardization to match the study settings (Rutherford-Hemming, et. al, 2016). Moving forward, simulation departments must have funding dedicated to faculty training and development. To rely so heavily on a teaching methodology that is being facilitated by novices is potentially harmful to student learning. Preparation and certification as a CHSE and use of the INACSL Standards of Best Practice: Simulation are two benchmarks for faculty training and preparation to teach in simulation that have been recommended (Rutherford-Hemming, et. al, 2016).

Though a consensus recommendation for terminology was not made from the faculty participants, the following terms for the three elements of the student preparation phase should be considered for use, i.e., student preparation activities, orientation and pre-brief. Student preparation activities is clear and separates faculty preparation for the simulation from student preparation. All faculty referred to the introduction to the lab and the process of learning through simulation for students as the orientation so that term is universal and should continue to be used. Pre-brief is the recommended and accepted term for the period immediately preceding

the simulation as described by the INACSL Standards of Best Practice: Simulation as well as the Simulation Dictionary (Lopreiato et al., 2016) and should be utilized in all simulations. Formal and standardized use of common terminology would address the gap in the literature related to terminology as identified by Chamberlain (2015), McDermott (2016) and Page-Cutrara (2015).

Future Research

The interview guide used in this study was initially developed based on questions from a previous study (McDermott, 2016) with questions added for the current study to address specific information sought. While the questions were helpful in obtaining a description of current practice at each school, more information than needed was obtained about the simulation itself and the debriefing. As this study was focused on student preparation for simulation, descriptions of this phase are all that was necessary. Future studies might use similar interview guides, yet be further informed by the findings of this study. The additional information could be helpful for a future analysis of these interviews and provided some context.

The timing of the interviews made it so data analysis could not begin until all interviews were completed. The winter holiday break was upcoming and with many faculty taking time off of work during this period, all interviews had to be completed in about a month. If the study was replicated at another time of year, researchers may be able to begin data analysis prior to completion of the interviews which would be helpful to refine the interview guide and avoid unnecessary interviews.

Faculty training. Multiple comments came from the faculty members related to not being prepared to teach simulation. It is curious the students who come to participate in simulation are expected to be prepared but the instructors who are facilitating simulation are not always trained to do so. The level of faculty training may affect student preparation assignments

– as found in the results of the study – faculty learn along the way. Faculty realize as they gain more experience teaching simulation that students need more preparation and are not successful when thrown into a simulation. Newer faculty who have not attended any formal simulation training may not be preparing students as well as more experienced faculty. New faculty should be oriented to facilitating simulation as well as introduced to the INACSL Standards of Best Practice: Simulation and given specific instruction related to the process of preparing students for success in simulation. Ideally they should receive formal training.

Standard practice. Though the INACSL Standards of Best Practice: Simulation are published, general practice, as seen in this study at these schools, does not seem to follow the standards. Top tier simulation labs may have resources and leaders who are advocates for simulation and training which allows them to practice at a different level than the typical simulation lab seen in this study. Many faculty know of the standards but not details or if/how they are incorporated into their practice. Many of these faculty also rely on pre-developed scenarios and resource materials. These materials provide not only scenarios, preparation work, debriefing questions and post-test but even EHRs. Determining whether these materials are developed according to and whether or not they meet the INACSL Standards of Best Practice: Simulation, would be an important step to identify their usefulness.

Student preparation. The purpose of simulation might need to be defined again. Sometimes student activities and scenarios appear more like rote knowledge or skills and assessment practice than a true reproduction of a real-life situation where communication, critical thinking and thinking like a nurse are used. It is essential to ask if nursing schools are teaching students to think like a nurse or teaching skills. Though students get information about a blood transfusion as preparation, are they taught how to recognize when a patient needs blood

based on their condition, how to assess the patient while administering blood, and the process of evaluating the effect of the transfusion, etc. Due to the lack of training faculty may be forgetting to focus on critical thinking in simulation.

Faculty implementation guide. This study demonstrated the need for faculty to have a resource to use on a consistent basis for implementing simulations. A faculty guide which outlines step by step, element by element how to set up, run and evaluate a simulation would be a helpful tool and an important next step in advancing undergraduate simulation. Research is needed to determine the usefulness of such a tool as well as the necessary and unneeded elements. A formal guide which standardizes practice in the preparation phase would address the identified gap in the literature related to the preparation process (Chamberlain, 2015; Husebø et al., 2012)

Conclusion

The student preparation phase in simulation has been understudied leaving many faculty to develop preparation activities on their own without formal recommendations or guidelines. The results of this qualitative descriptive study can be used by faculty to guide current practices in student preparation. The student preparation phase was clearly described including leveling to student ability, elements of the phase and faculty role (RQ1). Faculty perceptions of the phase were explained (RQ2) as well as recommendations for practice were made (RQ3). A single term which is most commonly used to refer to this phase was not identified (RQ4) and a recommendation for terminology was not made from the faculty informants but the student researcher did make recommendations for the phase to be referred to as orientation and preparation which includes pre-simulation activities and pre-briefing (RQ5).

The findings of this study give a clear description of the current practices in nursing

schools across Colorado and Wyoming to prepare undergraduate nursing students to participate in simulation. Student preparation begins with an orientation to simulation and the simulation lab, mannequins, and environment in which simulation occurs. Rules are introduced during this orientation as well. Pre-simulation activities may occur either off-site by students at home or with other students or on-site with students and faculty facilitators. The pre-brief is always facilitator or instructor-led and is a time to review the materials and ask questions to get ready to provide care for the patient and occurs immediately prior to caring for the patient. Though the elements of student preparation have been clearly described, the issue of inadequate faculty training in simulation must be addressed to ensure simulations are conducted to a degree that provides the best learning opportunity for students.

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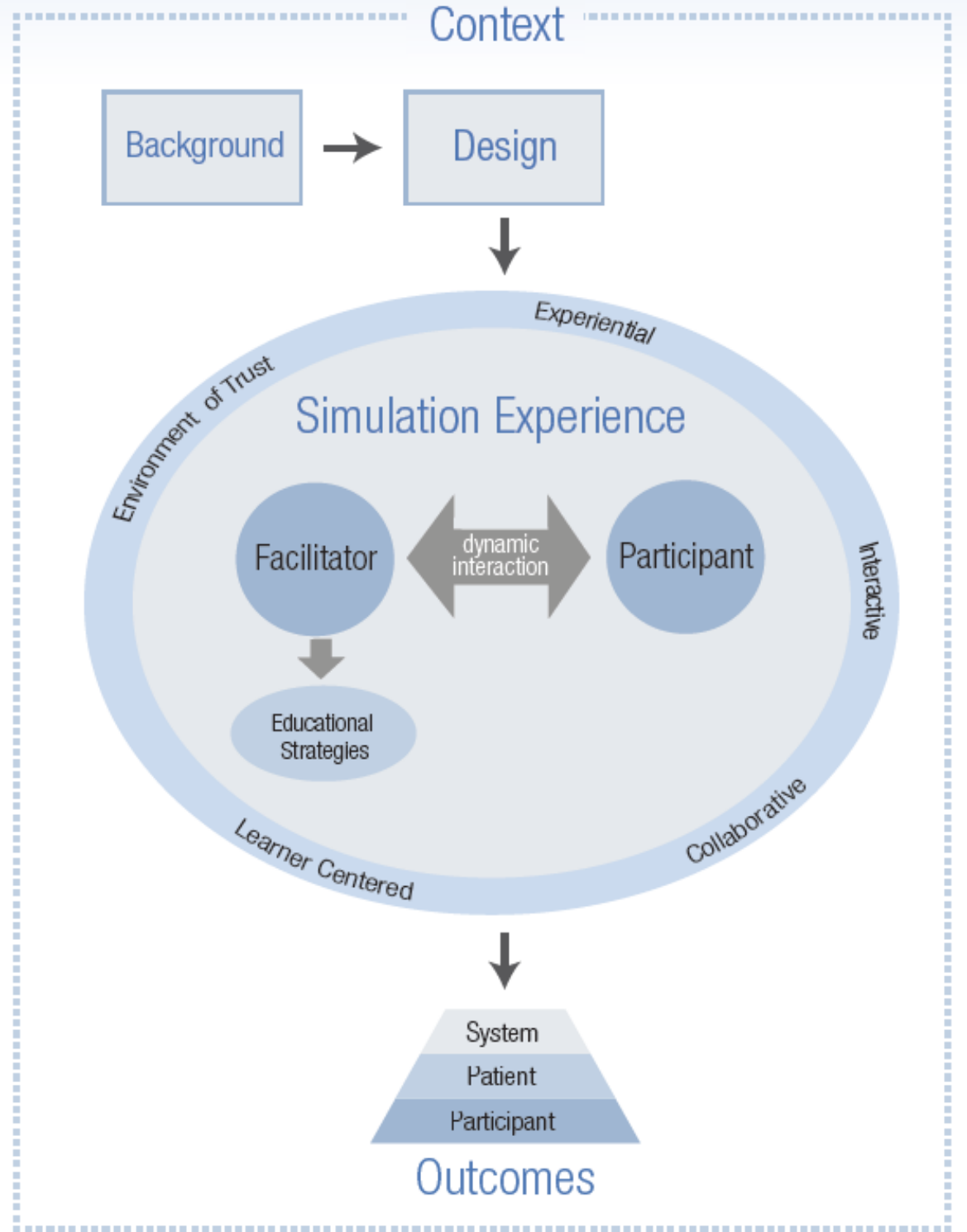
Appendix A:

NLN/Jeffries Simulation Theory



Appendix B:

Participant Recruitment Flyer

Seeking Faculty for Research Study about Simulation

Study Title: FACULTY DESCRIPTIONS OF THE STUDENT PREPARATION PHASE IN UNDERGRADUATE NURSING SIMULATION: A QUALITATIVE DESCRIPTIVE STUDY

Purpose: To describe how faculty help students prepare for simulation in pre-licensure nursing programs in and around the Denver, Colorado area from the perspective of nursing faculty currently teaching simulation in these programs.

Eligibility Criteria: Nursing faculty members having at least a baccalaureate degree in nursing with at least 6 months experience teaching in simulation in pre-licensure registered nursing (RN) programs

Participation commitment: 2 hours for an in person interview about student preparation in simulation, and observation of a simulation session

For more information or to participate please contact
Kesa Herlihy MS, RN
University of Kansas School of Nursing
Email: kherlihy@kumc.edu
Telephone (816)582-5372

Appendix C:

Invitation Letter

Dear Faculty,

I am writing to invite you to participate in my doctoral dissertation study, *Faculty Descriptions of the Student Preparation Phase in Undergraduate Nursing Simulation.* As a faculty member teaching in a pre-licensure nursing program, you have been identified as someone with detailed information on this topic.

Your participation in the study would include approximately 2 hours for an in person interview about student preparation in simulation, and observation of a simulation session. No identifiable information will be collected about you. There are no personal benefits or risks to participating in this study. Participation is voluntary, and you can decide to stop participating at any time.

If you have questions or would like to participate in the study, please contact me at kherlihy@kumc.edu or (816)582-5372 to schedule a time for discussion about the interview and the observation experience.

Thank you for considering being a participant in this important study about simulation practices in undergraduate nursing education.

Sincerely,

Kesa Herlihy MS, RN
Doctoral Student, University of Kansas

Appendix D:

Observation Worksheet

Physical Setting *Location, room, equipment,*	
Participants *Number, gender, approximate age,*	
Activities and interactions *Interventions, communication, team-work,*	
Frequency and Duration *Length of preparation, simulation,*	
Precipitating factors *What happened prior to the simulation*	
Organization	
Intangible factors	

Adapted from Polit & Beck 2017

Appendix E:

Human Subjects Committee Approval

Human Research Protection Program

APPROVAL OF PROTOCOL

August 24, 2016

Cynthia Teel
CTEEL@kumc.edu

Dear Cynthia Teel:

On 8/24/2016, the IRB reviewed the following submission:

Type of Review:	Initial Study
Reviewing IRB:	KUMC
IRB#:	STUDY00004408
Title:	Faculty Descriptions of the Student Preparation Phase in Undergraduate Nursing Simulation: A Qualitative Descriptive Study
Investigator:	Cynthia Teel
Funding:	None
Expedited Category(ies):	(6) Voice, video, digital, or image recordings, (7)(a) Behavioral research
Documents submitted for the above review:	• Expedited Project Desciption • Participant Recruitment Flyer • Faculty Descriptions of Simulation Preparation Proposal • Invitation Letter - Updated • Observation Worksheet
Special Determinations:	• Waiver of consent documentation

The IRB approved the study from 8/24/2016 to 8/23/2017 inclusive. Before 8/23/2017 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations. You can submit a continuing review by navigating to the active study and clicking Create Modification / CR. If continuing review approval is not granted on or before 8/23/2017, approval of this study expires after that date.

In conducting this protocol, you are required to follow the requirements and Standard Operating Procedures posted on our website at:
http://www.kumc.edu/compliance/human-research-protection-program/institutional-review-board.html

Sincerely,

Jennifer Pennington

Mail-Stop 1032, 3901 Rainbow Blvd., Kansas City, KS 66160
Phone: (913) 588-1240 Fax: (913) 588-5771 humansubjects@kumc.edu

Appendix F:

Demographic Data Questionnaire

1) How long have you personally been using simulation in education? (Circle)

   6 months - 5 years 6 - 10 years over 10 years

2) What is the highest academic degree you have completed? (Circle then Fill in the blank)

   Bachelor's/ Master's/ Doctoral degree in the field of _____

3) Please indicate any memberships in professional simulation organizations.

   SSH INACSL Other: please list _____

4) Please list any formal simulation training you have_____

5) Are you CHSE certified? Yes No

6) Please indicate what type of simulations you use (Circle all that apply).

   High fidelity Moderate or mid-level fidelity Low fidelity

   Standardized patients Human patient simulators (HPS)

   CD or DVD Virtual reality Other: please describe_____

7) Do you incorporate the INACSL Standards into your simulations? (Circle) Yes No

8) Which categories most accurately represent your organization? (Circle all that apply)

   Associate Degree / BSN / Accelerated Public / Private For-profit

8) How many students are enrolled at your school? _____

9) How long has the school been using simulation? _____

10) Does simulation count as clinical hours for your students? Yes No

11) Percentage of clinical time is spent in simulation?_____

12) What ratio of simulation to clinical hours does your school use?_____

Appendix G:

Interview Guide

Person:

- ☐ Tell me about your teaching experience?
  - Nurse, Unit, Education, Simulation
- ☐ Can you think of a time when you weren't prepared and how it affected you?
  - How did you feel?

Organization:

- ☐ Do you know of the INACSL standards?
  - If Yes - Does your school incorporate the standards into your simulations?
- ☐ Are/Were the faculty at your organization dedicated simulation faculty?
  - If no – were they adjunct, %FTE,
- ☐ What are the faculty role/responsibilities in simulation (at your school/in your experience)?
  - Technician, patient, other roles, one man band

General Preparation Questions

- ☐ What is the goal of student preparation for simulation?
- ☐ *Please describe your beliefs about the importance of preparing students to achieve success in simulation-based learning. – Very important to not at all to negative --
- ☐ *What learner characteristics affect preparation?
  - What does the typical prepared student look like?
  - What are characteristics of students who are not as well prepared?

Current Practice (think of last simulation experience if not current):

General

- ☐ Describe the typical simulation experience? (Online, campus, etc.)
- ☐ *What is the role of the simulation educator (and/or facilitator) in preparing students?
- ☐ *What are the learner's responsibilities in preparation and or preparing for simulation-based learning? (MCD)

Scenario

- ☐ *What information is provided to the learners prior to the simulation-based learning?
  - Do you provide the student with the scenario objectives prior to the session?
- ☐ When do the learners receive the information (information/packet/workbook)?
- ☐ How much time do learners have for preparation (pre arrival and at site)?
- ☐ *How do you/did you provide information to the learners about the scenario topic prior to the simulation- based learning?
  - Discuss specific strategies such as lecture, report, videos or demonstrations, readings or handouts, skill station practice, learning modules, or others. (MCD)
- ☐ Are there any specific instructions you find yourself repeating multiple times?

Environment:

- ☐ What information is provided to the learners about the simulation environment?
    - Room – emergency equipment, chart, supplies, mannequin, etc.
- ☐ How do you provide information to the learners about the simulation environment?
- ☐ When do the students receive orientation to the simulation environment?
- ☐ Are there any specific instructions you find yourself repeating multiple times?

Perceptions

Student preparation

- ☐ Can students be successful in completing the simulation if they don't prepare?
- ☐ Are there consequences if a learner does not complete their preparation?

Satisfaction

- ☐ Do you feel the students come to simulation adequately prepared to participate?
- ☐ Are you with satisfied with the current level of student preparation?
- ☐ Do you think the students are satisfied with their preparation assignments?

Instructor Preparation

- ☐ What do you, as the educator, do to prepare yourself for a simulation?
- ☐ How much time do you spend preparing?
    - First time/subsequent

Recommendations

- ☐ *What are the essential elements of (simulation) preparation? Outline? (MCD)
    - Does it change as students advance – first year vs second year?
- ☐ *If time or resources were not an issue, what would the ideal student preparation for a simulation experience look like?
- ☐ If you were training a new faculty member, what would tell them about student preparation?

Terminology

- ☐ What do you call the preparation phase of simulation?
- ☐ Do you have a term you recommend we use universally to refer to this phase?

Other/Additional

- ☐ Does your school have a content or concept based curriculum?
- ☐
- ☐

* Questions from McDermott (2015) dissertation used with permission (Appendix G)

Appendix H:

Permission to use materials

From: Donna Mcdermott [mcdermott@rmu.edu]
Sent: Wednesday, June 22, 2016 9:46 AM
To: Kesa Herlihy
Subject: Re: Prebriefing

Hello Kesa,
I'm giving you permission to use my round 1 qualitative questions as long as you cite them as from my dissertation since it is published now.
Best of luck to you.
Donna McDermott

On Sat, Jun 18, 2016 at 6:30 PM, Kesa Herlihy <kherlihy@kumc.edu> wrote:

> Dr McDermott,
>
> I am moving forward with my dissertation proposal and would like to ask if I may use some of the questions you used in Round One of your study in my interviews. If this would be okay with you I would greatly appreciate your response with permission.
>
> Thank you for considering my request,
>
> Kesa Herlihy

Appendix I:

Skill Development and Clinical Judgement©