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Seeking Consensus on Prebriefing: Preparing Students for Simulation-Based Learning

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SEEKING CONSENSUS ON PREBRIEFING:

PREPARING STUDENTS FOR SIMULATION-BASED LEARNING

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Title: Seeking Consensus on Prebriefing: Preparing Students for Simulation-Based Learning

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Over the past 10 years, Simulation-Based Learning (SBL) has developed as a viable strategy to prepare students for clinical reasoning; however, very little is known about the specific components of the SBL experience and how they affect student learning. Currently, there is a gap in the simulation literature regarding prebriefing strategies. Developing strategies for prebriefing may help nurse educators foster the development of clinical reasoning of prelicensure students during SBL.

The purpose of this study was to seek consensus from simulation experts about the prebriefing component of SBL. This study used a modified electronic Delphi design to seek consensus about prebriefing. An expert panel of 59 Certified Simulation Healthcare Educators (CHSE) representing a wide variety of simulation modalities and organizational settings agreed to participate in the study. Thirty of the experts were retained through three rounds of questionnaires which began with literature based open-ended questions about prebriefing. These qualitative responses lead to the creation of quantitative prebriefing item statements which were used for survey data collection in round two and three using a Likert response indicating level of agreement with each statement. A 70% level of consensus was set as the benchmark for the prebriefing statements.

Consensus (>70%) was reached by the expert panel on 83 statements about prebriefing. This study suggested that prebriefing is an important three phase process of SBL composed of planning, briefing, and facilitating. Findings suggested that the simulation purpose, learning objectives, and the level of the simulation learner play an important role in planning and facilitating prebriefing.

The findings of this study provide insight into the importance of prebriefing to SBL learner success. Findings from this study support the need for clarification of the prebriefing terminology. Findings of this study may be used to develop guidelines for simulation educators, administrators, and SBL learners to prepare for a successful SBL experience. The results of this study also support the need for future prebriefing research.

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Spectacular accomplishment is never preceded by less than spectacular preparation. When I found this statement in my fortune cookie while writing my proposal, it became my mantra as I wrote this dissertation about preparing students for simulation learning. Now, as I reflect back, I realize that this statement also reflects my doctoral journey, and I would like to thank the people who helped me prepare for this accomplishment.

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LIST OF ABBREVIATIONS

CHSE	Certified Simulation Healthcare Educator
INACSL	International Nursing Association for Clinical Simulation and Learning
NCSBN	National Council of State Boards of Nursing
NLN	National League for Nursing
NLN/JSF	National League for Nursing/Jeffries Simulation Framework
SBL	Simulation-based learning
SDC	Simulation Design Characteristics (of the NLN/JSF)
SDS	Standards of Best Practice: Simulation Design
SSH	Society for Simulation in Healthcare

CHAPTER ONE

INTRODUCTION

Prelicensure nursing education presents both challenges and innovative opportunities for nurse educators. With the current faculty shortage and decreased availability of clinical sites for training, traditional clinical education has become a difficult task for nurse educators (Benner, Sutphen, Leonard, & Day, 2010; Ravert, 2002). Today's healthcare environment presents patients with higher levels of acuity combined with decreased lengths of hospital stays due to reimbursement requirements for earlier patient discharge. This changing hospital environment provides nurse educators with a predicament. Faculty face a lack of available patients for learning experiences, concerns about ensuring patient safety, and the delivery of appropriate care amid rising health care costs. These limited clinical opportunities as well as changes in nursing science, technology, and practice are driving the increased demand for innovative teaching strategies such as simulation (Howard, Englert, Kameg, & Perozzi, 2011). Simulation experiences for students will help to bridge the gap between the classroom learning and clinical practice (Benner et al., 2010; Dillard, Sideras, Ryan, Carlton, Lasater, & Siktberg, 2009). Simulation-Based Learning (SBL) is an innovative teaching strategy used in nursing education to prepare learners for the complexities and clinical judgment decisions of clinical practice (Jeffries, 2012). Nurse educators can provide students with a realistic SBL experience using a computerized patient simulator (manikin), a virtual reality patient, or a standardized patient (National League for Nursing/Simulation Innovation Resource Center, 2013). This experience mimics the

healthcare clinical setting by creating a high fidelity, or lifelike, situation to engage the student in clinical reasoning.

Typically, the SBL experience consists of a prebriefing period, a simulated clinical patient scenario, and a debriefing period (Jeffries, 2012). During the prebriefing period, students are oriented to the SBL learning environment. They may also complete activities that will prepare them for the simulated learning experience. After the prebriefing period, the students are guided by learning objectives and participate in a facilitated simulated clinical scenario that incorporates real patient situations (Childs & Sepples, 2006; Waxman, 2010). Nurse educators have the capability to replicate clinical experiences with high fidelity manikins, with standardized patient actors, or through virtual reality (Anderson, Holmes, LeFlore, Nelson, & Jenkins, 2010; Howard et al, 2011). These SBL scenarios that occur in a controlled environment allow students to conduct clinical assessments and make nursing decisions based on patient events. As with any critical thinking learning activity, nurse educators need to develop strategies for preparing students for the required clinical decision-making. SBL has developed over the past 20 years as a viable strategy to prepare students for clinical reasoning; however, very little is known about the specific components of the SBL experience and how they affect student learning. Currently, there is a gap in the simulation literature regarding prebriefing strategies for preparing students for clinical reasoning in SBL. To address this gap in knowledge about prebriefing for simulation, it is important to study successful methods for preparing students for SBL. This study sought a consensus of simulation educator expert opinions on the importance of and effective strategies for prebriefing students for SBL. This chapter describes the background, problem, purpose, and

significance of this prebriefing research. The conceptual framework and research questions are provided. Assumptions of the study are discussed and key terms are presented to provide clarity on the simulation and prebriefing concepts.

Background

Over the last 20 years, SBL has evolved as pedagogy across many disciplines such as aviation, medicine, and nursing where experiential learning and critical reflection in a safe controlled environment is of great benefit (Gaba, 2004). SBL in nursing education utilizes high fidelity simulation with manikins, standardized patients, and/or virtual reality patients to reproduce lifelike patient situations allowing students to make clinical decisions regarding patient care in a safe clinical environment. Driven by the release of reports by the Institute of Medicine (IOM), the National League for Nursing (NLN), and the Carnegie Foundation for the Advancement of Teaching National Nursing Study, the use of SBL has proliferated in prelicensure nursing to develop clinical reasoning, practice psychomotor and interpersonal skills, and help students make those important connections between theory and practice (Benner et al., 2010; Hayden, 2010; Institute of Medicine, 2010; National League of Nursing Vision, 2012).

Simulation education emerged in healthcare in the 1960s with the use of resuscitation trainers and standardized patients. In the 1980s, simulation education spread to anesthesia training (Bosek, Li, & Hicks, 2007; Jeffries, 2012). With the development of complex human simulators (manikins) which can imitate human responses, simulation learning provided nurse educators with a tool to help students develop nursing skills and practice decision-making about patient care in a safe environment. Because simulation is costly and requires increased faculty resources, it was necessary to establish the validity

of simulation as a useful pedagogy for nursing education. In 2005, Pamela Jeffries developed a framework for simulation learning that has been instrumental in guiding SBL as a teaching-learning strategy for nursing education.

The NLN-Jeffries Nursing Simulation Framework (NLN/JSF) is used for developing, implementing, and evaluating simulation education (Jeffries, 2005). This framework has several components which influence simulation development. The student role is integral to success of the simulation experience and many factors such as student motivation, age, and prior nursing experience affect the students' learning in simulation (Jeffries, 2012). Other components impacting simulation development are facilitator, educational practices, and simulation design characteristics such as fidelity and debriefing (Jeffries, 2012). Although this framework exists and serves to guide simulation activities, there is inconsistent use of terminology and concepts in the research literature when using the components of this framework. This inconsistency becomes confusing to novice simulation educators as they search for the most effective methods for using SBL.

In response to the needs of simulation users regarding simulation training, development and research, several professional simulation organizations have emerged. In 2003, a professional nursing specialty organization, The International Nursing Association for Clinical Simulation and Learning (INACSL), was founded with a mission of promoting advancement of clinical simulation and learning resource centers (International Nursing Association for Clinical Simulation and Learning website, n.d.). Since its inception, INACSL has grown from 41 to over 1,500 international nursing members, established a peer reviewed journal, *Clinical Simulation in Nursing*, and

conducted annual conferences. These conferences, along with the INACSL website and Listserv, provide opportunities for networking, education, and dissemination of research related to SBL (International Nursing Association for Clinical Simulation and Learning website, n.d.). The current INACSL mission is to "promote research and disseminate evidence based practice standards for clinical simulation methodologies and learning environment" (International Nursing Association for Clinical Simulation and Learning website, n.d., para. 2).

In 2004, another professional organization, the Society for Simulation in Healthcare (SSH) was established by multidisciplinary medical professionals who used simulation for education and research. SSH currently has approximately 3,000 international members representing 40 countries (Society for Simulation in Healthcare website, n.d.). Similarly to INACSL, SSH provides members with a peer reviewed journal called *Simulation in Healthcare*, a website with Listserv, and an annual meeting to promote simulation research, education, and networking. SSH currently provides accreditation to simulation centers that demonstrate compliance with core standards of simulation education. SSH also offers a certification program which allows healthcare simulation educators to validate their professional knowledge and accomplishments in simulation through a comprehensive standardized exam. The Certified Healthcare Simulation Educator (CHSE) applicant must have a bachelor's degree, at least two years of continuous simulation experience, and experience with simulation learners in healthcare education. According to the SSH website (http://www.ssih.org/Certification/CHSE), the CHSE credentials improve simulation

education through knowledge of best practices, standardization, and external validation of professional expertise in simulation.

These professional simulation organizations have responded to the needs of SBL educators by providing suggested standardization of simulation learning experiences. These organizations also provide simulation development and training for their members and they identify priorities in simulation research. In January 2011, members of SSH conducted a research summit to determine the current state of simulation research and to develop priorities and guidelines for future research in simulation (Dieckmann, Phero, Issenberg, Kardong-Edgren, Ostergaard, & Ringsted, 2011). The SSH research committees acknowledged that there was very little research to determine what effect the different components of the simulation experience have on simulation outcomes and learning for students (Dieckmann et al., 2011). One of the components of the simulation experience that remained understudied was prebriefing—the preparation of learners for simulation learning.

In 2011, the INACSL Board of Directors developed the Standards of Best Practice for Simulation. Implementation guidelines for the standards were further developed in 2013 (International Nursing Association for Clinical Simulation and Learning Board of Directors, 2013). In these standards of best practice, terminology associated with SBL was defined in an attempt to provide consistency and standardization of language when using simulation as a teaching methodology. Practices regarding facilitation, debriefing, and outcomes for simulation experiences provided educators with guidance in creating SBL experiences for use as a teaching methodology

(International Nursing Association for Clinical Simulation and Learning Board of Directors, 2013). According to these standards, prebriefing was defined as:

> An information session held prior to the start of a simulation activity and in which instructions or preparatory information is given to participants. The purpose of the prebriefing is to set the stage for a scenario and assist participants in achieving scenario objectives. Suggested activities in a prebriefing include an orientation to the equipment, environment, manikin, roles, time allotment, objectives, and patient situation. (Meakim et al., 2013, p. s5)

Although prebriefing was defined and a few suggestions for activities were recommended, gaps remain in the literature regarding best practice related to prebriefing for the SBL experience (Dieckmann et al., 2011; Gantt, 2013; Groom, Henderson, & Sittner, 2014; Page-Cutrara, 2014). Because no standard terminology for simulation preparation was determined until 2011 with the INACSL prebriefing definition, there is very little empirical evidence regarding best practices for prebriefing or preparing students for simulation. This leaves nurse educators, especially novice SBL users, perplexed about how to best prepare students for the clinical reasoning required for SBL.

Statement of the Problem

It is anticipated that more schools of nursing will begin to use SBL; therefore, more research is clearly indicated to help educators understand the many components of SBL and their influence on student learning. The recent release of a national longitudinal simulation study conducted by the National Council of State Boards of Nursing (NCSBN) provides an impetus for studying the components of SBL. This study determined the impact of replacing traditional clinical hours with 25% and 50%

simulation for prelicensure nursing students (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). The findings from this study provided strong evidence for the use of simulation as replacement for up to 50% of traditional clinical experiences. The authors further concluded that simulation can only replace clinical time when it is conducted using "high quality simulation" according to best practices in simulation education (Hayden et al., 2014, p. s38). This study has widespread implications for nurse educators. The caveat to these findings was that SBL could only replace traditional clinical experiences for students as long as it was conducted under similar circumstances with highly trained SBL educators who are familiar with best practices in simulation education (Hayden et al, 2014). Nurse educators face the challenge of determining the best strategies to achieve SBL for students when empirical evidence is lacking.

In an effort to address best strategies for SBL, each of the constructs of the NLN/JSF has been examined. Groom, Henderson, and Sittner (2014) reviewed the literature on one of the constructs of the framework, Simulation Design Characteristics (SDC). A panel of INACSL members was then consulted at the 2012 annual INACSL conference. The purpose of this member consultation was to obtain feedback on the five subcomponents of simulation design noted in the NLN/JSF: objectives, fidelity, problem solving, student support, and debriefing (Groom et al., 2014). The SDC construct alludes to the prebriefing component of SBL with the subcomponents of objectives and student support. Orientation is noted as a component of student support in the framework. Although there was widespread agreement that orientation to the manikin and the learning environment is an essential element of prebriefing, there was no consensus reached during this panel inquiry about prebriefing, specifically the best approach for:

- Revealing the learning objectives to students
- Determination of and "sequencing of prebriefing and prerequisite learning
- Information about what should be shared ahead of time (e.g., prebriefing)" (Groom et al., 2014, p. 342)

The panel discussion session was confusing to members due to the conflicting opinions of simulation educators regarding the prebriefing component. There are no evidence-based guidelines regarding the amount and type of information simulation educators should provide prior to the SBL experience. Additionally, no consensus of opinion exists on the best vehicle for providing the content during the prebriefing period. Further prebriefing research may lead to new practices that will better prepare students for SBL. This study sought expert opinion regarding the role of prebriefing from experienced simulation users. Expert simulation users are informed advocates of SBL and have the knowledge, training and experience required for SBL. This study attempted to seek consensus from these experts on recommended practices in prebriefing. The results of this study were an initial attempt to develop guidelines for nurse educators to use to prebrief their students for simulation learning. These guidelines were especially helpful to direct novice simulation educators in SBL. This research may also provide recommendations for methods that can be used to consistently develop future simulation prebriefing activities and research.

Purpose

The purpose of this study was to seek consensus from simulation experts about the prebriefing component of simulation learning. This consensus drove the development of strategies or recommended methods for prebriefing learners for SBL. Developing strategies for prebriefing may help nurse educators foster the development of clinical reasoning of prelicensure students in the situated patient care context of SBL. This descriptive study used a modified e-Delphi approach. The modified e-Delphi method is a multi-staged survey that seeks consensus of expert opinions on an issue through several rounds of survey inquiry (Keeney, Hasson, & McKenna, 2011). This approach is unique because of its ability to seek expert opinion by gathering information through anonymous electronic surveys. The Delphi method is useful when there is incomplete knowledge about a topic such as prebriefing. It also provides opinions of experts of diverse backgrounds representing a wide geographical region (Logue & Effken, 2013). The specific aims of this study were to: (a) determine expert simulation educators' perspectives of the prebriefing role to SBL, and (b) develop guidelines for nurse educators in preparing students for simulation learning.

Significance

The gap between prelicensure education and actual nursing practice performance requirements has long been noted in nursing education. Graduates demonstrate a dissonance in the ability to think critically about patient situations and make clinical decisions (Burns & Poster, 2008). The nursing literature recommends improving teaching and learning strategies in prelicensure nursing education that promote critical thinking

and clinical reasoning during patient situations (Benner et al., 2010; Berkow, Virkstis, Stewart, & Conway, 2008; Priddy & Crow, 2011).

Simulation-based learning provides an active learning environment where students can practice cognitive, interpersonal, and psychomotor skills, make clinical judgments, and demonstrate critical thinking during patient care (Dillard et al., 2009; Dreifuerst, 2009; Gaba, 2004; Jeffries, 2005; Waxman, 2010). Nursing education should strive to build students' knowledge base as well as develop a sense of salience about what is important in a particular clinical situation (Benner et al., 2010). SBL gives prelicensure nursing students the opportunity to prioritize assessment data and make critical decisions about patient care interventions; however, nursing students face difficulty when presented with a vast amount of content throughout their nursing education. Prebriefing may give students the opportunity to sift through previous nursing knowledge and determine salient information for the simulated patient. When students have the opportunity to prioritize assessment needs, plan interventions, and then practice these skills in simulation-based learning, they are building on their previous knowledge of nursing content. The reflection that occurs with SBL allows students to construct new knowledge about how to apply this learning to future patient encounters.

Although simulation is embraced by nurse educators, students can be reluctant or hesitant when participating in SBL. Jeffries (2012) suggests that students are more likely to assume responsibility for their own learning if they are aware of the ground rules for the activity. Because simulated scenarios are not real patient encounters, the nurse educator needs to set the tone and expectations for the students before they enter the simulation environment. Students who are clinically inexperienced may have difficulty

understanding which aspects of real clinical practice are replicated during simulation (Husebo, Friberg, Soreide, & Rystedt, 2012). Just like when teaching on a clinical unit, orientation to the clinical environment of SBL is essential so that students can function during the scenario. Students need to have an understanding of the capabilities of the simulated environment, as well as what resources are available to them during the scenario.

According to a literature review by Nielsen and Harder (2013), simulation frequently causes anxiety for students, which may interfere with their learning. Causes of student anxiety noted in the simulation literature were a lack of student self-confidence, not knowing what to expect, unsupportive faculty, performing in front of peers, anticipation of simulation events, and feeling unprepared for the SBL experience (Nielsen & Harder, 2013). Students are observed and sometimes their actions are recorded during their simulation experience. Observation of performance can be daunting to students and they may become anxious about demonstrating a lack of knowledge or skills in front of their instructors or peers (Nielsen & Harder, 2013). Some studies indicated that a heightened level of anxiety may enhance learning and performance (Bong, Lightdale, Fredette, & Weinstock, 2010; DeMaria, Bryson, Mooney, Silverstein, Reich, Bodian, & Levine, 2010). Other studies indicated that performance is diminished with heightened or overwhelming levels of anxiety (Nielsen & Harder, 2013). Based upon their literature review, Nielsen and Harder (2013) recommend strategies for reducing student anxiety that directly speak to the prebriefing component of SBL. These recommendations include prebriefing elements such as orientation to the SBL environment and roles, introduction

of the scenario ahead of time, provision of skill practice prior to the SBL, and planning of nursing care for the simulated patient as a group prior to the scenario.

To enhance simulation learning, nurse educators need to develop strategies to prepare students for the SBL experience and to reduce student anxiety. Results from this study may assist nurse educators in the development of prebriefing methods that will prepare their students for SBL and ultimately for the practice environment. This study contributes to the growing body of literature on simulation learning and provides a consensus of experts' opinions about prebriefing strategies for students in SBL learning. In addition, this study sought the perspectives of simulation experts about the role of prebriefing to students' success with SBL.

Conceptual Framework

This research was guided by a simulation conceptual framework. The NLN/JSF developed by Pamela Jeffries, serves as a template for simulation development (Jeffries, 2012). The NLN/JSF emphasizes five conceptual components of simulation development: (a) facilitator factors, (b) participant factors, (c) educational practices that need to be incorporated into the instruction, (d) simulation design characteristics, and (e) expected outcomes (Jeffries, 2012). Each of these components has several factors that can affect the design of the three phases of simulation: prebriefing, facilitation, and debriefing. Although prebriefing is not specifically mentioned in the NLN/JSF, it is reflected in part under the component of simulation design characteristics (objectives). This framework served as a guide in developing prebriefing questions for the simulation expert panel as well as the potential guidelines generated from these opinions. A thorough review of this framework is provided in Chapter Two.

Research Questions

Because the overall purpose of this research is to provide guidance for simulation educators regarding strategies for SBL prebriefing, several broad questions served as an initial starting point to describe the phenomenon of prebriefing. Delphi studies are unique because they begin qualitatively in the first phase of data collection known as round one. As information emerged from round one, statements were developed to quantitatively address the following research questions:

1. What is the role of the simulation educator in prebriefing students for SBL?
2. What is the role of prebriefing in learner success in SBL?
3. What strategies are recommended for prebriefing students?

Assumptions

The underlying assumptions of this study included:

- SBL learning in nursing education should be conducted according to INACSL Standards and Guidelines for Practice: Simulation (2013).
- Providing learning opportunities that assist prelicensure nursing students to develop clinical reasoning/critical thinking is an important aspect of nursing education.
- The nurse educator is responsible for ensuring that the SBL activities enable students to meet simulation learning objectives.
- Faculty training in SBL pedagogy is essential for the design and facilitation of effective simulation experiences that enhance learning.

- Professional simulation organizations such as INACSL (nursing) or SSH (interdisciplinary) provide consistency, legitimacy, and leadership support for SBL.
- The CHSE certification assures that the study participants will have the knowledge, skills, and abilities essential for the educators in the field of simulation and the level of competence and educational expertise in the field of healthcare simulation.
- Group opinion is more valid than individual opinion. This assumption is frequently made with the Delphi method of inquiry.

Definition of Terms

The following are definitions of key terms that will be utilized throughout this study.

Prebriefing: "An information session held prior to the start of a simulation activity and in which instructions or preparatory information is given to participants and sets the stage for a scenario and assist participants in achieving scenario objectives" (Meakim et al., 2013, p. s5).

Simulation-Based Learning (SBL): Experiences using full scale computerized patient simulators, virtual reality or standardized patients that are extremely realistic and provide a high level of interactivity and realism for the learner (National League for Nursing-Simulation Innovation Resource Center, 2013).

Simulation: Activities meant to mimic a real life situation (Jeffries, 2005).

Prelicensure nursing student: A person enrolled in a diploma, associate degree, or baccalaureate nursing program who is eligible to take the NCLEX-RN licensure exam

upon program completion. This person has a goal of working as a professional registered nurse.

Simulation expert or expert panel: (for the purposes of this study) will be recruited from a database of individuals who have been certified as a healthcare simulation educator (CHSE) through the Society for Simulation in Healthcare (SSH).

Simulation-Based Learning experience or simulated clinical experience: Used synonymously and includes the prebriefing, the clinical simulation scenario, and the debriefing components of the simulation. The simulated experience is guided by learning objectives and provides the participant with a safe controlled learning environment for making mistakes or taking risks during patient care (International Nursing Association for Clinical Simulation and Learning Board of Directors, 2011).

Simulation scenario: The actual clinical patient situation developed for learning. The scenario is guided by learning objectives and written to reflect a clinical decision making scenario for the participants. The simulation scenario should always be facilitated by an experienced simulation facilitator.

Consensus of expert opinion: The extent of the agreement between simulation experts on the components of prebriefing. For the purposes of the study, consensus will be set at 70%.

Chapter Summary

This chapter provided an introduction to SBL and prebriefing. The background of SBL was discussed. The statement and significance of the problem, study purpose and research questions, and the assumptions of this study were provided. In addition, the conceptual framework was proposed and key terms were clarified. Chapter Two provides

the historical context of SBL, and a review of the literature on components of prebriefing and the study conceptual framework.

CHAPTER TWO

LITERATURE REVIEW

The purpose of this study was to seek consensus from simulation experts about the prebriefing component of simulation learning. This chapter describes the conceptual framework guiding this study: the NLN/JSF, and its five conceptual components. The NLN/JSF was examined for elements of prebriefing and gaps in the framework regarding this element of SBL will be identified. This chapter discusses background literature related to the prebriefing component of simulation learning and provides a review of the existing prebriefing research. The prebriefing component of SBL was organized according to the simulation research findings. Finally, the Delphi method of inquiry is described and studies using this method will be presented.

National League for Nursing/Jeffries Simulation Framework

This section of the literature review describes the guiding conceptual framework of this study: the NLN/JSF and its conceptual components. Findings and recommendations from an expert simulation educator/researcher task force literature review are presented.

Description and Components of the National League for Nursing/Jeffries Simulation Framework

In 2005, Pamela Jeffries proposed a conceptual model for designing, implementing, and evaluating simulation as a teaching strategy in nursing education (Jeffries, 2005). Originally, this framework was known as the Nursing Education Simulation Framework, but is now referred to as the NLN/JSF. Jeffries developed the model from a review of theoretical and empirical literature related to learning outcomes

in higher education. Additionally, Jeffries conducted a review of the literature of simulations in nursing, medicine, and other disciplines. A seminal work by Chickering and Gamson (1987) regarding best educational practices for undergraduate students served as a foundation for development of the educational practices of the simulation framework. The framework was developed and tested through a landmark NLN/Laerdal simulation multisite study and has been published in several articles and books (Jeffries, 2005; Jeffries, 2007; Jeffries, 2012). The study led to the development of a teaching and learning framework for the creation, implementation, and evaluation of simulation in nursing education (Jeffries & Rizzolo, 2006). Currently, this framework serves as a guide and foundation for simulation educators as they develop simulation based learning experiences for students; however, the prebriefing component of SBL is not immediately evident when viewing the model.

In 2011, the NLN and INACSL developed a research task force to consider the framework in anticipation of theory development (Jeffries, 2012). The task force consisted of five teams (based upon each of the framework components) of expert simulation nurse researchers/educators. The research teams reviewed existing research and literature regarding the component and made suggestions, revisions, and recommendations for theory development and framework use. The results have been published in the INACSL journal, *Clinical Simulation in Nursing*, and were also presented at the INACSL 2012 annual conference for confirmation and questions by conference participants (Durham, Cato, & Lasater, 2014; Groom et al., 2014; Jeffries, 2012; Jones, Reese, & Shelton, 2014; Hallmark, Thomas, & Gantt, 2014; O'Donnell, Decker, Howard, Levett-Jones, & Miller, 2014). The findings from this extensive task

force work, as well as Jeffries' published work, provided information for this review of the NLN/JSF.

The NLN/JSF has "five conceptual components (See Figure 1), each of which is operationalized through a number of variables" (Jeffries, 2012, p. 26). The five components include: (a) Facilitator (formerly: Teacher factors), (b) Participant (formerly: Student factors), (c) Educational practices that need to be incorporated into the simulation, (d) Simulation design characteristics, and (e) Expected student outcomes.

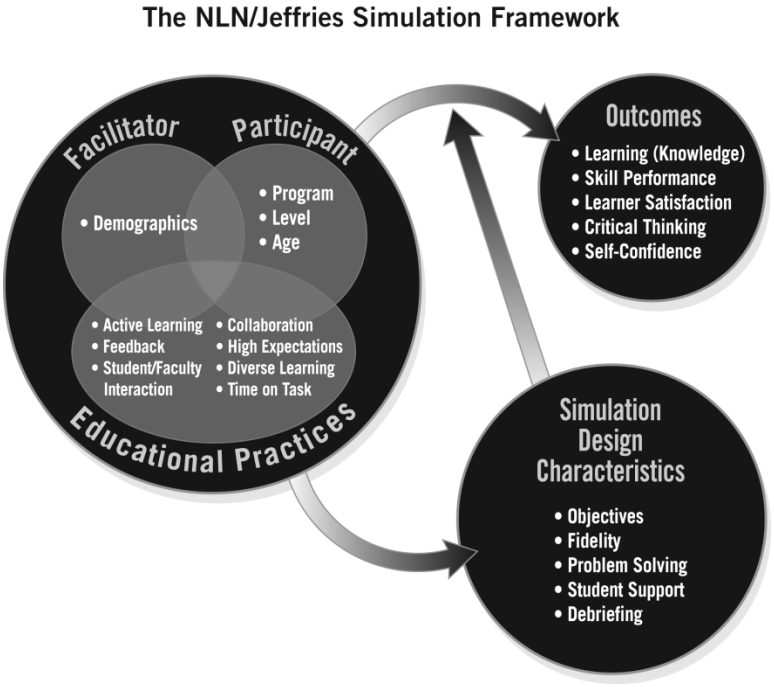

Figure 1. The NLN/Jeffries simulation framework - reprinted with permission from the NLN (see Appendix A).

As seen from the model, interaction occurs with all five constructs of the framework. Each of the components of the framework are discussed in this section. In addition, each component was scrutinized for elements that pertain to prebriefing participants for SBL.

Facilitator Construct of the National League for Nursing/ Jeffries Simulation Framework

The facilitator, or teacher, as formerly known in the earlier version of the framework, plays a significant role in simulation design and facilitation. Findings from the 2014 state of the science task force report indicated inconsistent use of terms to reference teacher in the literature. Terms such as faculty, nurse faculty, instructor, teacher, facilitator, mentor, and educator were found in the simulation literature (Jones et al., 2014). Based upon recommendations from the task force, the name of this construct was changed from teacher to facilitator and is referred to as facilitator in this study. According to the INACSL standards of best practice, facilitator is defined as "an individual who provides guidance, support, and structure during simulation-based learning experiences" (Meakim et al., 2013, p. s6). Jeffries described the facilitator as someone who provides support to the learner and asks questions to foster critical thinking during the simulation and debriefing (Jeffries, 2012). The task force reviewed 59 articles that included original research, dissertations/theses, expert conference proceedings, concept analyses, and systematic reviews (Jones et al., 2014). According to the task force, four categories were developed to represent the characteristics of facilitator in the simulation literature: (a) demographics, (b) roles/responsibilities, (d) values, and (d) attributes (Jones et al., 2014). Although the framework has only demographics listed as a subcomponent, the task force found evidence of the other elements in the simulation literature (Jones et al., 2014).

As noted by the task force, the facilitator construct is the least studied area of the NLN/JSF. The NCSBN study indicates that simulation can only replace clinical time

when conducted under similar conditions as in the study (Hayden et al., 2014). "These conditions include faculty members who are formally trained in simulation pedagogy, an adequate number of faculty members to support the student learners, and subject matter experts who conduct theory based debriefing" (Hayden et al., 2014, p. s38). Many questions remain about the optimal demographics and knowledge, skills, and attitudes (KSAs) required for an effective simulation facilitator. More research is clearly indicated to understand the influence of the facilitator's role in enhancing student learning during simulation and as noted in the next section, the role of student-facilitator interaction.

Participant Construct of the National League for Nursing/ Jeffries Simulation Framework

According to the INACSL standards of best practice, participant is defined as "one who engages in a simulation-based learning activity for the purpose of gaining or demonstrating mastery of knowledge, skills, and attitudes of professional practice" (Meakim et al., 2013, p. s6). Previously referenced by Jeffries as "student factors," the participant component of the NLN/JSF was divided into the three subcomponents of program, level, and age (Jeffries, 2005; Jeffries, 2012). The participant construct task force conducted an extensive literature review using the terms "student, learner, and/or participant" and had several difficulties due to inconsistent use of multiple terms for all aspects of simulation. The task force team recommended changing terminology of this construct from student to participant and it was noted that this terminology was also changed in the second edition of the Jeffries book (Durham et al., 2014; Jeffries, 2012).

In her initial work, Jeffries discussed the responsibility of students for their own learning and motivation in achieving simulation outcomes (Jeffries, 2005). Student

responsibility and motivation was reiterated in her second book and she elaborated on student roles and the establishment of ground rules for students (Jeffries, 2012). Based upon the literature review, the task force added additional subcomponents and characteristics to the participant aspect of the NLN/JSF: demographics, roles and responsibilities, attributes and values. Interestingly, the information on several of the added subcomponents by the task force appeared to be guided by a textbook chapter rather than additional evidence from the research literature (Durham et al., 2014). It was unclear how the task force developed the additions from the literature review, but findings did suggest inconsistencies in simulation terms and the need for expansion of subcomponents of the participant construct.

The inconsistencies in terminology and lack of evidence reported by the task force suggest that more research is indicated regarding the participant construct of the NLN/JSF. It is clear that many variables may affect the participant's simulation experience and more research is needed to determine the effects of these variables on SBL outcomes. The NLN/JSF serves as a starting point for planning simulation activities for students, but more research about the effects of its participant component are warranted.

Educational Practices in Simulation Construct of the National League for Nursing/Jeffries Simulation Framework

The educational practices component of the NLN/JSF has seven areas developed from the principles for good practice in undergraduate education (Chickering & Gamson, 1987; Jeffries, 2012). The subcomponents are: (a) active learning, (b) feedback, (c) diverse learning styles, (d) student-faculty feedback, (e) high expectations, (f)

collaboration, and (g) time on task. Jeffries recommended consideration of these subcomponents when designing simulation experiences to improve student satisfaction and performance (Jeffries, 2012).

Similar to findings by the other research task force teams, there was inconsistency and poor definition in the use of the terminology related to the educational practice construct. The researchers of this team provided clear explanation of the literature review process and used empirical findings across disciplines to support the subcomponents. The findings of this team emphasized the importance of faculty-student interaction in SBL (Hallmark et al., 2014). Although the healthcare related research about faculty—student interaction was limited, the team found evidence related to the positive influence of faculty on student learning in educational and business literature. Additionally, a qualitative study by Parsh (2010) was cited as support for the positive influence of the facilitator. The study examined student views of effective simulation facilitators and found that students wanted support and collaboration during simulation decision making (Parsh, 2010). The task force concluded that this subcomponent was a critical part of simulation design and implementation (Hallmark et al., 2014). Additional findings included terms such as feedback/debriefing and active/experiential learning were used interchangeably.

The educational practice component of the NLN/JSF appeared to have the most research of any of the other constructs; however, it was clear from the task force review that more work is necessary in defining and clarifying terms used in this construct such as feedback versus debriefing, diverse learning, and time on task. Additionally, the task force recommended implementing the educational practice components when designing

SBL experiences, but agreed that clarification is necessary when incorporating collaborative learning, active learning, and expectations. Interestingly, it was noted that questions remain about the difference between student and facilitator expectations. More research was recommended to address these questions and unclear terms.

Simulation Design Characteristics Construct of the National League for Nursing/Jeffries Simulation Framework

Several simulation design characteristics (SDC) must be considered when designing and implementing a SBL experience for students. The NLN/JSF addressed elements of SDC for the educator to use when creating simulation learning experiences. The educator must consider five subcomponents: (a) objectives, (b) fidelity, (c) problem solving, (d) student support, and (e) reflective thinking or debriefing (Jeffries, 2005; Jeffries 2012). Initially, the subcomponents of problem solving and student support were referred to as complexity and cues in the earlier version and were changed in 2007 (Jeffries, 2007). Although the SDC subcomponents of the framework are widely discussed in the simulation literature, similar to the other NLN/JSF components, there is lack of clarity of terminology (Groom et al., 2014).

The task force that examined the literature for the SDC construct provided a detailed description of the literature search and terms and used empirical literature and systematic reviews as evidence. Because there were limited articles with the SDC terminology, the team also included scenario design as a search term. Similar to other task force findings, the team noted absence of standard terminology, limited reference to the NLN/JSF in research, and lack of information about the role of SDC as a variable in SBL (Groom et al., 2014).

In conclusion, the task force recommended standardization of terminology associated with SDC and additional research to examine the role of SDC in attaining not only learner simulation outcomes, but also at the level of patient care and system outcomes (Groom et al., 2014). The SDC component of the NLN/JSF serves as a guide for educators in creating and facilitating SBL, but more research is needed to determine best practices of simulation design.

Outcomes Construct of the National League for Nursing/Jeffries Simulation Framework

Outcomes constitute the final construct of the NLN/JSF. Learning (or knowledge), skill performance, learner satisfaction, critical thinking, and self-confidence are a few of the subcomponent outcomes being assessed with SBL (Jeffries, 2012). The team defined the concept of *learning outcome* as "the measurable effects of a simulation based activity between participant, educator, simulator, and environment which takes into consideration educational objectives, participant level, pre-experience preparation, environmental realism, and simulator realism" (O'Donnell et al., 2014, pp. 374-375). The task force completed an extensive review of the literature on each of the subcomponents and reported the use of systematic reviews, concept analysis articles, empirical literature, and expert commentary. The task force for this construct had similar challenges regarding standard terminology and found limited use of theoretical frameworks in the simulation literature (O'Donnell et al., 2014). Additionally, the team noted that few studies discussed the reliability and validity of measuring tools when assessing critical thinking, knowledge and learning, and self-confidence/self-efficacy. The team noted that earlier studies used investigator developed instruments; however, more recent literature,

although sparse, used validated tools such as the NLN Student Satisfaction and Self-Confidence in Learning instruments (O'Donnell et al., 2014). In the critical thinking component review, many of the studies (76%) used small convenience samples and 52% were conducted with one group of students at one institution (O'Donnell et al., 2014). The team concluded that "supportive evidence was strongest in knowledge acquisition, satisfaction and clinical skill attainment, weakest for critical thinking/clinical judgment, and confidence/self-efficacy" (O'Donnell et al., 2014, p. 373). Based upon literature review and feedback from conference attendees, the task force team recommended adding outcomes such as transition to practice, improved communication, clinical performance, professional behaviors, and clinical outcomes to the NLN/JSF model (O'Donnell et al., 2014). The team also recommended using the framework for developing simulation experiences and research in support of standardizing simulation education.

Summary of National League for Nursing/ Jeffries Simulation Framework Constructs

The overwhelming theme that emerged from the literature reviews by all five construct task force teams was a lack of consistent terminology in simulation education and research. Other noted factors were the lack of documented theoretical frameworks to support simulation research and the limited use of valid and reliable research tools. All of the research teams found limited empirical evidence documenting the use of the framework as a guide for education and research. Although the task force teams described an overview of the literature review process, the use of the research literature for framework support was not always provided or evident for each of the constructs.

Despite these limitations, the NLN/JSF remains a valuable tool for designing, implementing, and evaluating SBL. Using the framework as a guide for simulation education and research may enhance understanding of the framework and provide direction for simulation learning.

Although the model contains information about simulation design and debriefing, the term prebriefing or even presimulation briefing is not evident at first glance of the framework. Closer review of the literature suggests that prebriefing is superficially discussed in the literature. The following literature review of prebriefing describes empirical evidence about simulation preparation, prebriefing gaps in the NLN/JSF and the literature, and recommendations for future research.

Prebriefing

This section of the chapter addresses the state of the science of prebriefing in SBL and is organized according to the literature findings. Prebriefing components, methods, and prebriefing roles and expectations are presented. Finally, gaps in the prebriefing literature are discussed.

A literature review was utilized to determine current and past practices of preparing nursing students for simulation experiences. The databases of Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Medline, Academic Search Complete, and Education Resources Information Center (ERIC) were searched using the initial keyword search terms *prebriefing* and *simulation*. This resulted in 65 articles which were then filtered by the years 2006-2014 and exclusions made for non-educational or non-simulation literature. The keyword *nursing* was also added as a search term. Hand searching of research and scholarly articles within the last 10 years was also

completed for additional terms such as "orientation," "prescenario learning activities," pre-simulation activities," or "simulation preparation." Eighteen articles were determined to meet criteria for describing prebriefing or simulation preparation activities including two non-research articles that were innovative projects (Decker, Moore, Thad, Opton, Caballero, & Beasley, 2010; Hermanns, Lilly, & Crawley, 2011) and a template for simulation design (Waxman, 2010). Additionally, the previously discussed literature reviews from the NLN/JSF task force was used to support this literature review. An examination of the simulation literature revealed the utilization of multiple methods for preparing students for the simulation experience but no research specifically studied the best method or necessary components of prebriefing. As noted previously, prebriefing is not specifically mentioned in the NLN/JSF but elements can be found threaded throughout the constructs. Although none of the studies examined the effects of prebriefing on learning or compared methods of prebriefing, several components of prebriefing emerged from the literature. These elements may have been mentioned in different simulation studies but no clear guidelines were provided about how to use them to prepare students for SBL. The elements of prebriefing that were noted were orientation, expectations, prerequisite knowledge, methods and amount of content to prepare students, and some noted innovative prebriefing approaches. This literature review was organized according to these elements of prebriefing.

Orientation

As previously discussed in Chapter One, prebriefing was defined in the INACSL standards of best practice as:

> An information session held prior to the start of a simulation activity and in which instructions or preparatory information is given to participants. The purpose of the prebriefing is to set the stage for a scenario and assist participants in achieving scenario objectives. Suggested activities in a prebriefing include an orientation to the equipment, environment, manikin, roles, time allotment, objectives, and patient situation. (Meakim et al., 2013, p. s5)

Prior to this definition, prebriefing was frequently referred to in the literature in multiple ways such as presimulation activities, preparation, or orientation. However, the term prebriefing is not specifically used in the NLN/JSF model. Regardless of the definition used for simulation preparation, the overwhelming theme emerging in the literature about prebriefing was the need to orient simulation participants to the practical aspects of simulation (Alinier, Harwood, Harwood, Montague, Huish, Ruparelia, & Antuofermo, 2014; Aronson, Glynn, & Squires, 2013; Bruce, Scherer, Curran, Urshel, Erdley, & Ball, 2009; Cazzell & Howe, 2012; Childs & Sepples, 2006; Fey, Scrandis, Daniels, & Haut, 2014; Gantt, 2013; Gore, Leighton, Sanderson, & Wang, 2014; Howard, Englert, Kameg, & Perozzi, 2011; Jeffries, 2012; Johnson, Lasater, Hodson-Carlton, Siktberg, Sideras, & Dillard, 2012; Reese, Jeffries, & Engum, 2010; Sharpnack, Goliat, & Rogers, 2013).

Orientation, a subcomponent of the SDC construct of the NLN/JSF, has been documented in several studies. As part of the larger three year multisite NLN-Laerdal Corporation study from which the NLN/JSF emerged, Childs and Sepples (2006) conducted a pilot project ($N = 55$) to study the simulation development and implementation process and measured student satisfaction. Student preparation for

simulation involved an orientation to the overall experience, the purpose and objectives, and the expected outcomes (Childs & Sepples, 2006). The students in this study indicated that feedback (via debriefing) and learning objectives were the most important features in the simulation (Childs & Sepples, 2006). Similarly, Alinier et al. (2014) conducted a 20 minute orientation to the simulation center and equipment prior to their experimental study exploring whether simulation improved trainee perception of interprofessional education. Although the researchers provided a detailed description of the presimulation process, they did not address the impact of prebriefing in their findings thus leaving a gap in the literature.

Orientation was also an element provided in a descriptive pilot study by Anderson et al. (2013) that compared the effectiveness of video-taped role modeling prior to simulation for nurse practitioner students. An orientation to the manikin and room equipment was given to all of the students prior to dispersing into treatment groups, but no comments were made in the study about the effect that orientation had on learning. In fact, all of the reviewed research studies provided students with an orientation to the simulation manikins, equipment, and environment prior to beginning the simulation; however, very few details about the required elements of the orientation, the length of time for orientation, or the effects of the orientation on the study outcomes. Ensuring that students understood how the manikin and other equipment worked and the supplies available to them during the simulation was deemed a crucial element of the simulation experience but no empirical evidence was given about how best to provide this orientation to learners.

Expectations

Another theme that was prevalent in the prebriefing literature was delineating expectations of the SBL which includes defining roles, and providing learning objectives for simulation participants. In the NLN/JSF, expectations are a subcomponent of the educational practice construct and objectives are part of the SDC construct. According to Jeffries (2012), participants are expected to be responsible for their own learning. Simulation educators must prepare students for SBL by providing the ground rules for the experience. Information about the role the student will play and permission to make mistakes during learning are suggested as essential components of prebriefing. Although this information is provided by Jeffries, it is not defined as prebriefing nor indicated in the model as prebriefing or simulation preparation. Jeffries (2012) also indicated that faculty should have high simulation performance expectations for students during SBL; however, the INACSL task force discovered that this was an implied aspect of the experience and was not addressed in the research literature (Hallmark et al., 2014). No information was provided about how or when to establish the climate of respect and high expectations with simulation participants.

Providing students with information about learning objectives and expectations appears to be a widely accepted practice in the simulation literature but one without empirical evidence of the effects on simulation outcomes. Although some of the studies recommended that educators orient learners not only to the equipment that will be used during the simulation such as manikins or patient monitoring equipment, but also to the rules and expectations of the scenario before starting the simulation, none of them provided empirical evidence to support this practice (Howard et al., 2011; Jeffries et al.,

2011; Reese et al., 2010). Jeffries (2012) also recommended setting boundaries with learners regarding expected behaviors during the simulation with emphasis on roles, safety, and interpersonal interactions. There was overwhelming opinion in the literature that promoting an atmosphere of respect and mutual learning in a safe environment, prior to simulation, helps to alleviate student anxiety about simulation performance but no studies that actually evaluated these as outcomes (Alinier et al., 2014; Childs & Sepples, 2006; Gantt, 2013; Howard et al., 2011; Jeffries & Rogers, 2007; Reese et al., 2010; Sharpnack et al., 2013; Waxman, 2010). Students need to have an understanding that simulation is a safe environment where mistakes can be made without fear of repercussion. This idea of a safe learning environment was also mentioned in a qualitative study by Fey et al. (2014) that explored student perspectives on debriefing. Students in this study defined safety in two ways: prevention of harm to real patients and a safe psychological environment where students are allowed to make mistakes (Fey et al, 2014). Although this study focused on the debriefing component of simulation, the researchers provided a detailed description of prebriefing activities that included:

> The purpose of simulation, formative versus summative evaluation, timeline overview, confidentiality expectations, and the fiction contract (i.e. suspending disbelief). Students were oriented to the simulation environment and participated in a simulated telephone call to a provider for practice in interprofessional communication before the simulation. Students could ask questions about simulation, equipment, and faculty expectations before the simulations. (Fey et al., 2014, p. e251)

Other than the description of the student's thoughts about safety, no mention was made about the effects of prebriefing on the simulation learning experience and only the debriefing components were developed as outcomes in this study.

In virtually every study of simulation learning, recommendations were given to provide simulation learners with orientation and expectations. None of the studies have examined the effects of these elements of prebriefing on learning or provided clear step-by-step instructions for how or when to provide this information to students. Throughout the simulation literature, objectives were discussed as a critical aspect for guiding simulation development; however, it was noted by the task force that there were differences in opinion about measuring objectives and how many were needed for each simulation (Groom et al., 2014). Additionally, controversy exists about how and when to share objectives with the participants to avoid giving away the details of the simulation scenario (Groom et al., 2014). Disagreement exists about whether objectives should be detailed to the scenario topic and provided to students prior to SBL or instead more generic to allow for discovery learning during the SBL. For example, if the scenario topic is pulmonary embolism. Should the educator tell the students that one of the learning objectives is *to recognize a pulmonary embolism*? Does this give too much information about what is to come in the simulated learning experience? Or would it be better to provide the students with a less specific objective such as *performing a respiratory assessment* so that students may discover the patient problem on their own? This lack of agreement leaves the simulation educator confused about the best method to prepare students for SBL. Further research is indicated to determine the effects of orientation, learning objectives, and expectations on SBL outcomes.

Prerequisite Knowledge

Another element of preparing students for SBL discovered in the literature was building on prerequisite knowledge. Although not specifically mentioned in the NLN/JSF, the SDC construct references the concept of prerequisite knowledge when describing the subcomponents of problem solving and student support. According to the INACSL task force literature review, students were required to problem solve according to their cognitive and behavioral level (Groom et al., 2014). Simulation facilitators could provide cues for student decision making based upon their prerequisite knowledge as a means of offering student support during simulation. For example, students who have less experience may require more cueing than more experienced students. It was unclear from the task force how facilitators determined the level of cueing or problem solving needed for a particular scenario or how much information to provide to students prior to SBL. When the task force met with the INACSL membership during the presentation of these findings at the annual conference, additional questions arose regarding "determining and sequencing of prerequisite learning and what information should be shared ahead of time" (Groom et al., 2014, p. e6). There was consensus from the group that additional research should focus on these aspects of student support.

Again, although no studies examined the direct effects of prebriefing on SBL, several recommendations exist about preparing students for simulation using their previous knowledge as a guide. Waxman (2010) further identified a need to determine the student's level of prerequisite knowledge of psychomotor skill and activities prior to the simulation session in her recommended simulation design template. A quasi-experimental study by Aronson et al. (2013) used a convenience sample ($N = 24$) to study the

preliminary effectiveness of a role-modeling intervention on enhancing student nurse competency in responding to a simulated response to rescue event. They recommended teaching students to practice out loud during skills practice prior to simulation to allow faculty to determine knowledge of skills used in simulation. The researchers believed that the raters evaluating the students would gain insight about students/thinking and doing while performing psychomotor skills or assessments prior to or during the simulation. Aronson et al. (2013) acknowledged that it was not possible to determine which component of this small pilot study was most effective in improving student simulation performance. Likewise, Bruce et al. (2009) identified learning needs for students prior to the simulation experience and provided students with the opportunity to practice previously learned skills prior to the SBL. Assessing skills prior to the simulation may help determine if students have the prerequisite knowledge required for participation in the simulation scenario, but no empirical evidence was provided on the impact of SBL.

In a study by Husebo et al. (2012), briefing was a foundational part of the instructional work to determine student understanding of concepts and to correct misunderstandings of patient information before the simulation begins. In this study, 11 video-taped briefings that took place prior to simulation were analyzed for facilitator-student interaction during the briefing period. Prior to the briefing, students participated in a two hour cardiopulmonary resuscitation lecture, defibrillation, and a one hour skills training session (Husebo et al., 2012). During the 20 minute briefing, students were given an introduction to the bed, the patient simulator, and the medical equipment that would be used in the simulation. These briefings were recorded and analyzed to include the speech, gestures, bodily positions, and actions of each facilitator and student. The researchers

identified patterns in the instructions and students responses. They found that several tasks such as using the bag mask for ventilation were seldom performed correctly even after a brief demonstration by the facilitator and that the student frequently indicated understanding rather than trying to seek further instruction and achieve correct performance (Husebo et al., 2012). Findings from this study emphasize that not only is a general orientation and introduction to expectations important, but an important component of simulation involves assessing student prior knowledge and understanding of what the simulation is actually representing.

If SBL is a teaching strategy to help students assimilate new knowledge into their existing knowledge base, then assessing the level and needs of the learner become a vital part of the simulation process. Further research is indicated to determine the best method for determining what prerequisite knowledge the students have and need prior to participating in SBL.

Simulation Content and Methods

Although there was agreement that practical orientation to the simulation manikin and simulation environment was a necessary prebriefing component for the simulation participant, there were no guidelines about content to prepare the students for the clinical decision making necessary for the specific SBL topic and experience.

The literature did not reveal any evidence-based standardized format regarding the amount and type of information to be provided prior to the simulation experience or the best vehicle for providing the preparation. Because the NLN/JSF lacks an evident prebriefing component, it is difficult for educators to determine the best way to prepare students for SBL. Several studies mentioned providing students with simulation content

via lectures, online modules, assigned readings or videos, but did not comment on the effectiveness of these in preparing students or provide recommendations for prebriefing (Alinier et al., 2014; Childs & Sepples, 2006; Howard et al., 2011; Johnson et al., 2012; Reese et al., 2010; Sharpnack et al., 2013). For example, Alinier et al. (2014) supplied prebriefing content on Crisis Resource Management prior to one of four multidisciplinary simulations. Childs and Sepples (2006) prepared nursing students with a two hour lecture on recognition and response to cardiac arrhythmias prior to laboratory sessions and a mock code scenario. Howard et al. (2011) also provided content material to students on heart failure via lecture as well as a 10 minute presentation reviewing the care of the patient with acute coronary syndrome and cerebrovascular accident prior to simulation on these topics. Students from one school of nursing ($N = 151$) completed a researcher developed instrument to provide their perspective of the SBL experiences. Again, these studies only mention the method and type of prebriefing and do not make recommendations about the effects on learning or simulation performance.

Other than a recommendation by Jeffries (2007) for a brief 10 minute prebriefing, no other information was found regarding the recommended length of prebriefing activities; however, several studies did mention the length of time that was spent on prebriefing prior to the simulation experience and included: five minutes (Reese et al., 2010); 15 minutes (Howard et al., 2011); 20 minutes (Alinier et al., 2014); 30 minutes (Aronson et al., 2013); 45 minutes (Gore et al., 2014); and one hour (Cazzell & Howe, 2012; Decker et al., 2010). These times were noted in the study descriptions and were not recommendations or studied as part of the research.

Prior to 2011, the simulation literature recommended limiting the amount of prebriefing information for students and providing only a brief patient report. This limited prebriefing was thought to benefit students due to a decreased chance of revealing critical events that may occur during the simulation (Childs & Sepples, 2006; Jeffries, 2005; Nehring & Lashley, 2010). Jeffries (2012) suggested that although the simulation should be based on prior knowledge and skills, the information supplied should not interfere with the learner's ability to problem solve independently. Providing students with a brief verbal report or baseline scenario information prior to students entering the simulation room was indicated as a recommended method of prebriefing for several studies but was not a studied component (Alinier et al., 2014; Childs & Sepples, 2006; Gore et al., 2014; Howard et al., 2011; Husebo et al., 2012; Reese et al., 2010). Additionally, a few studies provided students with an opportunity to review the electronic health record (EHR), review medication calculations, and practice medication removal from a medication retrieval system before beginning the simulation scenario but provided no details about the effects on student learning or simulation performance (Aronson et al., 2013; Cazzell & Howe, 2012; Decker et al., 2010; Gore et al., 2014; Sharpnack et al., 2013).

Only two research studies were noted that specifically explored student preparation or briefing prior to simulation. As mentioned earlier, in Husebo et al.'s (2012) qualitative study exploring instructional briefing problems and simulation preparation, these researchers reviewed the literature on briefing in simulation and found limited information on the amount and type of prebriefing. These researchers completed instructional analyses of video recordings of 11 briefings to determine: (a) learner

understanding of the simulation performance, and (b) the ability of instructors to bridge the gap between simulation and practice. The authors concluded that briefing is an often "taken-for-granted aspect of instruction and point to the briefing as a much more complex and critical component" than is often indicated in simulation textbooks and research literature (Husebo et al., 2012, p. e316). Gantt (2013) also examined the effects of preparation on student anxiety in a quasi-experimental study using a convenience sample of 39 senior nursing students. In this study, students from a senior capstone course over two semesters were alternatively assigned to two groups. Both groups received a before and after evaluative simulation experience and the Spielberger State-Trait Anxiety Inventory. The experimental group received an additional individualized simulation practice experience with debriefing prior to their evaluative simulation. No significant differences in anxiety or simulation performance were found between the two groups. Although a power analysis determined a sample size of 90, the experimental group had 24 students and the control group consisted of 15 students. Once students realized they would not receive the individualized simulation practice experience, many withdrew from the study. This study was limited by the small sample size of students from one school and the higher attrition rate of the control group. The preparation for the experimental group was defined as an additional session of simulation with the primary investigator before the evaluative simulation; however, other than the extra simulation time, no additional components of the simulation preparation were noted such as didactic preparation or orientation. Gantt (2013) recommended further research examining how best to orient and prebrief as well as learning outcomes for different methods of prebriefing.

According to the NLN/JSF, the facilitator is instrumental in designing and implementing SBL. Several factors have emerged from this literature review about simulation facilitators that are relevant to prebriefing. Additionally, as indicated in the NCSBN study and work of the task force team, the facilitator must support and demonstrate respect for student learning, have knowledge of student abilities, and knowledge of learning theories; however, questions arise about how to train a simulation facilitator to ensure meeting these required knowledge, skills, and attitudes (KSAs). It is unclear what demographic variables or simulation competencies the educator must possess to successfully implement simulation as teaching method. Although the importance of the simulation facilitator role was widely accepted opinion in simulation literature, more research is clearly indicated on the facilitator construct of the NLN/JSF. One area that emerges as an area for needed research is the role of the simulation facilitator in preparing students for SBL and the effects of this preparation on SBL.

Innovative Methods

Although none of the studies specifically compared the amount or type of prebriefing, some innovative prebriefing methods were noted in the literature. As mentioned earlier, Alinier et al. (2014) completed a study of various healthcare programs at a British university to explore trainee perception of interprofessional roles and skills (N = 237). Prior to the interdisciplinary simulation experience, the participants received practical orientation as noted earlier and a review of cognitive aids, treatment protocols, and locations of phones for calling for help during the simulation. Crisis Resource Management teamwork principles and concepts were also provided to students prior to the simulation. Bruce et al. (2009) also prebriefed students with principles of crisis

resource management in their quasi-experimental study with graduate nurse practitioner students ($N = 11$) and undergraduate nursing students ($N = 107$). Prior to completing a mock arrest simulation scenario, the participants received an algorithm of myocardial infarction management and the opportunity to practice oxygen administration and arrhythmia recognition in skill lab sessions; however, the researchers did not address whether this was a successful method of preparation other than noting evaluation remarks by students.

> Two students stated that too much information was provided ahead of time, limiting the amount of questions they needed to ask to obtain background information about the patient. Twenty-eight students identified the need for better orientation to the room, equipment, and medications. (Bruce et. al., 2009, p. 26)

These remarks were taken from two tools developed by the researchers to evaluate confidence and competency. No information about the reliability or validity of these tools was provided. Although this study does begin to provide nursing faculty with a beginning understanding of some prebriefing components, there were some limitations to the study including the convenience sample of students and the researcher developed instruments. These limitations raise concerns about the generalizability of the findings.

Another method of prebriefing was described by Decker et al. (2010) in an innovative project that integrated concept mapping and diagramming into a prebriefing session to facilitate critical thinking for prelicensure nursing students. Students used a white board and worked in small groups to determine patient priorities before entering the simulation room. Although not a study, students anecdotally reported improved satisfaction with simulation learning (Decker et al., 2010). Similarly, in a study by Gore

et al. (2014), students ($N = 70$) had an opportunity to use resources to plan patient care, identify nursing diagnoses and interventions, and ask questions prior to beginning the simulation scenario. Although the purpose of this study was to compare student perceptions about learning with manikins of high versus low fidelity, the researchers provided the students with a comprehensive 45 minute prebriefing period. The researchers discovered that there were no statistical differences in student learning with high or low fidelity manikins used during this study. Also, students perceived that there were no differences in how their learning needs were met between high fidelity simulations and clinical time (Gore et al., 2014). Unfortunately, no mention was made of the effect of the prebriefing session on student learning. Other limitations of this study included the small homogenous sample from one school and the self-reported student perceptions of learning. In both of these articles, the simulation facilitator played a significant role in helping the students determine patient priorities of care during the prebriefing period. Hermanns et al. (2011) also mentioned the role of the faculty in prebriefing in their program innovation which required students ($N = 10$) to complete a focused 30 minute reenactment of a psychiatric crisis. Students evaluated the experience with a researcher developed self-rating tool. No information was provided on the development or reliability and validity of the measurement tool. The faculty conducted a prebriefing session to review the major components of the scenario. Each of these components included specific tasks, assessment, interventions, and monitoring of the suicidal patient. Similar to other research (Alinier et al., 2014; Childs & Sepples, 2006; Howard et al., 2011; Johnson et al., 2012; Reese et al., 2010; Sharpnack et al., 2013), no

information was provided about the role that prebriefing played in the simulation learning of the students (Hermanns et al., 2011).

A recent international multi-site study ($N = 275$) by Johnson et al. (2012) used simulation to determine the effects of an expert role model to promote clinical judgment in nursing students caring for geriatric patients. Presimulation activities were designed in three phases to guide the students from nursing care of surgical patients, to nursing care of older orthopedic patients to finally care for the simulated patient. In addition, the experimental group of students watched an expert role model video of the simulation prior to beginning the scenario. Student satisfaction was measured using a researcher developed Likert-scale tool and clinical judgment was evaluated with the Lasater Clinical Judgment Rubric ($r = .57$ to $.96$). Results of the study indicated the effectiveness of simulation as a teaching methodology for clinical judgment ($p < .001$) and showed promise for expert role modeling. Interestingly, the researchers assumed that the expert role model improved the clinical judgment but did not indicate or address the effect that the tiered prebriefing had on the simulation or the clinical judgment of the students (Johnson et al., 2012).

Two additional studies evaluated the effects of expert role-modeling on knowledge or competency (Anderson et al., 2013; Aronson et al., 2013). As in the Johnson studies, simulation participants in the experimental groups viewed a videotape of an expert role model performing a simulation scenario as part of the preparation for simulation. While Anderson and colleagues (2013) noted no difference in knowledge, self-efficacy or technical skills between groups ($N = 16$), Aronson et al. (2013) noted a significant improvement ($N = 24$) in post-test scores after exposure to the role modeling

intervention (t (23) = 4.364, p <.001). Both of these studies were limited by small convenience samples and used researcher developed instruments but do provide some beginning data on activities that may be helpful for simulation preparation.

This literature review has illustrated the trend that various methods are used for prebriefing in SBL and noted in the literature but no assessment or evaluation of their effectiveness has been studied. This leaves simulation educators with a lack of clear directions or guidelines that can be used to for prepare students for SBL.

Gaps in the Literature

As indicated by the literature review, student preparation was considered an essential element of simulation learning. Although prebriefing methods were frequently described, little research existed that specifically examined the effects of prebriefing on learning, the role of the simulation educator during the prebriefing experience, or the type/amount and/or timing necessary for preparing students for clinical decision making. In addition, many of the studies consisted of very small convenience samples of students from one course, one school, or one geographic location. Because limited instruments for measuring simulation performance exist, many of the simulation evaluation tools were researcher developed with little to no information about reliability and validity. In addition, no one has specifically examined the contribution of prebriefing as a whole to SBL. Components of prebriefing such as orientation, expectations, and prerequisite knowledge were extracted from the literature but no research indicated the effects of prebriefing as a whole on SBL. Varied methods such as report on the simulated patient, lecture, and online modules were noted as a means for preparing students for the topic of the scenario in the literature. Innovative methods such as role modeling videos, concept

mapping exercises, and actual simulations to prepare learners were also identified; however, the amount and type of information and the amount of time spent on preparation activities varied from study to study with lack of explanation about how the researcher arrived at the method that was used to prepare learners for SBL.

In addition, prebriefing is not clearly evident in the NLN/JSF which is recommended as a guide for developing and implementing SBL and research. As indicated from the framework, elements of prebriefing are essential for SBL but are also not clearly defined or evident when looking at the model or the simulation literature. If the goal of SBL is to improve knowledge, skill performance, learner satisfaction, critical thinking, and self-confidence, it is simplistic to believe that prebriefing does not contribute to successful SBL. The literature hints that the simulation facilitator must work in partnership with the students, but no clear evidence based guidelines exist for how the educator should prepare students for SBL. Preparing students for the SBL experience becomes a challenge for simulation educators who look to the NLN/JSF for guidelines and assistance with prebriefing. Gaps in the literature regarding the role of prebriefing leave the simulation educator with many questions about prebriefing such as:

- What are the essential elements of prebriefing/preparing learners for SBL?
- What activities provide the best preparation for simulation participants
- How much information should students receive to prepare them for SBL without disclosing the critical incident of the simulation?
- How long should the prebriefing period be in comparison to the simulation and the debriefing period?

- What is the role of the simulation educator in planning and conducting prebriefing?
- What are the participant responsibilities in preparing for simulation?
- How does the level of the participant and/or experience with simulation impact the level of prebriefing?
- What type of training should be provided to the simulation educator regarding prebriefing activities?
- How important is the prebriefing component to SBL and what is its effect on simulation performance?
- Does viewing an expert role model in simulation provide participants with additional clinical reasoning skills and improve simulation performance?
- How should the effect of prebriefing on SBL be measured?
- Can prebriefing for SBL be used to prepare participants for clinical practice?

These questions leave simulation educators with little guidance for prebriefing for SBL. A study to determine recommended prebriefing strategies, the role of prebriefing, and the role of the simulation educator in SBL success will contribute to standardization of terms and to a process for performing prebriefing. In addition, this study contributes additional information that will be helpful in further theory development of the NLN/JSF framework. Similar to findings by Page-Cutrara (2014), this literature review noted that simulation learners are given a wide variety of preparation methods for simulation with no real evidence of how to best prepare students for the clinical decision making required in a complex patient care setting. The ultimate goal of SBL is helping students apply

knowledge to a simulated scenario and develop the ability to make clinical decisions about patients. Furthermore, prebriefing research may lead to new practices to better prepare students to use clinical judgment required for simulation and practice in the clinical setting. Clearly, the gaps in the literature regarding prebriefing strategies, content, and method of delivery indicate a need for further research on prebriefing. More study is indicated to provide simulation educators with recommendations to prepare students for the clinical decision making required to care for a simulated patient.

Summary

This section of the chapter provided a review of the existing literature on the current and past practices of prebriefing in SBL. Some common components of prebriefing that were evident in the literature were orientation to the simulation environment and equipment and discussion of roles and expectations. The role of prerequisite knowledge and simulation methods and content, including some innovative methods, were presented but lacked a clear basis in research to support their effectiveness. Finally, the gaps in the literature were presented as well as further questions about prebriefing needing investigation

The Delphi Technique

This section discusses the methodology used for this study, the Delphi technique. Background information on this research approach included information on the use of the Delphi technique and rounds of inquiry, the selection of experts, setting the level of consensus, and the limitations of using this method. Finally, a critical review of research studies that have used this technique are presented.

The criteria set for inclusion in this literature review were nursing research studies in English that utilized the Delphi method and were published in the last five years. In addition, the studies had to provide a detailed description of the Delphi procedure, sampling, and/or limitations. Twelve studies met criteria for review (Barton, Armstrong, Preheim, Gelmon, & Andrus, 2009; Blackwood, Albarran, & Latour, 2011; Boldt, Velstra, Brach, Linseisen, & Cieza, 2012; Chang, Gardner, Duffield, & Ramis, 2010; Cottrell, Jonas, Bergsten, Blaas, Torre Aboki, Howse, . . . Bulinckx, 2013: García-Fernández, Agreda, Verdú, & Pancorbo-Hidalgo, 2014; Logue & Effken, 2013; Mannix, 2011; McElhinney, 2010; Rauta, Salantera, Nivalainen, & Junttila, 2013; Schell, 2006; Wilson, Hauck, Bremner & Finn, 2012). Additionally, two other sources provided information for this review of the Delphi technique. One, a textbook, *The Delphi Technique in Nursing and Health Research,* by Keeney et al. (2011) is based upon the authors' own work using Delphi research. The second source was an article by Skulmoski, Hartman, and Krahn (2007) that provides a guide for graduate research using the Delphi technique. By reviewing empirical articles that have used the Delphi technique, researchers are able to make decisions about procedures such as sampling, rounds of inquiry, data analysis and level of consensus, and establish rigor for a Delphi study.

Background of the Delphi Technique

The Delphi technique is a research method that solicits group information, opinions, and ideas from a panel of experts using a specific sequence of rounds of inquiry (Keeney et al., 2011; Mead & Mosely, 2001). The Delphi is frequently referenced in a number of different ways in the literature as a technique, a method of inquiry, or a

research approach. This type of research originated with the RAND Corporation and the United States Air Force during the 1950s for their study of a military project forecasting war strategies. In this initial application of the method, experts were required to provide their opinions on inter-continental warfare and forecast war events such as enemy attacks and bombings through a series of surveys (Keeney et al., 2011). Since its initial use for military forecasting, the Delphi technique has been used extensively by social science researchers and has been increasingly employed to identify research priorities and gain consensus in many areas of health care and nursing research (Keeney et al., 2001).

The Delphi method is frequently described as an iterative process to collect and summarize the judgments of experts through a series of data collection and analysis techniques (Skulmoski et al., 2007). The main assumption of this technique is that "group opinion is more valid than individual opinion" (Keeney et al., 2011, p. 3). According to Skulmoski et al. (2007), the Delphi approach is ideal for research: (a) that requires group problem solving, (b) when there is incomplete knowledge of a subject, (c) when the goal is to improve understanding of problems or develop forecasts, and (d) when a topic could benefit from subjective judgments of individuals on a collective basis. Keeney and colleagues (2011) summarized these uses for the Delphi technique and state the purpose of the Delphi is to "achieve agreement among a group of experts on a certain issue where none previously existed" (p. 4).

Several adaptations of the Delphi technique have been utilized for healthcare and nursing research. The Classical or Original Delphi method is characterized by: (a) anonymity of the Delphi participants, (b) iteration which allows participants to refine their opinions with feedback of each round, (c) controlled feedback which informs

participants of the views of the group, and (d) a quantitative analysis of the data (Keeney et al., 2001; Skulmoski et al., 2007). The Classical Delphi method is ideal for forecasting key issues, focusing on making decisions, developing future policies, and eliciting opinion for consensus (Keeney et al., 2011). Ideally, this method begins with broad based open-ended questions that are analyzed qualitatively for content and then converted to statements measured via a scale such as a Likert scale for quantitative analysis of data.

Early research using this method employed postal mail data collection; however, the electronic or e-Delphi technique is emerging as a convenient, inexpensive, and time efficient modification of the Classical Delphi approach. The e-Delphi allows for surveys to be emailed directly to participants, filled out online through an administrative system, and collected in an electronic database for analysis.

Examples of the classical Delphi technique were found in three of the reviewed studies. McElhinney (2010) used an electronic Delphi technique to identify factors that influence the ability of nurse practitioners to practice physical exam skills in a clinical setting. Three rounds of inquiry were used for this study that generated 22 helping factors and 13 hindering factors of practicing physical exams in the clinical area. This study was conducted using the classic three rounds of inquiry with a 75% level of consensus and feedback provided to all participants. The first round began with open-ended qualitative questions that were then converted to statements for quantitative analysis. Similarly, Schell (2006) used the classical Delphi technique to describe the process of innovative teaching in the baccalaureate nursing classroom. Her study also used three rounds of inquiry with a beginning round of open ended questions that were converted to Likert scale questions and analyzed quantitatively with a consensus level set at 80%. Schell

(2006) also provided the participants with controlled feedback on responses. In another example, Blackwood et al. (2011) conducted a classical Delphi study to identify and prioritize research topics among European intensive care nurses. They also began their study with a broad question to list priority areas of research. The researchers then provided participants with Likert style statements in subsequent rounds and asked them to rank them in order of importance, but unlike the previous studies, there was no preset level of consensus noted.

Another version of the Delphi, the modified Delphi technique has also been used in nursing and healthcare research. Traditionally, the first round of the Delphi consists of open-ended questions that generate ideas from participants about the topic of interest (Logue & Effken, 2013). In contrast, the modified Delphi may begin with a set of statements that have been adapted from standards, selected after a literature review, or guided by researcher experience, pilot study, or focus group (Boldt et al., 2012; Cottrell et al., 2013; Keeney et al., 2011). The modified Delphi may also have less than the typical three iterative rounds or may conduct the first or last round as an in-person group meeting (Cottrell et al., 2013). These adaptations in the classical Delphi technique may have resulted since there are no universally adopted guidelines on the use of the Delphi method. The modified Delphi also has merit for improving the initial response rate of round one and providing a foundational start based on previous work (Mannix, 2011).

Several examples of the modified Delphi technique can be found in the literature. A study by Mannix (2011) used the modified e-Delphi to determine national standards for neonatal intensive care nursing (NICN) education. In this study, the researcher developed the initial set of questions rather than the panel of experts generating the first

draft of the standards. Similarly, an initial 24 statements were provided to an expert panel in a study by Rauta et al. (2013) that used a modified e-Delphi to determine important elements of perioperative nursing. The researchers used a workgroup to develop the opening statements based upon review of the literature and clinical expertise of the national workgroup. The workgroup also asked six experts to pilot the initial questions before sending them out to the panel of 55 experts (Rauta et al., 2013). Likewise, Logue and Effken (2013) developed their round one statements from a theoretical framework to determine the validity of the proposed study framework. The authors of this study believed that providing the participants with the proposed concepts and corresponding indicators of the framework improved the round one response rate (Logue & Effken, 2013). Likewise, the literature was also used to support indicators of quality nursing care in an Australian pediatric study that used the modified Delphi technique (Wilson et al., 2012). The authors indicated that an extensive literature review of quality and nursing sensitive indicators was used to compose an initial list of 57 indicators for round one.

Finally, a national Delphi study to determine the progression of quality and safety competencies in nursing education used a web based modified Delphi (Barton et al., 2009). Based upon work in a previous study, the researchers developed six competency domains of quality and safety education for nurses (QSEN) and used the Delphi method to seek agreement about the developmental progression of 162 QSEN knowledge, skills, and attitudes (KSA) statements. In round one, experts in the QSEN Delphi study were asked where and when in the curriculum should each of the 162 KSAs be emphasized in the curriculum. Round two was conducted with the same questions plus feedback of the

round one results. For the final round of the study, only the items that had not achieved two-thirds consensus were included (Barton et al., 2009).

The researcher must consider the nature and purpose of the research and information available in the literature when making decisions about the rounds of inquiry. The type of Delphi study, classical or modified, is usually determined by the first round of inquiry. Several other characteristics of the Delphi need to be considered when planning a Delphi study.

Characteristics of the Delphi Technique

Despite the different adaptations of the Delphi technique, several characteristics serve as the hallmark of this technique. Expert selection and sampling, setting a level of consensus, as well as limitations of this method, are presented.

Expert Selection and Sampling

Unlike many research methods, the Delphi technique does not use a random sample to represent the population. Instead, this method seeks to obtain the opinion from a selection of experts and uses a purposive nonrandom sample. Defining an expert sometimes becomes challenging for the researcher and key criteria must be set for panel selection. The formation of this expert panel is one of the keys for the success of a Delphi study. Adler and Ziglio (1996) recommend four requirements for the expert panel: (a) knowledge and experience with the topic, (b) willingness to participate, (c) sufficient time to participate, and (d) communication skills. The researcher must establish inclusion and exclusion criteria for expert selection and be able to justify the choice of experts (Keeney et al., 2011).

Sample size is another challenge regarding the expert panel. No firm guidelines have been proposed for the number of experts recommended to serve on the panel. According to Keeney et al. (2011), a range of sample size has been noted from a low of 8-12 experts, mid-range sample size of 10-50 experts, to a larger size of 300-500 experts. Due to the need for participants to answer several rounds of a survey, attrition is a problem for the Delphi study. The researcher must select enough participants to ensure a final sample size that will provide enough data for a believable consensus.

Sample sizes and attrition rates, as well as panel selection criteria, were noted in the reviewed studies of this section. All 12 of the studies selected and invited a purposive sample to participate on the expert panel. Although every study identified some area of expertise for their participants, nine of them established specific criteria for inclusion on the expert panel (Blackwood et al., 2011; Boldt et al., 2012; Chang et al., 2010; Garcia-Ferenandez et al., 2014; Logue & Effken, 2013; Mannix, 2011; McElhinney, 2010; Rauta et al., 2013; Schell, 2006; Wilson et al., 2012). Three of the studies did not provide any information about attrition rates (Barton et al., 2009; Cottrell et al., 2013; Garcia-Fernandez et al., 2014) and it is noteworthy that all three of these studies only had two rounds of survey inquiry.

Participation in professional organizations played a role in expert panel selection in many of the studies. In a modified Delphi study by Mannix (2011), the panel was actually selected by members of a professional organization, the Australian College of Neonatal Nurses (ACNN). The panel invited 16 members based on neonatal intensive care nursing (NICN) qualification, and experience with teaching or having a clinical role with NICN. Thirteen out of the invited 16 panel experts responded to round one yielding

an 81% response rate. Attrition rates for this study were 66% in round two and 86% in round three. Similarly, Blackwood et al. (2011) also used national critical care associations to recruit expert panel members for their e-Delphi study to identify research topics among European intensive care nurses. The criteria for expert panel selection were: nurses involved in the national board of their associations, nurses who were engaged in direct patient care or nurses who were actively involved in intensive care research. Interestingly, all 110 invited intensive care nurses from 20 countries responded to round one, with response rates dropping to N = 66 (60%) in round two and N = 58 (53%) in round three. Likewise, García-Fernández et al. (2014) invited 18 members of the Spanish Pressure Ulcer Advisory panel as experts for their modified e-Delphi study that reviewed risk factors for pressure ulcers. In addition to the professional qualification, the participants had to have more than 10 years experience in wound care. Only two rounds were completed and no attrition information was provided for this study.

Although Boldt et al. (2012) also used professional organizations to provide names for their panel of nurses with experience in caring for spinal cord injury (SCI) patients, they also used a literature search for recruitment of authors with a background in SCI. The researchers invited a panel of 40 nurses with at least two years experience of SCI and had an 88% response rate in the first round ($N = 35$). Attrition rates for this study were low with response rates of 88% ($N = 27$) in round two and 71% ($N = 25$) in round three.

In several of the studies, a workgroup, rather than a professional organization, selected the experts for the panel. In Finland, a national workgroup of perioperative clinical and managerial nurses recruited experts for a modified two round e-Delphi study

that sought to define the core elements of perioperative nursing (Rauta et al., 2012). The national workgroup selected 55 experts to represent specialists in clinical practice (50%), management (30%), education (10%), and research (10%). The national workgroup nominated the members of the panel but no further information was provided about how the experts were selected other than the range of specialties. The response rates for this study were $N = 49$ (84%) in round one and $N = 27$ (49%) in round two. Similarly, a study by Wilson et al. (2012) asked nurse representatives from an electronic networking group of eight Australian children's hospitals to identify nurses for an expert panel examining indicators of quality nursing care for pediatric hospitals. Purposive criterion sampling for this modified e-Delphi study included registered nurses with pediatric nursing qualifications, at least five years of experience providing nursing care to children, and a role focused on quality nursing care (Wilson et al., 2012). Seventy-one nurses were invited although only 71% ($N = 51$) participated in round one. Attrition rates for this study were 53% ($N = 38$) for both round two and three. In contrast, Chang et al. (2010) had a very high response rate over three rounds (100%, 94%, and 94%) and low attrition rates for their modified e-Delphi study. The purpose of their study was to validate an instrument for measuring advanced practice role delineation in an international health service context. The researchers also used professional associations to invite a purposive stratified sample of 16 nurses, managers, and directors; however, they provided very little information about how the panel was actually selected (Chang et al., 2010).

As previously mentioned, Barton et al. (2009) invited a purposive sample from a workgroup of nurse educators that had previously worked on the QSEN competencies. The researchers invited 37 members consisting of QSEN core faculty, QSEN advisory

committee members, and pilot school directors and had a response rate of 66% ($N = 18$). Only two rounds were completed and no information was available on the attrition rate or responses for round two of the study.

In contrast to the studies that used professional organizations or networking, Schell (2006) developed specific criteria for identifying experts for her classical Delphi study. As noted earlier, the purpose of this study was to describe the process of innovative teaching in the nursing classroom. She identified potential participants through review of: (a) editorial boards of nursing education journals, (b) articles for authors using innovative teaching methods, (c) speakers and their topics in education conferences, (d) educator profiles from university nursing programs and (e) a member list of an NLN task group. Schell (2006) confirmed expertise through the documented use of innovative teaching methods or exposure to innovative teaching methods as editors or authors and invited 90 nurse educators to participate in the panel. Of note, the first round response rate of $N = 31$ (34%) was much lower than in studies that used a professional organization or workgroup for recruitment. However, attrition rates in round two ($N = 30$, 96%) and round three ($N = 28$, 93%) were much lower than previously reviewed studies. Similarly, McElhinney (2010) had a lower first round response rate of 45% (N = 21) out of the invited sample of 47 nurse practitioner students. Of the few reviewed studies, McElhinney (2010) provided the least amount of detail about selection of the expert panel other than to say that snowball sampling occurred for recruitment of nurses from 10 clinical areas who had completed a module in physical examination. Like, the Schell (2006) study, the attrition rate was very low. In fact, the remaining two rounds had 100% participation of all 21 panel members (McElhinney, 2010).

Comparably, Logue and Effken (2012) also used snowball purposive sampling to select their expert panel and had low attrition rates. The purpose of their modified e-Delphi study was to report the results of a preliminary test of validity of a proposed theoretical framework of electronic personal health record adoption by older adults (Logue & Effken, 2012). Although the researchers set criteria for inclusion on the expert panel, they allowed panelists to use a self-rated approach for experience and self-reported computer literacy. Similar to other studies selecting experts without aid of a professional group, the first round response rate was 81% with lower attrition rates in rounds two (N = 13, 92%) and three (N = 9, 75%).

Only one of the reviewed studies (Cottrell et al., 2012), provided little information about the sample selection criteria. The researchers in this study used a modified Delphi with two rounds of survey inquiry and a third round in person meeting. The panel selected was an international group of 12 nurses who were experienced with care of rheumatoid arthritis patients. No information was provided about the in-person meeting of the experts during the third round of inquiry; however, it was noted in the conflict of interest portion of this article that the authors who attended the Delphi meeting received a consultant fee and travel reimbursement for attending.

In summary, invited sample sizes for the reviewed nursing studies ranged from a minimum of 12 to maximum of 110 participants. Higher response rates in round one were associated with panel members that were selected by a professional organization or a workgroup associated with the topic of interest in the study. Panel members selected according to identified criteria by the researcher had lower attrition rates. These findings from the literature indicate that professional interest in the studied topic led to increased

study participation of the subjects. Perhaps the lower attrition rate of the members selected without a professional organization indicates that the subjects who responded to round one were very interested in the topic and motivated to continue participation. Based on these findings, selecting a panel of experts associated with a professional organization or networking group and who have interest in the studied topic would help increase the sample size and decrease study attrition.

Data Analysis and Consensus

The classical Delphi study is unique in that it begins qualitatively with open ended questions and then continues as a quantitative analysis of questionnaire statements. The modified Delphi study may begin qualitatively or as noted previously, may begin with questionnaire items generated from a literature review, researcher experience, or focus group.

Round one data is analyzed with a qualitative approach but the method is at the discretion of the researcher (Keeney et al., 2011).With content analysis, the researcher analyzes the round one data for themes, similarities, or patterns, and then clusters the data into groups and begins to generate statements. Decisions should be made about the wording of statements and Keeney et al. (2011) recommend keeping uniquely worded ideas as they are originally stated in the data. Once the researcher has made decisions about the patterns and themes, statements are generated for the round two questionnaires and a rating scale, usually a Likert scale, is developed for these statements. The Likert scale depends on the aim of the study and is also at the discretion of the researcher. Choices may include a five point or seven point Likert scale and possible options may be strongly agree-strongly disagree or very important-very unimportant. Once statements

and Likert choices have been developed, the researcher should decide how the data will be analyzed and how a level of expert agreement, or consensus, will be determined.

Determining a level of consensus prior to a Delphi study has been suggested as one way of improving study rigor. Although there is no set or recommended level of consensus for the Delphi study, it is recommended that the researcher determine the level of consensus based upon the aim of the study and state the consensus prior to the data collection (Keeney et al., 2011). There are several ways to set a level of consensus for a Delphi study. Frequencies can be calculated on the entire dataset which will provide the percentage of overall response to each statement (Keeney et al., 2011). The median, mean, and standard deviation of responses can be calculated. The median is often the preferred index with the Delphi study because it is not sensitive to extremes as is the mean (Keeney et al., 2011; Polit & Beck, 2012). When analyzing the data for rounds two and three, the researcher needs to decide how to report the frequencies to the expert panel. Typically, the individual and group feedback for each item statement is given to the expert panel members provided using the median statistic or the standard deviation to show the range of responses (Keeney et al., 2011). For example, if statistics for a statement demonstrated that the group median was a two (not very important), each panelist would be able to see this group choice as well as his/ her own choice and be able to change the response in light of the group decision. A frequency (median or mean) was generated for each response and it was up to the researcher to determine the percentage of agreement that determined the statement importance. Round two items that have already reached agreement may be banked, or set aside, and not repeated on round three. Only

statements that have not reached agreement are included in round three for additional review by the expert panel.

Five of the reviewed studies completed a qualitative data analysis of round one (Blackwood et al., 2010; Boldt et al., 2012; Mannix, 2011; McElhinney, 2010; Schell, 2006). As noted previously, Blackwood et al. (2010) e-Delphi study used an open-ended question asking for the five most important research topics among European intensive care nurses. One investigator used content analysis to analyze the data and grouped the 420 topics into five domains of intensive care practice. The topics and domains were then reviewed by the other two investigators until consensus was reached among all three. Similarly, Schell (2006) used content analysis of round one data and confirmed results with a consultant and graduate research assistant. Fourteen themes were identified and the words and phrases of the experts were used when possible (Schell, 2006). Likewise, Boldt et al. (2012) used an open-ended questionnaire for round one and identified concepts and categories related to spinal cord injury. The researchers in this study confirmed their analysis with two health professionals. When agreement could not be reached by the two health professionals, a third professional was consulted about the analysis (Boldt et al., 2012). In contrast, to generate statements Mannix (2011) used comparative analysis until data saturation occurred. The remaining study by McElhinney (2010) mentioned content analysis that generated 22 helping and 13 hindering factors of physical exam skills of nurse practitioners but lacks details about how this was accomplished.

All of the studies used statistical analysis of data from rounds two and three. Central tendencies such as means, medians and modes, or standard deviations as well as

percentages of agreement (level of consensus) were computed and used to describe the results. The level of consensus found in the literature review when pre-set by the researchers ranged from 50%-80%. Two of the studies set consensus at 50% or greater and both of them had lower samples sizes of 13-18 experts (García-Fernández et al., 2014; Logue & Effken, 2013). The QSEN study set the agreement level at a 2/3 majority or 66% but they were looking at placement of QSEN items in the curriculum not development of new items (Barton et al., 2009). Half of the studies set a level of consensus of either 75-80% (Chang et al., 2010; Mannix, 2011; McElhinney, 2010; Schell, 2006; Wilson et al., 2012) or used Likert score means or higher Likert scores to determine consensus (Blackwood et al., 2011; Cottrell et al., 2013). Only the study by Boldt and colleagues (2012) neglected to mention a pre-set level of agreement; however, in their findings they discussed items which had reached a 90% level of consensus.

Review of the literature suggests that data analysis for the Delphi method can be complicated and difficult to follow. When conducting a Delphi study, it is critical to provide a clear plan for data analysis as well as an audit trail of how the qualitative data was analyzed. Setting a level of consensus prior to the study will also help to ensure a sound methodology and trustworthiness of results.

Criticisms of the Delphi Technique

According to Keeney et al. (2011), five major criticisms of the Delphi method have been identified. The first criticism, a lack of universal guidelines for conducting a Delphi study, suggests that Delphi studies are open to interpretation of the researcher. This limitation is one reason for the importance of reviewing the literature for studies that have used the Delphi method. The textbook by Keeney et al. (2011) also provides

recommendations for application of the Delphi technique. The main premise surmised from this criticism is that the researcher must develop a detailed study protocol according to recommendations from the literature with regards to sample size and selection, rounds of inquiry, and setting a level of consensus.

The second criticism of the Delphi method is the size of the expert panel (Keeney et al., 2011). As seen from the literature review, sample size ranged from 12-110 invited participants to 9-58 actual participants in round three. There is no recommended sample size for population representation although concerns have been expressed regarding bias and generalizability with smaller expert panels. Many of the reviewed studies listed sample bias as a limitation of their study due to the smaller sample size (Boldt et al., 2012; Cottrell et al., 2013; Lougue & Effken, 2013; Mannix, 2011; McElhinney, 2010; Rauta et al., 2013). According to Keeney et al. (2011), it is also important to consider the amount of qualitative data and length of time for data analysis when selecting a number of expert panel members.

The third noted issue with the Delphi study is the implications of lack of anonymity. Two concerns exist with this criticism: (a) anonymity that gives respondents freedom of responses without responsibility of accuracy, and (b) full anonymity cannot be achieved due to the researcher having to match responses (Keeney et al., 2011). The Delphi study is sometimes referred to as a quasi-anonymous study since the researcher frequently knows the identity of the respondents and how they responded to the survey but the expert participants are unaware of the identity of other panel members. As previously noted, Cottrell et al. (2013) held an in person meeting for the final round of inquiry and anonymity was not possible. The Mannix (2011) study named the members

of the expert panel in the article and thanked them for their participation. Anonymity was not addressed in either of these studies.

Expert opinion, while invaluable to the Delphi study, often becomes a criticism when it is unclear what criteria were used to determine the expertise of the panel (Keeney et al., 2011). Defining and justifying the expert becomes a crucial part of the Delphi procedure. Two methods of expert identification, self-assessment and sample criteria, have been noted in the textbook by Keeney et al. (2011). Only one of the reviewed studies for this literature review used a self-assessment method for expert identification (Logue & Effken, 2012). All of the other reviewed studies provided some type of criteria for selecting the expert panel. Although differences existed in the criteria set, membership in or identification through a professional organization or workgroup related to the topic of interest was a key factor in many of the studies and may have accounted for the high response rates noted in round one (Barton et al., 2009; Blackwood et al. 2011; Boldt et al., 2012; Chang et al., 2010; García-Fernández et al., 2014; Mannix, 2011; Rauta et al., 2013; Wilson et al., 2012). Many of the studies acknowledged the challenges of selecting an expert panel and panel representation was a limitation for the study (Boldt et al., 2012; Cottrell et al., 2013; Logue & Effken, 2012; Mannix, 2011; McElhinney, 2010; Schell, 2006). When planning a Delphi study, the researcher must clearly indicate the method of selection for the expert panel and justify the level of expertise.

The final criticism of the Delphi study is the level of consensus. This is thought to be achieved by setting a pre-determined level of consensus or measuring the consistency of responses between successive rounds (Keeney et al., 2011). Various statistical tests

have been used to measure the level of agreement such as the median, mean, and standard deviation. According to Keeney et al.'s (2011) research, the process of deciding upon a set level of consensus remains under debate; however from the literature review conducted in this paper, the majority have set a pre-determined consensus at 75%-80%.

After reviewing the literature regarding the Delphi technique, it is clear that there are some recommended practices from the literature but a lack of clear universal guidelines. When selecting the type of Delphi study, it is important to consider the rounds of inquiry. Will the first round of inquiry begin with open ended broad questions as in the classical Delphi or according to developed statements from the literature and researcher expertise as in the modified Delphi? The key point that emerges from the literature review is that the researcher must articulate a clear study procedure with criteria for selection of sample experts and a pre-determined level of consensus. The researcher must also ensure that the invited sample size allows for enough subjects to represent the opinion of the population while accounting for potential study attrition.

Summary of Delphi Technique

A discussion of the Delphi technique was presented in this section. Elements of the Delphi technique such as uses, selection of experts, and using rounds of inquiry to reach consensus were described. Finally, research studies using the Delphi technique were reviewed and limitations of these studies were noted.

Chapter Summary

This chapter provided a review of the conceptual framework, the NLN/JSF, which guides this study. The prebriefing component of simulation learning was defined and empirically examined. Gaps in the literature regarding the prebriefing component of SBL

were identified. Finally, the Delphi method of inquiry was presented, as well as empirical review of its use in nursing education research. Chapter Three will present the study methodology.

CHAPTER THREE

METHODOLOGY

This chapter presents the methods that were used in this study. The study design is discussed as well as the sample and setting for the study. The procedure for conducting the study are described. Finally, the methods for analyzing the data are provided.

Design

The purpose of this study was to seek consensus from simulation experts about the prebriefing component of simulation learning. The Delphi method of inquiry was selected for this study. As noted in the literature review of Chapter Two, the Delphi method is ideal for research when there is incomplete knowledge of a subject that could benefit from subjective judgments of individuals on a collective basis (Skulmoski et al., 2007). Because the overall purpose of this research was to provide guidance for simulation educators regarding strategies for an understudied element of SBL, prebriefing, the Delphi method was selected for this study. The research questions for this study were:

1. What is the role of the simulation educator in prebriefing students for SBL?
2. What is the role of prebriefing in learner success in SBL?
3. What strategies are recommended for prebriefing students?

Several broad qualitative questions served as an initial starting point to describe the phenomenon of prebriefing and were developed to elicit information about each of the three research questions. Delphi studies are unique in the fact that they begin qualitatively

in the first phase of data collection known as round one. The initial qualitative survey questions that were sent in round one were:

- What are the essential elements of prebriefing? (RQ 1, 2, 3)
- What information do you provide the learners prior to the SBL? (RQ 1, 3)
- How do you provide information to the learners about the scenario topic prior to the simulation-based learning? Please discuss specific strategies that you use such as lecture, report about a simulated patient, videos or live model demonstrations, readings or handouts, skill station practice, learning modules, or others. (RQ 1, 3)
- What is the role of the simulation educator (and/or facilitator) in prebriefing? (RQ 1, 2, 3)
- What are the learner responsibilities in prebriefing and/or preparing for simulation-based learning? (RQ 1, 2, 3)
- What student characteristics affect prebriefing? (RQ 2, 3)
- If time or resources were not an issue, what would your ideal prebriefing look like? (RQ 1, 2, 3)
- Please describe your beliefs about the importance of prebriefing to simulation-based learning success. (RQ 2)

As information emerged from round one, statements were developed to quantitatively address the research questions in rounds two and three. The background, procedures, and rationales for the Delphi methodology used in this study will be outlined in the following sections.

Background of the Delphi Technique

The Delphi technique is a research method that solicits group information, opinions, and ideas from a panel of experts using a specific sequence of rounds of inquiry (Keeney et al., 2011; Mead & Mosely, 2001). As noted in the literature review, the Delphi is frequently referenced in a number of different ways in the literature as a technique, a method of inquiry, or a research approach.

The Delphi method is described as an iterative process to collect and summarize the judgments of experts through a series of data collection and analysis techniques (Skulmoski et al., 2007). The main assumption of this technique is that "group opinion is more valid than individual opinion" (Keeney et al., 2011, p. 3). According to Skulmoski et al. (2007), the Delphi approach is ideal for research: (a) that requires group problem solving, (b) when there is incomplete knowledge of a subject, (c) when the goal is to improve understanding of problems or develop forecasts, and (d) when a topic could benefit from subjective judgments of individuals on a collective basis. Keeney et al. (2011) summarize these uses for the Delphi technique and state the purpose of the Delphi is to "achieve agreement among a group of experts on a certain issue where none previously existed" (p. 4). This method was selected because currently there are no studies about prebriefing in SBL and no specific agreed upon strategies in the literature for preparing students for SBL. The Delphi method will serve as an excellent method of gathering group opinion from a variety of healthcare simulation experts to determine strategies for prebriefing in SBL.

As noted in the Delphi literature review of Chapter Two, there are several key steps that must be addressed by the researcher when planning a Delphi study:

1. Selection of a panel according to pre-determined criteria of expertise.
2. Setting a level of expert consensus prior to study.
3. Determining the number of rounds of inquiry.
4. Providing controlled feedback to the group.

After review of the literature in Chapter Two, each of these elements were carefully considered by the researcher and are described in the following study procedure.

Setting and Sample

With a Delphi study, experts who are knowledgeable about a subject area are selected to answer questions and provide information about a topic. The researcher must set well defined criteria for inclusion of the experts on the panel. Unlike many research methods, the Delphi technique does not use a random sample to represent the population. Instead, this method seeks to obtain the opinion from a selection of experts and uses a purposive nonrandom sample. Defining an expert sometimes becomes challenging for the researcher and key criteria must be set for panel selection (Keeney et al., 2011). Sample size presents another challenge regarding the expert panel. As noted in the Delphi literature review of Chapter Two, no firm guidelines have been proposed for the number of experts recommended to serve on the panel. A range of sample size has been noted in the literature from 8-12 experts, 10-50 experts, to a larger size of 300-500 experts without clear empirical direction for selection of panel size (Keeney et al., 2011). Since participants need to answer several rounds of a survey, attrition is a problem for the Delphi study and must be considered when setting sample goals. The researcher must select enough participants to ensure a final sample size that will provide enough data for

a believable consensus. For this study, a sample size of at least 50 participants were recruited.

One of the benefits of a Delphi study is the ability to gather opinion from a diverse group of people from a wide geographic area (Keeney et al., 2011). Another benefit is the anonymity among the group that allows participants to freely express their opinion without fear of repercussion from others in the group. The use of an electronic Delphi allows for convenient group participation and sampling of diverse experts from a large geographic area; therefore, an electronic Delphi survey using Qualtrics© software was used for the setting for this study. With an electronic survey, experts are able to participate in a time and place that is convenient for them.

Selection of Expert Panel

Subjects were recruited from a database of individuals who have been certified as a healthcare simulation educator (CHSE) through the Society for Simulation in Healthcare (SSH). The CHSE database contains approximately 400 members and provided a large number of experts for sample recruitment. Although professional qualifications are not always consistent with expertise, the CHSE certification assures that the subjects will have the specific knowledge, skills, and abilities essential for educators in the field of simulation as determined by successful completion of the CHSE certification exam. In addition, one of the eligibility requirements for taking the CHSE examination is working in simulation education for the past two years. The eligibility requirements for the CHSE ensured that panel participants had a level of competence and educational expertise in the field of healthcare simulation. Inclusion criteria for sample recruitment were individuals who held the CHSE credential, used simulation learning in

their own practice, and were willing to participate. Exclusion criteria for this study were individuals with no experience in simulation or education and who do not speak English.

Because attrition is an issue with the Delphi technique, individuals received information about the Delphi technique and the requirements of responding to three rounds of data collection. Keeney et al. (2011) suggested that including the participants in study results through explanation and feedback help to motivate and interest the expert panel and avoid attrition by keeping the experts interested in the study results. As noted previously, Delphi studies lack empirical guidance about the number of people required for participation. Based upon review of the literature in Chapter Two and the number of individuals with the CHSE credentials, a large sample recruitment size of 400 experts from the entire CHSE database were invited to participate. Due to the various ranges of sample size in reviewed studies, the researcher set a moderate goal of at least 50 participants to begin round one of the study which falls within the range of Delphi study samples reported in the literature.

There were no exclusions for this sample regarding gender, age, or ethnicity. The selection of experts who have the CHSE certification promoted a diverse sample of multidisciplinary simulation experts of multiple healthcare professions from over 14 countries. These experts had the knowledge of best practices in healthcare simulation education and had been actively engaged in simulation education for at least two years per the eligibility requirements for the CHSE credential. By selecting a heterogeneous panel of experts that represent varied educational levels from a range of medical specialties and using all modes of simulation learning, it was hoped that prebriefing guidelines could be generated for use by all healthcare simulation educators. These

findings would not be limited to nurse educators or to high fidelity simulation and would be applicable to all SBL activities and levels of programs. Creating recommendations for best practice in preparing participants for SBL will advance the science of nursing and simulation education and add to the growing body of healthcare simulation research and literature.

Procedures

Procedures for conducting a Delphi study are provided. Institutional Review Board approval for Indiana University of Pennsylvania (IUP) was obtained prior to collecting data for this study (Appendix B). This study used a modified Delphi technique with three rounds of data collection via electronic survey. The modified Delphi began with open-ended questions that had been selected after review of the prebriefing literature and continued with quantitative data collection and analysis of rounds two and three. The survey was developed electronically using Qualtrics© Online Survey software through IUP. This software was selected due to its accessibility and ease of use for survey building, emailing respondents, and data collection. Participants received explicit instructions for each round of the survey detailing how to answer the survey questions. Each round of inquiry will be explained in both the data collection and data analysis sections of this chapter. Consensus refers to the percentage of respondents who agree or disagree with each statement. Consensus was reached when 70% of the respondents agreed or strongly agreed and when 70% disagreed or strong disagreed with an item. The Delphi procedural method for this study is outlined as follows and is diagrammed in Appendix C.

Round One

Access to the participants was gained through SSH via an online community database. SSH maintains an online collaboration site called Sim Connect. Sim Connect offers a discussion forum and announcements for members. One of the communities on the Sim Connect discussion is only available for CHSE members (Appendix D). The researcher placed a research participation request post (Appendix E) with link to the Qualtrics© survey on the Sim Connect CHSE Community website which can be accessed by approximately 400 CHSE members. The Qualtrics© link contained a written consent (Appendix F) to participate and additional information about the time commitment and expertise required for participation in this Delphi study. Subjects who agreed to participate in the study indicated yes via radio button and continued with the survey questions. Subjects who did not consent to participate were able to quit the survey at any time by closing their browser. In the first Qualtrics© data collection round, participants were asked to provide their email address to the researcher for round two and three data collection. The researcher placed those email addresses into a panel invitation for the next rounds of the Qualtrics© survey distribution.

The first qualitative round consisted of several open-ended broad questions that elicited expert feedback and opinions on the conceptual elements of prebriefing in SBL (See Appendix G). Demographic data about sample participants were also collected (See Appendix H). The researcher recruited subjects with the intention of obtaining 50 participants in round one. The protocol determined that the survey would be reposted with another request for participation if 50 subjects were not recruited (See Appendix I);

however, after two weeks, the survey was closed due to meeting the target goal of at least 50 participants.

Round Two

After qualitative analysis of data from round one of the survey, statements were generated from the themes and patterns. These statements were used with a standard five-point Likert scale. The choices for the Likert scale were: (a) Strongly disagree, (b) Disagree, (c) Neither agree nor disagree, (d) Agree, and (e) Strongly agree. This Likert scale was used to determine the level of agreement between respondents. It was important to know level of participant agreement about all statements even those that respondents may agree are not important to prebriefing. IRB approval was obtained (Appendix J). The researcher emailed the Qualtrics© survey round two of inquiry directly to the subjects who participated in the round one survey using email addresses that were placed into a panel email invitation in Qualtrics© (See Appendix K, L). A reminder email was sent to participants who had not responded to round two data collection after two weeks (See Appendix M).

Round Three

IRB approval was obtained for round three survey (Appendix N). The researcher emailed the Qualtrics© survey round three of inquiry directly to the expert panel members from the round two survey using email panel created from respondents in round two (See Appendix O). The survey contained the ranked items from round two along with feedback regarding each item. Participants had the opportunity to review feedback from the expert panel and were asked to consider items that did not achieve consensus. Participants ranked those items using the five-point Likert scale. A reminder email was

sent to participants who had not responded to round three data collection after two weeks (See Appendix P). At the conclusion of the data analysis, the researcher disseminated via email a final study summary to study participants.

Protection of Human Subjects

Institutional Review Board approval for the Protection of Human Subjects was obtained from IUP prior to each of the three rounds of data collection (Appendices B, J, M). No known risks were identified with this study. Potential benefits included the development of prebriefing guidelines for simulation educators. Expert panel members had the right to choose not to participate and exit the study at any time by not responding to a round of inquiry. Study subjects received aggregated feedback about responses with each successive round of inquiry through the Qualtrics© software. At the completion of the data collection, participants received final feedback via study summary through direct email by the researcher. Privacy and confidentiality of all respondents was maintained but total anonymity was difficult to achieve due to the need to match survey answers of participants for each round. To allow for the matching of survey answers, participants provided their email addresses which were only known to the researcher. Participants did not know identities of any other participant.

All electronic data were maintained in password protected files. Research data were stored in a locked file cabinet available only to the researcher. Information about informed consent was provided in the first question of the Qualtrics survey. Subjects who consented to participate indicated yes via radio button and continued with the survey questions. Subjects who did not consent to participate were able to quit the survey at any time by closing their browser.

Data Analysis

Round One

With the modified Delphi technique, the broad qualitative questions of round one were developed according to the literature. The expert panel provided open-ended responses to the broad questions about prebriefing via Qualtrics© survey. The responses from the first survey were downloaded into QSR's NVivo© to allow for categorizing items into themed nodes. Responses were analyzed for repeating themes and patterns. Similar statements were grouped together in clusters to determine categories relevant to prebriefing. After clustering, decisions were made about statement generation according to noted themes and patterns. When appropriate, uniquely worded statements or phrases were retained as written and included directly in round two. All notes regarding clustering and methods for determining statement generation were kept with the data. To help ensure quality of the data analysis of round one, the dissertation committee chairperson was consulted to ensure accurate clustering of themes and phrasing of round two questions.

A codebook was developed by the researcher for the coding of all survey data. Expert panel demographic data were analyzed with the Statistical Package for the Social Sciences software, SPSS ® version 22 to give an overall profile of the participants. Descriptive statistics were obtained for all categorical and continuous variables such as gender, age, area of practice, and simulation experience (see Appendix H). Each expert panel member provided an email address on each round of survey to match responses on future rounds of the survey. Item statements were generated from the participant

qualitative responses. The item statements served as feedback about round one participant responses.

Round Two

After data analysis of round one, participants were directly emailed from a panel invitation in Qualtrics© with survey link that contained the generated item statements (Appendix H). A five-point Likert scale using the choices of: (a) Strongly disagree, (b) Disagree, (c) Neither agree nor disagree, (d) Agree, and (e) Strongly agree was used for expert panel rating. This Likert scale facilitated an evaluation of the level of agreement between respondents. It also provided the panel with feedback regarding the qualitative analysis of round one data. Round two questionnaire responses were entered directly from Qualtrics© into the SPSS database and descriptive statistics such as frequency statistics were calculated. According to Polit and Beck (2012), a frequency distribution is a "systematic arrangement of values from lowest to highest, together with a count of the number of times each value was obtained" (p. 382). Frequencies were run on the entire dataset which provided percentages of responses to each statement (Keeney et al., 2011). Items which were agreed upon by 70% of the participants were banked and set aside for the development of the prebriefing guidelines. Items that did not achieve a 70% consensus in round two were resent to participants in round three in table format via Qualtrics© Survey (see Table 1).

Table 1

Sample Item Statements With Consensus Feedback

Sample Item Statement	Likert Response & Sample Percentage Group Agreement		Your Previous Rating	Please select your final choice about agreement with this statement. You may choose the same answer or change your answer.
Lecture is an effective method for prebriefing learners	SA A N D SD	15% 15% 10% 20% 40%	X	

Round Three

After round two data analysis was completed, participants were sent an email panel from Qualtrics© with a link to the third survey. This round of data collection involved rating statements from round two that did not reach 70% consensus. Participants were also provided with feedback using the percentage of agreement regarding the experts' ratings of each item from round two data collection and their individual prior ranking for that item. The expert panel used the same five-point Likert scale for rating in this round. In this final round of data collection, participants were permitted to change their responses after viewing the group response from round two or they were able to select their same response. An email reminder was sent for round three participants who did not reply within two weeks.

Once round three responses were received from the Qualtrics© electronic survey they were downloaded to the SPSS database and frequencies were calculated on the

entire dataset. Statements that have gained consensus of 70% of participants were noted. The consensus level, or percentage of people who agreed, for each statement was reported. There was consensus that some items were important and also that some items were not important to prebriefing. Items that did not achieve a consensus of 70% were also noted. Participants received final feedback on the third round of the study including items that did and did not achieve consensus. Final feedback was disseminated to participants via an emailed report from the researcher (Appendix Q).

Rigor

With the Delphi study, reliability is assumed in two ways—through the quasi-anonymous decision making process and with increased panel size (Keeney et al., 2011). As noted in the literature review, quasi-anonymity ensures that, although participants are not anonymous to the researcher, they are not known to each other. Participants are free to state their opinion without fear of repercussion from their peers. The larger panel size ensures enough respondents to reflect an expert opinion. In addition, the test-retest method and sharing results with participants measures the consistency of results over time and contributes to the study reliability. Other factors that may increase the rigor of the Delphi study are the applicability of this method to the study, the selection of experts, survey design, and setting of a predetermined level of consensus (Keeney et al., 2011). As noted in the literature review, the Delphi is ideal for generating guidelines about a little known subject such as prebriefing. By preselecting a level of consensus, the researcher ensured that statements reflect the majority of expert opinion rather than an arbitrary few. Ensuring an adequate sample size and creating a detailed plan for study design also contributed to study rigor.

Face validity refers to whether the instrument appears to subjectively measure the concept. Content validity refers to the ability of an item to represent the measured concept (Polit & Beck, 2012). A review of the literature on prebriefing served as a guide for developing the first round of prebriefing questions. To help ensure face validity of the round one survey, several simulation educator colleagues were asked to preview the questions for clarity. The initial broad survey questions were revised according to simulation educator suggestions for improvement to promote question clarity.

To address the potential threat of researcher bias, ongoing feedback was given to panelists with each round of data collection that served as member checks and confirmation of findings. During analysis of qualitative data, a log was kept with detailed description of the analysis process and an audit trail of the methodological decisions. These member checks and logs, as well as confirmation with dissertation committee members, helped establish the confirmability, credibility, and trustworthiness of the data.

Risk of attrition is great with a Delphi study due to the time demands and need for participants to reply to three rounds of questionnaires. Attrition bias is a threat to internal validity as participants who drop out may be a biased subset of the group (Polit & Beck, 2012). To decrease the possibility of attrition in this study, the researcher began with an initial invitation to the entire 400 member CHSE database. The researcher also attempted to provide feedback and additional rounds of inquiry in a timely manner to maintain motivation and enthusiasm for the study. The amount of time between collection points was set to no more than six weeks from when data collection starts. The first round of inquiry presented the greatest challenge for the researcher regarding time due to the qualitative analysis of the data and the need for quick feedback to participants to keep

them motivated for study participation. The researcher recruited subjects with an intention of 50 participants in round one. If 50 subjects were not achieved after one month of round one survey collection, the researcher would have reassessed to determine representation of the expert panel as indicated in the round one study procedure. In addition, detailed instructions were provided for each round along with feedback about study results in hopes of increasing motivation and the desire for participants to continue in the study.

Determining a level of consensus prior to the study has been suggested as one method of improving study rigor. Although there is no set or recommended level of consensus for the Delphi study, it is recommended that the researcher determine the level of consensus based upon the aim of the study and state the consensus prior to the data collection (Keeney et al., 2011). The level of consensus found in the literature ranged from 50%-80%. After review of the Delphi study literature, the researcher set a consensus level of 70% for the purposes of this study. Each statement item of round two and round three of inquiry that has achieved 70% expert agreement was noted. If 70% consensus of an item was met in round two, this item was set aside and saved (banked) and was not sent in round three. Prebriefing item statements that attained 70% expert agreement were the goal of this research.

Although the methods of establishing rigor of a Delphi technique are not unequivocal, every attempt has been made to assure trustworthiness and credibility of this study. Based upon review of empirical evidence of the Delphi method in chapter two, the researcher has developed a detailed study protocol for data collection and analysis.

Chapter Summary

The purpose of this study was to seek expert consensus about SBL prebriefing. This chapter reviewed the rationale and description of the Delphi methodology. Selection of the expert panel sample was also discussed. Strategies to ensure rigor of this Delphi study were presented. In conclusion, the methods of qualitative data analysis and statistical measures for the quantitative data were disclosed. Chapter Four discusses the results of this study.

CHAPTER FOUR

RESULTS

This chapter presents and summarizes the results of the three round Delphi study designed to seek consensus from an expert panel about the importance, components, and strategies for prebriefing in SBL. This chapter begins with a description of the expert panel. Descriptive statistics that summarize age, gender, simulation use and experience are discussed. Survey response rates are provided along with summary analysis of each survey round and the implications for subsequent rounds of survey. Detailed analysis of thematic patterns from round one are presented along with statistical analysis of rounds two and three. Finally, comments from participants about prebriefing are presented.

Sample Description

Of the 400 plus qualified CHSE experts eligible to participate, a total of 59 members responded to the posted request to participate and completed the first round questionnaire. All but four of the respondents provided demographic data. The demographic and professional characteristics of the experts are shown in Table 2. The majority were female (n = 51) and their ages ranged from 36-68 years (mean age 53). The experts primarily resided in the Unites States and represented 18 states; however, two respondents were from Canada and one from the Netherlands. Educational preparation of the panel varied with the majority possessing Masters (63.6%) and Doctoral (34.5%) degrees. Most of the expert panel used SBL in education for greater than six years (83.7%) with a wide variety of types of simulation modalities. There was a diverse representation of organizational settings where SBL was used although the academic setting was the highest reported (81.8%). All of the experts belonged to the SSH

professional simulation organization with the majority also belonging to other professional simulation societies including INACSL (n = 46). Fifty of the respondents (91.9%) reported incorporating the INACSL Standards of Best Practice: Simulation into their SBL use.

Table 2

Demographic Characteristics of the Expert Panel (N = 59)

Variable	*n*[a]	Percent
Gender		
Female	51	92.7
Male	4	7.3
Age (Mean 53.34)		
36-39	3	5.5
44-50	14	25.9
51-59	25	46.3
60-68	11	20.4
Residence		
US (18 states)	53	94.6
Canada	2	3.6
Netherlands	1	1.8
Length of Time Using SBL in Education		
2-5 years	9	16.4
6-10 years	25	45.5
Over 10 years	21	38.2
Highest Academic Degree		
Bachelors	1	1.8
Masters	35	63.6
Doctoral	19	34.5

Table 2 (continued)

Demographic Characteristics of the Expert Panel (N = 59)

Variable	*n*[a]	Percent
Types of Simulation Used[b]		
SPs	39	66.1
High Fidelity	54	91.5
Moderate Fidelity	49	83.1
Low Fidelity	45	76.3
CD/DVD	16	27.1
Virtual Reality	16	27.1
Other (hybrid, online, cadaver)	5	8.5
Members of Professional Organizations[b]		
SSH	59	100
INACSL	46	83.6
ASPE	5	9
SimGHOSTS	4	7.2
Other	5	9
Organizational Setting Where SBL Used[b]		
Hospital	13	23.6
Practice	1	1.8
Academic	45	81.8
Medical	9	16.4
Associate Degree	14	25.5
BSN	33	60
MSN	20	36.4
DNP	13	23.6
PhD	6	10.9
Other Health Schools	6	10.9
Incorporates INACSL Standards of Practice		
Yes	50	90.9
No	5	9.1

Note. [a]Variations in the sample size due to unreported data. [b]Participants were able to select multiple options.

Panel Response and Attrition

For round two, the expert panelists were directly emailed the survey via Qualtrics© panel using the email provided by the respondents in round one. The response rate for round two was 62.7% (n = 37). Of those 37 panelists, 36 provided their email address and were directly emailed the round three survey. The round three response rate was 81% (n = 30).

Retention was managed by direct email of subsequent rounds of survey, providing participants with results from the previous round, providing instructions for the survey, and sending reminder emails. Round three participants were offered a summary of the results at study completion. The overall time for data collection was approximately three months. Each round of survey required time for analysis and synthesis of results, but an attempt was made for rapid delivery of subsequent surveys to maintain panel interest in the study and avoid attrition. In addition, institutional IRB was required for each round of survey questions. Retention of experts was reasonable with an attrition rate of 22 experts (37.3%) between rounds one and two and a loss of seven experts (19%) between rounds two and three.

Table 3

Expert Panel Retention and Attrition Per Round

Rounds	Panel Retention		Panel Attrition	
	N	Percentage	N	Percentage
Round One	59			
Round Two	37	62.7	22	37.3
Round Three	30	81.0	7	19.0

Delphi Data Analysis

Traditionally, dissertation research results are presented according to each research question. The research questions that guided this study were:

1. What is the role of the simulation educator in prebriefing students for SBL?
2. What is the role of prebriefing in learner success in SBL?
3. What strategies are recommended for prebriefing students?

Due to the unique nature of the Delphi study which begins qualitatively with broad questions and ends with quantitative analysis, it is difficult to discuss results according to the research questions before providing an explanation of each of the Delphi rounds. For this dissertation, results are presented according to each round of survey and Chapter Five discusses how the results from each Delphi round directly address the research questions. First, a summary of the results and their implications for each subsequent round of survey are discussed. This section concludes with a detailed analysis of each Delphi round.

Summary of Round One Results and Implications for Round Two

The purpose of the round one survey was to allow simulation experts to respond broadly to qualitative questions about the importance, role of simulation educator, and components of prebriefing. All data were downloaded from Qualtrics© generated Excel documents into QSR's NVivo10© software. Narrative comments were analyzed for themes and patterns using NVivo. The responses indicated that there was a lack of consistency in terminology associated with SBL and prebriefing. One participant commented on the discrepancy of terms:

> Firstly, we need to standardize our use of the words Briefing and Prebriefing. A briefing is a preparatory session that occurs just prior to deployment. To me, prebriefing comprises the period prior to the day of the event and is made up of a variety of activities and a compilation of information that is made available to the learner prior to the day of the SCE (simulated clinical event). These are two distinct and separate phases that need to be clarified.

The lack of consistency in the use of terms associated with prebriefing was addressed in generation of the statements for round two. In total, 116 statements were generated from the qualitative data analysis. The qualitative feedback from this round was incorporated into the subsequent round of questionnaires in a number of ways:

1. Definition of terms. It became evident when reviewing the responses that there were many different terms and meanings assigned to some of the questions. Several comments indicated confusion in prebriefing versus briefing terminology and roles of the SBL educators or facilitators across different programs and institutions.

2. In the directions for the second questionnaire, clarification in wording was provided for the following terms:
    a. Prebriefing - encompasses the entire period of time prior to the students entering the simulation learning activity. This includes prior learning activities, briefing on the day of simulation, and any other preparation by the learner or educator.
    b. Simulation learner - anyone who is participating in the simulated learning activity - this could include students or participants from the practice setting.
    c. Simulation educator - the person who plans/facilitates the prebriefing, simulation and/or debriefing. Many of the first round responses indicated having several people - faculty, directors, facilitators but also many had one person performing all roles. Participants were asked to think of the simulation educator as a general role in prebriefing planning and facilitating.
3. Item statements were grouped according to the prebriefing themes of: planning, briefing, facilitating, and importance. Subthemes were used to group the statements in these categories in the following order: SBL purpose and learning objectives; equipment and manikins; expectations; psychological safety; role of simulation educator; logistics; learner characteristics, strategies to prepare learners for SBL, learner success, and relevance to debriefing. Some statements overlapped and reflected multiple themes and/or subthemes.

4. When possible, attempts were made to leave uniquely worded phrases as an item statement especially when the response was noted from multiple participants. Uniquely worded phrases were incorporated into item statements as either a few words such as “fiction contract” or “admission ticket” or as a complete item statement.
5. Expert panelists recommended multiple strategies for providing students with prebriefing both prior to and on the day of SBL. Every noted strategy was included in the statements for consideration by the entire panel.

Once statements were generated, data analysis was reviewed with and confirmed by the dissertation chairperson for representativeness of the qualitative data. An additional CHSE simulation expert researcher, who was not a study participant, was consulted to view the generated item statements and provide information about statement clarity. The consultant did not have access to any participant information or raw data from round one and was viewed only the 116 item statements. Statements were refined for clarity based upon the consultant and dissertation chairperson feedback. Institutional IRB approval was obtained for the round two survey questions before sending to panel members.

Summary of Round Two Results and Implications for Round Three

For round two, 37 panelists responded and were included in quantitative data analysis of round two; however, only 36 provided an email address and were able to participate in round three. Frequency statistics were performed in SPSS® version 22 for each item statement. In round two, 68 items reached a consensus of >70% by the expert panel. Consensus refers to the percentage of respondents who agreed or disagreed with

each statement. Consensus was reached when 70% of the respondents agreed or strongly agreed and when 70% disagreed or strong disagreed with an item. The 48 statements that did not reach agreement were resubmitted to the 36 panelists for consideration in round three of data collection. Qualtrics© phone support service was enlisted to help design a survey that allowed panelists to view their previous responses to the item statements in round three. Panelists were asked to consider their response in light of the group response and were able to view their previous response for each item. An open-ended question was also provided at the end of the survey for panelists to provide any additional thoughts about the 48 prebriefing items which had not achieved consensus. Institutional IRB approval was obtained for the round three survey questions before sending to panel members.

Summary of Round Three Results

In round three, an initial response of 27 of the 36 panelists responded. A reminder email was sent and an additional three responses were received. Of the 48 statements, an additional 15 statements reached greater than 70% consensus. Thirty-three statements remained that did not reach consensus with the expert panel. All data were placed into an excel spreadsheet of item statements. For each statement, the theme, subtheme, and consensus level was noted.

Analysis of Round One Results

Using the NVivo10© software, each participant response was read and re-read by the researcher and then coded according to matching words and themes. Patterns were noted and statements were clustered together under themed nodes. In round one, despite the lack of consistency of prebriefing terminology, the emerging patterns from the

responses indicated that there were three different components of prebriefing which were identified as: (a) Planning, (b) Briefing, and (c) Facilitating. In addition, a theme emerged about the importance of prebriefing and was labeled "Importance." Each participant's response was placed into themed nodes within one of these components of prebriefing. Each of these components contained several subthemes that repeated throughout the participant responses. The subthemes noted were: SBL purpose and learning objectives; orientation to equipment and manikins; expectations and ground rules, logistics, psychological safety, role of the simulation educator, learner characteristics, learner success, strategies for prebriefing, barriers to prebriefing, and relevance to debriefing. Some overlapping areas were noted among the themes with the subthemes. For example, learner characteristics emerged as a consideration during the planning and the facilitating theme. Each of the prebriefing themes and subthemes are supported by participant responses and discussed. Each of the themes emerged as a role of the simulation educator during the presimulation period of SBL.

Planning. The responses from the panel indicated that the simulation educator was responsible for planning the prebriefing in accordance with the learning objectives and purpose of the SBL. Several subthemes emerged from the participant responses as a component of planning the prebriefing. The subthemes of learning objectives, learner characteristics, learner success, and strategies for preparing learners began to emerge from the responses. The role of the simulation educator was noted as an essential element of this phase of prebriefing. Much of the planning for prebriefing was noted to be dependent on the "level of the learner and the goal of the experience."

Learning objectives were stated unanimously by respondents as a requirement for guiding the simulation and the preparation for the SBL. There was some difference in opinion regarding whether to provide detailed learning objectives or a general goal of the experience. Statements were generated in an attempt to clarify this aspect of providing learning objectives during prebriefing.

In addition, learner characteristics were considered an important aspect of prebriefing. Prerequisite knowledge of learners was emphasized by many respondents. "I NEVER simulate anything that has not been thoroughly taught in class and hopefully introduced in clinical" and "we always cover the content prior to the simulation" were statements echoed by many of the participants. One expert stated "Faculty should make explicit the relationship between today's events and other aspects of the course (scaffold learning)." Another learner characteristic noted was the level of the student. Panelists indicated that prebriefing depends on the level of student in the program (novice versus experienced) and previous experience with clinical or simulation.

Pre-simulation preparatory work for learners which could be delivered via various methods or strategies materialized as essential to prebriefing. Multiple strategies were reported from this round for delivering prebriefing materials including "handouts, assigned readings, skills lab activities, videos, review of medications and patient report." Additionally, the timing and delivery of preparatory information was noted by the panelists. For example, many stated that materials could be delivered electronically through an online learning management system or via email. Every mentioned strategy was translated to an item statement in an attempt to seek consensus; however, several respondents noted that the strategy and amount of prebriefing was dependent on the

"simulation scenario," the "setting" of the simulation (practice versus academic), the "level of the learner," or the "purpose of the simulation" (high stakes versus learning). Thirty-four statements were generated for round two that reflected the planning component of prebriefing.

Briefing. In the participant responses, the theme of briefing recurred as a role of the simulation educator and important component of the presimulation period. When organizing the data, briefing emerged as having two components: (a) setting the expectations and tone, and (b) orientation. Almost unanimously, the participants stated that prebriefing was a time to set the tone for the SBL. Setting ground rules and expectations, establishing a psychologically safe learning environment, and providing information about the logistics of the SBL experience emerged as briefing subthemes related to setting the tone. Providing information about the SBL experience including the logistics such as "housekeeping issues – bathroom breaks, class agenda, and location of debriefing" was frequently repeated by the panel experts. Clarification of roles and expectations were also mentioned by almost every participant as essential for prebriefing. Establishing psychological safety of the learning environment was reflected unanimously by participants through phrasing such as "explaining the fiction contract, confidentiality, providing for basic assumption, knowledge of video recording, and type of evaluation used." Thirteen statements were generated that reflect the setting the tone and expectations component of briefing.

The second component of the briefing theme was orientation of learners to the SBL environment. Panel members were unanimous in their agreement about the importance of orientation prior to SBL. Orienting learners included several components

which developed as subthemes for the simulation educator to add as a component of prebriefing. The subthemes noted were orientation to the room and/or simulation environment, orientation to the manikin or standardized patient, orientation to the equipment, and also orientation to the learning objectives and context of the realism ("establishing what can and cannot be done in the simulation"). As one panel member stated:

> Orientation to the simulation space: what the manikin can and cannot simulate and what assessment information will be verbally provided. Equipment – what is to be used and what is simulated – for example, should they really stick the manikin's finger to simulate performing a blood glucose level?

Orientation to manikins, equipment, and conditions of the scenario were mentioned and reinforced by all 59 panel experts. Ten statements were generated to validate the orient component of the briefing theme.

Facilitating. A final theme arose from the data that reflected a facilitation aspect of prebriefing as a role of the simulation educator. Participant responses indicated that the simulation educator should provide information about the simulated patient, discuss any pre-simulation work, define roles, allow for time for learners to plan and prioritize care, answer learner questions, and provide resources if learners needed additional information prior to beginning the scenario. Subthemes for the facilitating theme include strategies used for prebriefing, the role of the simulation educator in preparing students for a successful SBL experience, and knowledge of learner characteristics and the SBL purpose. One panel member even described facilitate in her survey response as "to make easy – as in facile. The facilitator is a process monitor, an information provider, a guide,

who takes on a leader role in this phase." Similarly, many of the members acknowledged that this was an important role of the simulation educator through comments such as "it is critical that the simulation educator be up to date on best practice related to teaching with simulation" and "facilitating discussion using best practices is essential" and "ability to listen and GUIDE students through the process."

Additionally, strategies to promote learner success in the SBL were mentioned by the panel experts. Several panelists mentioned that a "briefing script" could be utilized during prebriefing to ensure that information was consistent for all learners who participated in the SBL. Learner characteristics such as novice/experienced or previous exposure to clinical/simulation were mentioned as considerations for including strategies to facilitate prebriefing. Many different strategies were mentioned as part of the facilitate theme such as concept mapping and reviewing the patient report, electronic health record, and medications. One of the panel members suggested:

> The simulation educator should guide the conversation, know the scenario content very well, listen carefully to what the students are saying, help them talk through the situation, ask the entire group to answer the questions, but be prepared to help them if they are on the wrong track.

Another panelist said "help the students think through the situation without giving away exactly what will happen during the scenario." This statement was reinforced by another panelist who said to "provide enough information to actively engage without giving the learner the answer." Similar statements from panelists included "facilitate case analysis using inquiry" and "guide the discussion to help them realize what they might expect based on the scenario. For example if there is a diagnosis of CHF – what could I

expect my assessment to find?" Another panelist replied "It (prebriefing) allows for students to gain the skill of planning and anticipating for problems."

Twenty-seven statements were generated to reflect the facilitating component of prebriefing. In addition, multiple item statements were generated regarding strategies used by the expert panel to prepare the learners for the scenario topic. Many different strategies were mentioned and noted in the qualitative analysis. Each mentioned strategy was included in an item statement for review by the panelists in round two. The experts were asked to review each prebriefing method as a strategy to be used for learners prior to attending the simulation day and as a strategy to be used for learners on the same day of simulation prior to beginning the SBL scenario. Strategies used prior to the simulation day were categorized as planning. Whereas strategies used on the simulation day were categorized as facilitating.

Importance of prebriefing. The final theme uncovered in the content analysis of the qualitative responses was the importance of prebriefing to SBL. Prebriefing was unanimously agreed upon by the expert panelists as essential for learner success in SBL. The subthemes that persisted in the data were the importance of prebriefing to learner success, the barriers to prebriefing, the learner characteristics that were vital to consider when preparing students, and the relevance of prebriefing to the debriefing session that occurs after the SBL. Panelist comments reflected their beliefs that prebriefing was essential to decrease student anxiety, to engage students in the SBL, and to avoid negative effects of simulation such as "learner confusion, embarrassment, and frustration." Several panel members echoed this sentiment as stated by one panelist: "It

(prebriefing) can make or break your sim and the person doing it can make or break it as well." Another respondent summarized the importance of prebriefing as:

> Without a good prebrief, the simulation does not go well. It can fail by lack of engagement by learners, lack of knowing how to act in the simulation, lack of being able to understand the simulator cues or find equipment, learner insecurity or feeling on the spot.

Another panelist described the importance of prebriefing as "In the 10 years that I have been using simulation, I think prebriefing has made the most difference in terms of decreasing student anxiety, improving student learning and providing a positive learning experience."

Many panel experts discussed prebriefing as relevant to the reflective debriefing session after the SBL. Several described prebriefing as a component of SBL that is "just as critical as debriefing," "almost as essential as debriefing," and one panelist stated "the better the prebrief, the better the debrief and that equals more learning." One panel member expanded on her views of the relevance of prebriefing to debriefing with this statement:

> I am passionate about phases of simulation, but experience has taught me that a poor briefing leads to very negative outcomes and an unnecessary focus on things that could have been prevented. Students will spend quite a bit of time in debriefing attempting to redeem themselves for things they did because they were not adequately briefed. It is such a waste.

Finally, when asked about their ideal prebriefing session, several panelists mentioned barriers that exist for preparing learners for prebriefing. Barriers such as lack

of resources (space or personnel), lack of faculty time, and lack of knowledge about how to incorporate prebriefing according to best practices were cited by the expert panel as reasons for shorter or less than ideal prebriefing periods with learners. Many different time frames were described for conducting a prebriefing session and all of the mentioned time periods (10 minutes – 60 minutes) were incorporated into the developed item statements. Overall, 19 statements were generated to capture the theme of the importance of prebriefing to SBL.

Summary

All of the themes and subthemes were considered when generating item statements. Initially approximately 200 item statements were generated using panelist unique responses when appropriate. These statements were read and reread repeatedly and condensed to reflect each theme and subtheme and to avoid subject survey fatigue. Statements were reviewed for clarity, relevance, and representativeness by the researcher, dissertation chairperson, and an additional CHSE simulation expert educator. Table 4 provides a list of the final 116 item statements associated with each theme and subtheme.

Table 4

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
1	Simulation learners should be provided with the purpose and the objectives of the simulation before starting the scenario.	Brief: Orient	Purpose/LO
2	Simulation learners should be given the specific learning objectives even if they provide clues about what is to come in the scenario.	Brief: Orient	Purpose/LO
3	Sharing the specific learning objectives depends upon the goals of the simulation experience.	Brief: Orient	Purpose/LO
4	Simulation learners should be given a general overview of the simulation purpose rather than the specific learning objective.	Brief: Orient	Equipment & Manikins
5	Simulation learners should be oriented to the manikin and simulation equipment before each simulation experience.	Brief: Orient	Equipment & Manikins
6	Simulation learners do not need to be reoriented to the manikin and simulation equipment before each simulation scenario if they have experienced prior simulation-based learning.	Brief: Orient	Equipment & Manikins

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
7	Orientation to the stimulation space includes what the manikin can and cannot simulate and what assessment information will be verbally provided.	Brief: Orient	Equipment & Manikins
8	Simulation learners should be oriented to the location of necessary supplies and materials and how to access them.	Brief: Orient	Equipment & Manikins
9	Simulation learners should be oriented to procedural aspects of the simulation such as calling for additional information (i.e., calling lab, pharmacy, and/or other healthcare providers).	Brief: Orient	Equipment & Manikins
10	Providing simulation learners with time to interact with the manikin or equipment prior to the start of the scenario is an important component of prebriefing.	Brief: Orient	Equipment & Manikins
11	Roles of the simulation learners and educators should be defined prior to beginning each simulation scenario.	Brief: Set	Expectations

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
12	During prebriefing, stating clear expectations for the learner fosters an environment of trust.	Brief: Set	Expectations
13	The approximate time frames and process of each of the blocks (prebriefing, simulation, and debriefing) should be reviewed with the simulation learners.	Brief: Set	Expectations
14	The simulation educator should set the expectation of mutual respect, trust, and support between the participants and facilitators.	Brief: Set	Psychological Safety
15	During prebriefing, rules of confidentiality should be discussed with simulation learners.	Brief: Set	Psychological Safety
16	The simulation educator should set the tone that simulation-based learning occurs in a safe environment where mistakes can be made without academic or employment consequences.	Brief: Set	Psychological Safety
17	The simulation educator should acknowledge the basic assumption that each learner has a foundation (aka "skill set") that each brings as a result of prior education.	Brief: Set	Psychological Safety

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
18	Simulation learners should be provided with information about whether recording will take place and if debriefing will use the recording.	Brief: Set	Expectations Psychological Safety
19	Simulation learners should be provided with information about how recordings are stored/used after the session is completed.	Brief: Set	Expectations Psychological Safety
20	Simulation learners should be provided with information about what type of evaluation is being used (formative, summative, high stakes).	Brief: Set	Expectations Psychological Safety
21	The simulation educator should acknowledge the "fiction contract" or limitations of technology and ask participants to try their best to overlook things that are not real.	Brief: Set	Expectations Psychological Safety
22	Prebriefing time should be incorporated into the schedule on the simulation day.	Planning	Logistics
23	The simulation educator plays role in preparing learners for the simulation experience.	Planning	Educator Role

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
24	Planned prebriefing learning activities will depend on the level of the student (novice versus experienced).	Planning	Educator Role LC
25	Planned prebriefing learning activities will depend on the purpose of the simulation.	Planning	Educator Role Purpose/LO
26	Providing learners with too much information prior to the simulation experience may reveal too many simulation scenario details.	Planning	Educator Role Purpose/LO
27	During prebriefing, the simulation educator should plan time to answer learning questions prior to the simulation.	Facilitating	Educator Role Purpose/LO
28	During prebriefing, the simulation educator should help learners determine care priorities for the simulated patient.	Facilitating	Educator Role Purpose/LO LC
29	The simulation educator should provide didactic or other form of presimulation education so that learners are prepared to participate in the simulation in a meaningful way.	Planning	Educator Role Purpose/LO LC

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
30	Pre-simulation learning activities help to reinforce previously learned concepts.	Planning	Educator Role Purpose/LO LC
31	Pre-existing clinical, work, or personal experiences may influence knowledge and emotional responses of students in simulation.	Planning	Educator Role Purpose/LO LC
32	The amount and type of prebriefing information vary depending on learner level, scenario level, and previous simulation experience.	Planning	Educator Role Purpose/LO LC
33	During prebriefing, the use of a script is essential to stardardize information communicated to learners by all simulation educators.	Facilitating	Educator Role Purpose/LO LC Strategies
34	Learners in the practice setting do not need as much prebriefing information as learners in an academic setting.	Planning	Educator Role Purpose/LO LC

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
35	The prebriefing session should be led by someone who is knowledgeable about best practices in simulation-based learning.	Facilitating	Educator Role
36	One role of the simulation educator is to ensure the learner is prepared for the simulation with appropriate pre-learning activities.	Planning	Educator Role Purpose/LO LC
37	One of the roles of the simulation educator is to guide learners through the simulation process to help learners understand what they might expect based upon the scenario information.	Facilitating	Educator Role Purpose/LO LC Strategies
38	It is important to follow a preplanned script so all learners consistently hear the same standardized information prior to the scenario.	Facilitating	Educator Role Purpose/LO LC Strategies
39	One of the roles of the simulation educator is to engage all students in the prebriefing learning activities.	Facilitating	Educator Role Purpose/LO LC

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
40	The simulation educator should present learning opportunities that correlate to didactic information but require students to apply knowledge to a new situation.	Facilitating	Educator Role Purpose/LO LC Strategies
41	It is important for the simulation educator to know if the learners have had prior exposure to any protocols used in the simulation.	Planning	Educator Role Purpose/LO LC
42	Patient report is the only information about the scenario topic that the learners need to have prior to the simulation.	Facilitating	Educator Role Purpose/LO LC Strategies
43	Simulation learners should have time to coordinate with other simulation participants prior to starting the simulation.	Facilitating	Educator Role Purpose/LO LC Strategies

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
44	Requiring learners to bring proof of preparatory work as an admission ticket to simulation ensures completion of activities.	Planning	Educator Role Purpose/LO LC Strategies
45	Allowing time for learners to discuss the simulated patient before entering the room helps them develop a plan of care.	Facilitating	Educator Role Purpose/LO LC Strategies
46	Learners who are not prepared for simulation should not be permitted to participate in simulation activities.	Facilitating	Educator Role Purpose/LO LC
47	Prebrief may decrease learner anxiety during simulation performance.	Facilitating	Educator Role Purpose/LO LC
48	Prebriefing may be affected by negative learner attitudes such as fatigue, boredom, or inability to suspend disbelief.	Facilitating	Educator Role Purpose/LO LC

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
49	Prebriefing may be affected by the learners' understanding of the content from didactic courses and clinical experiences.	Facilitating	Educator Role Purpose/LO LC
50	Prebriefing allows simulation educators to identify gaps in learners' knowledge prior to entering the simulation scenario.	Facilitating	Educator Role Purpose/LO LC
51	Administering a presimulation quiz ensures learners prepare for simulation.	Facilitating	Educator Role Purpose/LO LC Strategies
52	Simulation preparation learning activities may be provided to students electronically prior to the simulation day.	Planning	Educator Role Purpose/LO LC Strategies
53	Simulation preparation learning activities may not be provided until the day of simulation.	Planning	Educator Role Purpose/LO LC Strategies

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
54	Learners who are well prepared for simulation are more confident during simulation activities.	Planning	Educator Role Purpose/LO LC
55	Prebriefing does not affect learner performance in simulation.	Planning	Educator Role Purpose/LO LC
56	Prebriefing should include time to provide all necessary information for successful simulation performance.	Planning	Educator Role Purpose/LO LC
57	Prebriefing time should be brief and no longer than 15 minutes.	Facilitating	Educator Role Purpose/LO LC Strategies
58	Prebriefing time should take between least 30-60 minutes.	Planning	Educator Role Purpose/LO LC Strategies

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
59	Prebriefing time should be as long as the time spent on debriefing.	Planning	Educator Role Purpose/LO LC Strategies
60	Prebriefing time should be less than simulation scenario time.	Planning	Educator Role Purpose/LO LC Strategies
61	Prebriefing time should be twice as long as the simulation scenario time.	Planning	Educator Role Purpose/LO LC Strategies
62	Prebriefing should be conducted in the simulation room.	Facilitating	Educator Role Purpose/LO LC Strategies

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
63	Prebriefing should be conducted in a comfortable setting similar to debriefing.	Facilitating	Educator Role Purpose/LO LC Strategies
64	The ideal prebriefing should include a facilitation session with the educator to help learners determine priorities for the patient.	Facilitating	Educator Role Purpose/LO LC Strategies
65	The ideal prebriefing should include discussion about the patient diagnosis and pertinent information such as medications, side effects, labs, and vital signs.	Facilitating	Educator Role Purpose/LO LC Strategies
66	Length and complexity of prebriefing will vary based on learner level, complexity of the scenario, and purpose of the simulation.	Facilitating	Educator Role Purpose/LO LC Strategies

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
67	Without a prebriefing, the simulation may not achieve the desired objectives.	Planning	Educator Role Purpose/LO LC Strategies
68	Without a prebriefing, the simulation may create anxiety for the learner and inhibit learning.	Brief: Set	Psychological Safety
69	Learners may not engage fully in the simulation if they do not know what is expected.	Brief: Set	Expectations
70	Learners do not need more than a brief patient report to be successful in the simulation scenario.	Facilitating	Education Role Purpose/LO LC Strategies
71	When learners have too much information prior to the scenario, they lose the ability to problem solve on their own.	Facilitating	Educator Role Purpose/LO LC Strategies

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
	Strategies Prior to Simulation Day	Planning	Strategies Learner Success
72	Lecture		
73	Assigned readings		
74	Videos		
75	Case studies		
76	Completing a pre-quiz		
77	Completing a prep sheet		
78	Concept mapping activity		
79	Practicing skills in a laboratory setting.		
80	Viewing a model case of a different scenario (live or video).		
81	Viewing a model case of the same scenario (live or video).		
82	Review of medications		
83	Review of patient chart or EHR		

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
	Strategies on the Day of Simulation	Facilitating	Strategies
84	Completing a pre-quiz		
85	Visual demonstrations of skills		
86	Practice of a skill used in the simulation		
87	Skill stations		
88	Review of simulated patient chart		
89	Receiving report of the patient		
90	Viewing a model case of a different scenario (live or video)		
91	Viewing a model case of the same scenario (live or video)		
	Review of Case Studies		
92	Review of policies		
93	Review of procedures		
94	Discussion of patient case		
95	Discussion of patient priorities		

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
96	Time for planning care with peers		
97	Review of patient interventions		
98	Facilitation session		
99	Discussion and answer questions		
100	No additional information is necessary about the scenario topic.		
101	Simulation preparation time is as important to the simulation as debriefing time.	Importance	Relevance to Debriefing
102	Prebriefing helps share a clear mental model so that everyone is "on the same page" as they begin the experience.	Importance	Learner Success
103	Prebriefing contributes to the development of the learner's ability to provide competent patient care.	Importance	Learner Success
104	Prebriefing contributes to the development of the learner's confidence.	Importance	Learner Success
105	Prebriefing contributes to the development of the learner's decision making ability.	Importance	Learner Success

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
106	Prebriefing contributes to the development of the learner's ability to recognize subtle signs of patient status deterioration.	Importance	Learner Success
107	Lack of resources may be a barrier to the integration of prebriefing into simulation-based learning.	Importance	Barriers
108	Lack of faculty time may be a barrier to the integration of prebriefing into simulation-based learning.	Importance	Barriers
109	Lack of knowledge regarding how to integrate prebriefing may be a barrier to the integration of prebriefing in simulation-based learning.	Importance	Barriers
110	In-situ simulation is the only time it is ok not to prebrief on scenario topic.	Importance	LC
111	Prebriefing is vital to simulation success because it engages learners.	Importance	Learner Success
112	Prebriefing allows for students to gain the skill of planning and anticipating patient problems.	Importance	Learner Success

Table 4 (continued)

Generated Round Two Item Statements by Theme and Subtheme

Item	Statement	Theme	Subthemes[abc]
113	It is not necessary to have a formal prebriefing session for every simulation.	Importance	Barriers
114	Prebriefing is essential for a successful debriefing session.	Importance	Relevant to Debriefing
115	Learners who are better prepared for simulation performance are more reflective during debriefing.	Importance	Relevance to Debriefing
116	Prebriefing makes a difference in terms of decreasing student anxiety.	Importance	Learner Success

Note. [a]LO = Learning objectives; [b]Expectations = expectations and ground rules; [c]LC = Learner characterisitics.

Analysis of Round Two Results

Round two questionnaires with 116 item statements were sent to the 59 panel participants who completed round one. Experts were asked to rate each item statement on a standard five-point Likert scale with the choices of: (a) Strongly disagree, (b) Disagree, (c) Neither agree nor disagree, (d) Agree, and (e) Strongly agree. The response rate for round two was 62.7% with 37 panelists completing these materials. Round two questionnaire responses were downloaded from Qualtrics© into the SPSS database and descriptive frequency statistics were calculated. Frequencies were used to provide percentages of responses to each statement. Item responses of disagree and strongly

disagree were added to determine the percentage of experts who did not agree with a statement. Similarly, item responses of agree and strongly agree were combined to determine the percentage of panel members who agreed with an item statement. Data analysis revealed 68 statements for which there was at least 70% agreement or disagreement by the panelist indicating panel consensus during this round. These items were banked and set aside as statements which reached consensus by the panel (Table 5).

Table 5

Banked Items as a Result of Panel Consensus During Round Two (n = 37)

Survey Item Number	Theme/Abbreviated Statement	Percentage Agreement
7	Orient/The manikins simulate and verbally provided	100
8	Orient/Location of necessary supplies and materials and how to access them	100
9	Orient/Procedural aspects of the simulation	97.3
1	Orient/Provide purpose and LO	86.5
3	Orient/Share specific LO	86.4
5	Orient/Manikin and simulation equipment before each	83.8
10	Orient/Time to interact with the manikin or equipment prior	83.7
12	Set/Clear expectations – trust	100
14	Set/Mutual respect, trust, and support	100
15	Set/Confidentiality	100

Table 5 (continued)

Banked Items as a Result of Panel Consensus During Round Two (n = 37)

Survey Item Number	Theme/Abbreviated Statement	Percentage Agreement
20	Set/Type of evaluation	100
18	Set/Recording of SBL	97.3
21	Set/Fiction contract	91.9
11	Set/Fiction contract	89.2
16	Set/Safe Environment – mistakes without consequences	89.2
19	Set/Recording use and storage	86.5
13	Set/Agenda	86.4
17	Set/Basic assumption	83.7
23	Plan/Sim educator role important	100
31	Plan/SBL influenced by past experiences	97.3
32	Plan/Prebriefing depends on learner and scenario	94.6
27	Plan/Time to answer questions	94.4
55	Plan/No effect on learner performance	91.9D
22	Plan/Incorporate in schedule	89.2
24	Plan/Depends on the level of the student	89.2
25	Plan/Depends on the purpose of the simulation	89.1

Table 5 (continued)

Banked Items as a Result of Panel Consensus During Round Two (n = 37)

Survey Item Number	Theme/Abbreviated Statement	Percentage Agreement
33	Plan/Prebriefing script to standardize info	86.4
36	Plan/Appropriate prelearning activities	83.8
54	Plan/Prepared learners more confident	81.1
52	Plan/Provide activities electronically prior to SBL	81.1
30	Plan/Reinforce previously learned concepts	75.6
41	Plan/Know prior exposure to any protocols	75.6
34	Plan/Practice setting does not need as much as academic	72.9D
66	Facilitate/Length and complexity of prebriefing will vary based on learner and sim	97.2
47	Facilitate/May help decrease learner anxiety	94.6
35	Facilitate/By someone knowledgeable about best practices	91.9
49	Facilitate/Affected by the learners' understanding of content	89.2
45	Facilitate/Allow time for discussion of simulated patient before entering the room helps them develop a plan of care	86.5
39	Facilitate/Engage all students in the prebriefing activities	83.7
48	Facilitate/Prebriefing affected by negative learner attitudes	83.7

Table 5 (continued)

Banked Items as a Result of Panel Consensus During Round Two (n = 37)

Survey Item Number	Theme/Abbreviated Statement	Percentage Agreement
38	Facilitate/Follow a preplanned script for consistency	81
40	Facilitate/Require students to apply knowledge to a new situation	75.6
67	Facilitate/May not achieve objectives without prebriefing	75.6
50	Facilitate/May identify gaps in learners' knowledge prior to SBL	70.2
42	Facilitate/Patient report is the only information needed	70.2D
116	Imp/Decreases student anxiety	94.5
102	Imp/Share a clear mental model	89.1
68	Imp/May create anxiety without prebriefing	86.5
101	Imp/Prep time is as important as debriefing time	86.4
104	Imp/Develops learner's confidence	86.4
108	Imp/Lack of faculty time may be a barrier	86.4
109	Imp/Lack of knowledge may be a barrier	86.4
69	Imp/Learners may not engage without knowing expectations	83.8
103	Imp/Develops ability to provide competent patient care	83.7
114	Imp/Prebriefing is essential for a successful debriefing session	81
105	Imp/Develops learner's decision making ability	78.3
111	Imp/Success because it engages learners	78.3

Table 5 (continued)

Banked Items as a Result of Panel Consensus During Round Two (n = 37)

Survey Item Number	Theme/Abbreviated Statement	Percentage Agreement
112	Imp/Promote skill of planning/anticipating patient Problems	75.6
115	Imp/Better prepared learners are more reflective in debriefing	72.9
74	Strategy prior to SBL day – Videos	94.4
75	Strategy prior to SBL day – Case Studies	89.2
73	Strategy prior to SBL day – Assigned readings	86.5
79	Strategy prior to SBL day – Practicing skills in a lab setting	86.5
82	Strategy prior to SBL day – Review of medications	86.5
83	Strategy prior to SBL day – Review of patient chart or EHR	73
89	Strategy used on SBL day – Receiving report on a patient	91.9
88	Strategy used on SBL day – Review of simulated patient chart	78.4
97	Strategy used on SBL day – Time for planning care with peers	77.8

Note. [a]A minimum of 70% agreement or disagreement equals panel consensus. D = panel disagreement with statement.

Seven of the 68 statements had 100% agreement by the panelists. The statements that had unanimous agreement involved the importance of the simulation educator to prebriefing. Specifically, the experts agreed that it was essential for the simulation educator to provide orientation to the manikin and supplies, to establish an atmosphere of trust, mutual respect, and confidentiality, and finally, to disclose the type of evaluation being used in the simulation (formative versus summative). The remaining 61 statements were well above the preset consensus level of 70% agreement. Nine statements reached an agreement of 94%-99% by the panelists, 25 statements reached an agreement level of 86%-93%, and 22 statements were agreed upon by 75%-85% of the panel. These banked statements were not sent as part of survey three to the panel members.

When examining the statements that reached agreement according to themes, it is noted that all 11 of the briefing themed statements which reflected setting the tone, expectations, and environment of psychological safety reached consensus in round two. In addition, seven of the briefing themed statements regarding orientation reached consensus as important to preparation for SBL. Participants agreed that orienting students to the purpose of the SBL, the manikins and equipment, the procedural aspects of the SBL, as well as providing time for the students to interact with the manikin were essential components of the briefing period. The orientation statements that did not reach consensus in round two reflected the learning objectives of the SBL. There were differing opinions about whether learners should be provided the specific learning objectives rather than a general overview of the SBL. The experts did agree that provision of the learning objectives depended on the goals of the simulation experience.

Under the planning theme, 21 statements were agreed upon by the experts. The panelists agreed that the simulation educator played a critical role in planning the simulation preparation activities and agenda. Statements which reflected learner characteristics such as the level and previous knowledge of the student and the purpose of the SBL were deemed essential when planning prebriefing strategies. The experts agreed that several specific strategies provided prior to the simulation day would help prepare learners. These strategies included assigned readings, videos, case studies, practicing skills in a lab setting, review of medications, and review of patient chart or electronic health record. In addition, the panelists agreed that planning and using a script for the briefing phase was essential to standardize the information communicated to learners by all simulation educators. Finally, the experts agreed that the amount and type of prebriefing for the SBL affected learner confidence, anxiety, and performance.

Fifteen statements under the facilitating theme were agreed upon by the expert panel. Approximately 92% of the experts agreed that the prebriefing session should be led by someone who is knowledgeable about best practices in SBL. The experts indicated that the simulation educator should engage the learners, follow a preplanned briefing script, and allow learners time to discuss the patient before entering the room. The panel agreed that negative learner attitudes such as fatigue, boredom, or inability to suspend disbelief could affect the prebriefing as well as learner lack of understanding of content from previous courses or clinical experiences. The panel agreed that the length and complexity of the prebriefing, as well as strategies used, should depend on the learner characteristics and simulation purpose. The experts also agreed that prebriefing was a time for simulation educators to identify gaps and answer learner questions prior to

entering the simulation room. Some strategies that reached consensus as helpful for preparing students on the day of simulation included review of the patient chart or electronic health record, receiving report on the simulated patient, and time for planning care with peers.

Expert consensus was reached in 12 of the 16 of the item statements regarding the importance of prebriefing to SBL. The panel indicated that prebriefing was vital not only to SBL success but also to the debriefing period. The experts agreed that simulation preparation time was as important as debriefing (86.4%) and essential for a successful debriefing session (81%). In addition, the panel concurred that learners who were more prepared for SBL were more reflective during debriefing. They agreed that prebriefing contributes to the development of learner confidence, decision-making, and ability to provide competent care. Also, over 75% of the experts believed that prebriefing allows students to gain the skill of planning and anticipating patient problems. The panel agreed that prebriefing engages learners in the SBL, creates a shared mental model for learners, and decreases learner anxiety about the SBL. Finally, the experts conceded that barriers to prebriefing existed such as lack of faculty time and lack of faculty knowledge about how to integrate prebriefing into SBL.

Analysis of Round Three Results

In round three, panelists were directly emailed the 48 statements that did not reach consensus in round two. The response rate for round three was 81% (n = 30). Round three questionnaire responses were downloaded from Qualtrics© into the SPSS database and descriptive frequency statistics were calculated. As in round two, frequencies were used to provide percentages of responses to each statement. Item responses of disagree/strongly

disagree and agree/strongly agree were combined to determine the percentage of experts who agreed or disagreed with each statement. Of the 48 statements, an additional 15 statements reached greater than 70% consensus. Thirty-three statements remained that did not reach agreement with the expert panel. Table 6 presents the statements that reached consensus and the percentage of panel response for those statements that did not reach agreement.

Table 6

Round Three Statements With Consensus and Panel Responses (n = 30)

			Percent (*n* = 30)		
Item	Theme/Statement	Consensus	*D*	*N*	*A*
99	Day of Sim – Facilitation session – discussion and answer questions	Yes	6.7	13.3	86.7
80	Prior to Sim day – Viewing	Yes	3.3	13.3	83.4
113	Imp/Not necessary to have a formal prebriefing session for every simulation	Yes D	83.3	13.3	3.3
29	Plan/Provide didactics that learners participate in the simulation in a meaningful way	Yes	10.0	13.3	76.7
95	Day of Sim – Discussion of patient case	Yes	13.3	10.0	76.7
59	Plan/Should be as long as debriefing	Yes D	76.6	13.4	10.0

Table 6 (continued)

Round Three Statements With Consensus and Panel Responses (n = 30)

Item	Theme/Statement	Consensus	Percent (*n* = 30) *D*	*N*	*A*
78	Prior to Sim day – Completing a concept mapping activity	Yes	13.3	13.3	73.4
94	Day of Sim – Review of procedures	Yes	16.7	10.0	73.3
72	Prior to Sim day – Lecture	Yes	16.7	10.0	73.3
2	Orient/Give specific learning objectives even if they provide clues	Yes	13.3	13.3	73.3
4	Orient/Give general overview rather than the specific learning objectives	Yes	24.1	3.4	72.4
56	Plan/Time to provide all necessary information for successful simulation performance	Yes	3.4	24.1	72.4
77	Prior to Sim day – Completing a prep sheet	Yes	10.0	20.0	70.0
86	Day of Sim – Practice of a skill used in the simulation	Yes	20.0	10.0	70.0
110	Imp/In-situ simulation is the only time it is ok not to prebrief on scenario topic	Yes D	70.0	16.7	13.3

Table 6 (continued)

Round Three Statements With Consensus and Panel Responses (n = 30)

Item	Theme/Statement	Consensus	Percent (n = 30)		
			D	*N*	*A*
6	Orient/Don't need to be reoriented to the manikin/equipment before each of prior SBL	No	53.3	6.7	40.0
26	Orient/Too much information may reveal too many scenario details	No	23.3	16.7	61.0
28	Facilitate/Help learners determine care priorities for the simulated patient	No	66.7	10.0	23.3
37	Facilitate/Help learners understand what they might expect based upon the scenario information	No	16.7	23.3	60.0
43	Facilitate/Time to coordinate with other participants	No	10.0	26.7	63.3
44	Plan/Admission ticket to simulation ensures completion of activities	No	26.7	20.0	53.3
46	Facilitate/Unprepared should not participate	No	26.7	50.0	23.4

Table 6 (continued)

Round Three Statements With Consensus and Panel Responses (n = 30)

Item	Theme/Statement	Consensus	Percent (n = 30)		
			D	*N*	*A*
51	Facilitate/Presim quiz ensures preparation	No	40.0	30.0	30.0
53	Plan/Activities may not be provided until the day of simulation	No	66.6	20.0	13.4
57	Facilitate/No longer than 15 minutes	No	36.6	40.0	23.4
58	Plan/Should take between least 30-60 minutes	No	40.0	33.3	26.4
60	Plan/Should be less than scenario time	No	26.7	36.7	36.7
61	Plan/Should be twice as long as the scenario time	No	63.3	36.7	0
62	Facilitate/Conducted in the simulation room	No	46.7	33.3	20.0
63	Facilitate/Conducted in a comfortable setting similar to debriefing	No	10.0	23.3	66.7
64	Facilitate/The ideal includes a facilitation session to help learners determine priorities for the patient	No	50.0	33.3	16.7

Table 6 (continued)

Round Three Statements With Consensus and Panel Responses (n = 30)

Item	Theme/Statement	Consensus	Percent (*n* = 30) *D*	*N*	*A*
65	Facilitate/The ideal includes discussions about the patient diagnosis and pertinent information	No	33.4	43.3	23.4
70	Facilitate/Learners do not need more than a brief patient report	No	63.4	26.7	10.0
71	Facilitate/Too much info prior to the scenario, they lose the ability to problem solve on their own	No	40.0	23.3	36.7
76	Prior to Sim day – Completing a pre-quiz	No	26.6	26.7	46.7
81	Prior to Sim day – Viewing a model case of the same scenario (live or video)	No	50.0	66.7	33.3
84	Day of Sim – Completing a pre-quiz	No	40.0	30.0	30.0
85	Day of Sim – Visual demonstration of skills	No	16.7	23.3	60.0
87	Day of Sim – Skill stations	No	26.7	10.0	63.3

Table 6 (continued)

Round Three Statements With Consensus and Panel Responses (n = 30)

Item	Theme/Statement	Consensus	Percent (*n* = 30) *D*	*N*	*A*
90	Day of Sim – Viewing a model case of a different scenario (live or video)	No	26.7	46.7	26.7
91	Day of Sim – Viewing a model case of the same scenario (live or video)	No	50.0	30.0	20.0
92	Day of Sim – Review of case studies	No	26.7	13.3	60.0
93	Day of Sim – Review of policies	No	13.8	17.2	69.0
96	Day of Sim – Discussion of patient priorities	No	16.7	20.0	63.3
98	Day of Sim – Review of patient interventions	No	13.8	27.6	58.6
100	Day of Sim – No additional info necessary about scenario topic	No	56.7	26.7	16.6
106	Imp/Develops learner's ability to recognize subtle signs of patient status deterioration	No	10.0	26.7	63.3

Table 6 (continued)

Round Three Statements With Consensus and Panel Responses (n = 30)

Item	Theme/Statement	Consensus	Percent (*n* = 30) *D*	*N*	*A*
107	Imp/Lack of resources may be a barrier	No	20.7	13.8	65.5

Note. [a]A minimum of 70% agreement or disagreement equals panel consensus. Total percentages might not equal 100due to rounding

Two additional statements regarding the briefing theme were agreed upon by the expert panel. These statements reflected provision of the learning objectives prior to the SBL scenario. The two statements contradicted each other. Approximately 73% of the experts agreed that learners should be given the specific learning objectives even if they provide clues about the scenario; however, 72% of the experts agreed that learners should be given a general overview rather than the specific learning objectives.

For the planning theme, six additional statements regarding prebriefing strategies prior to the SBL day (lecture, completing a pre-quiz, completing a prep sheet, completing a concept map activity, and viewing a model case of a different scenario) reached consensus by the expert panel. In addition, the panel indicated that presimulation education should include time to provide all necessary information and strategies to prepare the learners for successful SBL performance; however, the participants reached a 76.6% disagreement with the statement that prebriefing time should be as long as the time spent on debriefing.

Under the facilitating theme, two strategies that reached consensus as useful for the day of simulation were practice of a skill that would be used in the SBL (70%) and a facilitation session with a simulation educator that included a discussion and time to answer questions (86.7%).

Regarding the importance of prebriefing, two additional statements reached a consensus of disagreement by the expert panel. The experts disagreed that it was acceptable not to prebrief for in-situ simulation (70%) and also that it was not necessary to have a formal prebriefing session for every SBL (83.3%).

During round three, in addition to the item statements, an open-ended question was provided to allow the panel members to share any final thoughts or insights about any of the items in the round three survey. Seventeen panel members responded to the open-ended question. Many of the respondents indicated frustration with trying to choose one strategy over another or the length of time for prebriefing. The panelists indicated that they frequently chose the neutral choice because simulation preparation depends on many other factors such as the level of the learner and the purpose and learning objectives of the simulation. The theme of consideration for learner characteristics and purpose of the simulation were evident in many of the responses. In addition, several opposing views of the importance of prebriefing in developing critical thinking during SBL were noted.

Level of the learner was mentioned by 12 of the participants as an important consideration for planning the amount of prebriefing. One participant commented:

> From experience, I have found that less experienced students (in early clinical courses) do better with more prebriefing, and experienced students (i.e., students

in capstone courses) want to try "just going in," so the experience is more like the real life care they have been exposed to during their program.

One participant stated that prebriefing practices may differ for students compared to practicing clinicians and simulation for each would require different approaches in prebriefing. Another participant stated profession (nurses, residents, consultants) or type of student (medical, nursing, allied health students) may play a factor in the prebriefing.

Another factor mentioned by participants was the purpose of the simulation. According to the expert panel, prebriefing for a high stakes evaluative simulation would differ from prebriefing for a formative learning simulation. Ten of the members suggested that the learning objectives should guide the prebriefing as well as the simulation scenario. Many of the panel members voiced discomfort with selecting a choice according to a Likert scale without knowing these other factors about the SBL.

Two opposing opinions were voiced in the open ended responses regarding the importance of prebriefing to critical thinking. Two panelists stated their belief that prebriefing "limits critical thinking" and "we spoon feed our nurses and then wonder why they can't critically think on their own." These panelists indicated that simulation preparation should be minimal and simulation should be a time for learners "to enter the simulation room and figure it out." One of the panelists stated: "What is the point of the simulation if you give the learners all of the answers before they even start the simulation?" In direct contrast to the opinions of these two panelists was a statement from another expert:

Prebriefing should always be included. That amount of time should be equal to that of debriefing. The amount of information given should be sufficient for the

learner to begin problem-solving in the form of planning care but not so detailed that there is no room for problem-solving within the enactment of the scenario. This sentiment was echoed by several other participants who also indicated that time was a factor in the amount of prebriefing they could provide for learners in SBL. The overwhelming theme of the open-ended statements was that the amount, type, and complexity of prebriefing would depend on the learner characteristics, the purpose of the SBL, and the learning objectives.

Chapter Summary

This chapter presented the results of each of the three rounds of the Delphi study. A description of the expert panel sample and rates of panel retention was provided. A summary of data analysis and generation of subsequent round questionnaires was presented. Qualitative themes of round one were identified and round two and three statistical results were outlined. Chapter Five presents a discussion of study results, implications for nursing simulation education, and recommendations for future research.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

This chapter provides a discussion of the data that resulted from a three round Delphi study designed to address the importance, strategies, and role of the simulation educator in prebriefing. The results of each research question are addressed and interpreted. The findings are compared to previous and newly emerged prebriefing literature and explained in accordance with the NLN-JSF conceptual framework. Strengths and limitations of this Delphi study are identified. In addition, implications for simulation education and guidelines for preparing learners for SBL are addressed. This chapter concludes with recommendations for future research for prebriefing.

New Literature

This section presents a discussion of new literature that emerged just prior to and post data collection for this Delphi study. Immediately prior to data collection for this study, a new article was published in the *Simulation in Healthcare* journal about the role of the presimulation briefing to SBL (Rudolph, Raemer, & Simon, 2014). The authors of this article are well known in simulation education for their debriefing work and their development of the Debriefing Assessment for Simulation in Healthcare (DASH) tool (Brett-Fleegler, Rudolph, Eppich, Monuteaux, Fleegler, Cheng, & Simon, 2012). The authors, using input from a literature review, from their use of the DASH tool, and from their own 20 year experience of conducting presimulation briefings prior to SBL, presented readers with promising practices for presimulation briefing (Rudolph et al., 2014). The authors discussed clarification of objectives and expectations, establishing a fiction contract, attending to logistical details of the SBL, and conveying respect for

learners as essential practices in presimulation learning (Rudolph et al., 2014). In the appendix of this article, the authors present guidelines for establishing an engaging learning environment for the simulation educator. It is important to note that this article became available to CHSE members prior to data collection for this Delphi study because it may have had direct impact on panelist responses to the study. The implications of this article on panelist responses are discussed along with the findings.

Immediately after data collection was completed for this study, three new articles were published that also directly related to prebriefing in SBL. Two of the articles were concept analyses on prebriefing published in the same July 2015 issue of the INACSL journal by two different doctoral students (Chamberlain, 2015; Page-Cutrara, 2015). Similar to the literature review in Chapter Two, both of these analyses noted the lack of consistency in prebriefing terminology and the lack of prebriefing research. Interestingly, when examining the use of the concept, Chamberlain (2015) noted that prebriefing involved orientation or engagement activities that occur prior to the SBL; however, Page-Cutrara (2015) provided three phrases: "considering the situation, perceiving meaning, and anticipating a plan" as part of her characteristics of prebriefing. These articles are discussed further with the discussion of findings section of this chapter.

Finally, a third article, a new Standard of Best Practice in Simulation: Simulation Design was published in June 2015 in the INACSL journal, *Clinical Simulation in Nursing* (Meakim, Fey, Chmil, Mariani, & Alinier, 2015). For clarification purposes, this standard is referred to in this dissertation as the Simulation Design Standard (SDS). In this new INACSL standard, the term prebriefing was eliminated and referred to as two separate criteria: criterion seven, briefing, and criterion 10, participant preparation. The

briefing component of the SDS included activities that establish respect, expectations, and the fiction contract, while criterion 10 discussed preparation activities for the participants of the SBL (Meakim et al., 2015). This article is discussed further with respect to the findings of this Delphi study.

All of these newly published articles were based upon literature reviews and attempt to clarify the role of prebriefing to SBL. The increased interest in this topic lends additional support to the need for further prebriefing research to provide data about the presimulation phase of SBL.

Discussion

This section presents a discussion of this Delphi study's findings. The study findings are addressed according to the study research questions. For ease of understanding of the study results during discussion, the round of study (R2 or R3) and item statement number (S#) are indicated with the percentage level of consensus. In addition, the relation of these findings to the conceptual framework of the NLN/JSF and the INACSL SDS are considered. Finally, the findings are compared to the literature.

Role of the Simulation Educator

Research question one sought to address the role of the simulation educator in prebriefing students for SBL. In the initial analysis of data in round one, the three themes of prebriefing were identified as planning, briefing, and facilitating. During that round of data analyses, these three themes were referred to as components or elements of prebriefing. In addition, in an attempt to group similar concepts together, several subthemes emerged according to patterns in the data (See Table 3). Many of these subthemes overlapped and were evident in each of the planning, briefing, and facilitating

themes. In an effort to condense item statements for panel consideration, many of the item statements reflected the overlapping subthemes. For example, the subtheme of purpose and learning objectives emerged in all three of the themes. When re-examining the themes and subthemes during final analysis of the data, it became apparent that the subtheme of educator role was present in every theme; therefore, the findings from this study suggest that planning, briefing, and facilitating may be educator roles in prebriefing. It is important to note before discussing each educator role individually, that overlap of many of the subthemes (purpose, learning objectives, learner characteristics, and strategies) occurred in the planning, the briefing, and the facilitating roles of the educator. This overlap suggests that the roles of the educator may be more fluid or cyclical rather than a linear step-by-step process.

Panelists reached 100% (R2) agreement that the simulation educator plays an important role in preparing learners for the SBL (S23). The themes that emerged from the round one qualitative data were reinforced by expert consensus of statements in rounds two and three. The expert panel identified three important roles of the simulation educator during the prebriefing phase of SBL: (a) planning, (b) briefing, and (c) facilitating. Each of these roles comprises a component of presimulation preparation and has implications for educators and learners who use SBL. In addition, research question three: *what strategies are recommended for prebriefing students* materialized as part of both the planning and facilitating role of the simulation educator. Each of the three roles of the simulation educator are discussed in more detail in the following sections; however, strategies are discussed as a separate section of the findings to directly address research question three.

Planning

In the planning role of the educator in SBL preparation, panelist responses indicated that the simulation educator should consider several factors when deciding the length of time for prebriefing, the amount of prebriefing information to provide, and the strategies for delivering the prebriefing to students (94.6% R2, S32). Factors such as the purpose and learning objectives of the SBL (89.1% R2, S25) and learner characteristics (89%-97% R2, S24, 31, 32) emerged as crucial considerations in planning the prebriefing. Interestingly, many of the negatively worded item statements regarding amount or type of information to provide did not reach consensus. For example, two statements that indicated that: (a) learners do not need to be reoriented to the manikin prior to each SBL (S6), and (b) that providing learners with too much information prior to the SBL may reveal too many details (S26) did not reach consensus among panelists. Although the argument could be made that the study participants did not understand the question due to the negative wording, it is more likely that they did not reach agreement due to a lack of knowledge about the purpose of the SBL or level of the SBL learner. The open comments of round three supported this finding when panelists expressed frustration with trying to choose a strategy without knowing the purpose of the SBL or the level of the learner participating in the SBL. Both of these variables, the purpose and learner characteristics, developed as critical elements for educator consideration in prebriefing as the study progressed through the three rounds of data collection.

Purpose and learning objectives. The purpose of the SBL emerged as an important consideration for simulation educators when planning prebriefing; however, this subtheme was evident by statement agreement of the panelists in all three roles of the

educator. Panelists (86.5% R2, S1) agreed that simulation learners should be provided with the purpose and the objectives of the simulation before starting the scenario. Data from the panelists expressed that prebriefing for a formative SBL would look much different from a summative or high stakes SBL and that learners should be provided with information about the type of evaluation being used (100% agreement R2, S20). One participant suggested that a task-based SBL session would require different prebriefing than a recognition/diagnostic-based session. Although this statement was originally labeled as part of the briefing role, the unanimous agreement, supported by open-ended comments, suggests that it would also be an important consideration when planning prebriefing activities. A majority of the panel agreed (89.1% R2, S25) that the prebriefing should be designed in accordance with the purpose of the SBL experience.

Discussion of the learning objectives is widespread in the SBL literature, but mainly as a guide for simulation scenario development and as a vehicle for providing students with information about the purpose of the learning activity. Specifically, how much information to provide learners about the learning objectives prior to the simulation has persisted as an unknown aspect of prebriefing and SBL. Much controversy existed in the simulation literature about the provision of specific versus general learning objectives to students prior to the SBL scenario (Groom et al., 2014). In the NLN/JSF, learning objectives were evident as part of the simulation design characteristics. Similarly, the INACSL Standards of Best Practice III: Participant Objectives (Lioce, Reed, Lemon, King, Martinez, Franklin, . . ., & Borum, 2013) emphasized the writing of learning objectives to guide the simulation scenario. Little mention is made in the literature of using the learning objectives or simulation purpose to also guide the prebriefing provided

to learners; however, panelists in this Delphi study concurred that learning objectives were an important consideration when preparing learners for SBL (89.1%, R2, S25). Study findings also further indicated that the learning objectives and SBL purpose should guide the amount and type of prebriefing provided to the students (94.6%, consensus, R2, S32).

Interestingly, the experts had conflicting opinions on whether specific or general learning objectives should be provided to students prior to the SBL, a finding that was consistent with Groom et al.'s (2014) examination of the simulation design characteristic construct of the NLN/JSF. These conflicted opinions were supported by the Delphi findings. On one hand, 73.3% of the panelists agreed (R3, S2) that learners should be given the specific learning objectives even if they provided clues about the scenario; however, the opposing statement that learners should be given a general overview of the simulation purpose rather than the specific learning objectives also reached consensus (72.4%, R3, S4).

Learning objectives were also addressed in the new SDS which stated that the general purpose should be disclosed rather than the specific performance measures that learners would be expected to complete during the simulated scenario (Meakim et al., 2015). Lack of agreement about specifics for disclosure of objectives in this Delphi study seems to support the SDS recommendations about learning objectives (Meakim et al., 2015). This lack of agreement about how much information to provide to students clearly suggests a need for further research on this topic.

Learner characteristics. According to panel experts, the second factor to consider when planning prebriefing activities is the learner. Although labeled as part of

the planning role, learner characteristic statements were also evident as an important consideration during briefing and facilitating. Panelists agreed (89.2% R2, S24; R2 75.6%, S30) that prebriefing may be affected by the learners' understanding of the content from didactic courses and clinical experiences. These findings are supported by the literature. Learner characteristics are addressed as an important consideration in the NLN/JSF conceptual framework of simulation design. The NLN/JSF lists program, level, and age of the SBL participants as important variables in the simulation design process (Jeffries, 2012). Findings from this study supported consideration of the learner characteristics to guide the planned prebriefing activities. The majority of panelists agreed (94.6% R2, S32) that the amount and type of prebriefing would vary depending on the learner level, scenario level, and previous simulation experience. Specifically, 89.2% of the panelists agreed (R2, S24) that the planned prebriefing learning activities will depend on the level of the learner (novice versus experienced). An overwhelming 97.3% of the panelists agreed (R2, S31) that pre-existing clinical, work, or personal experiences may also influence knowledge and emotional responses of learners in SBL. In the literature review of Chapter Two, prerequisite knowledge of learners was discovered as an important component of simulation design. Waxman (2010) had identified a need to determine the student's level of prerequisite knowledge of psychomotor skills prior to the SBL, a concept also reinforced by Bruce et al. (2009) and Husebo et al. (2012). Findings from this Delphi study also supported the consideration of the prerequisite knowledge of SBL learners. Panelists reached consensus (70.2% R2, S50) that prebriefing allowed the simulation educator to identify gaps in learner's knowledge prior to entering the simulation scenario. Also, panelists agreed (75.6% R2, S30) that presimulation learning

activities helped to reinforce previously learned concepts. In addition, the panelists believed that the simulation educator should provide didactic or other form of presimulation education so that learners were prepared to participate in the simulation in a meaningful way (76.7% R3, S29). Similarly, the panelists indicated that the simulation educator should know if the learners have had prior exposure to any protocols used in the SBL (75.6% R2, S41).

Panelists provided further support for planning prebriefing according to the level of the learner when they reflected on learners in the practice versus academic setting and on learners of different professions. Panelists disagreed (72.9% R2, S34) with the statement "learners in the practice setting do not need as much prebriefing information as learners in an academic setting" and also with the statement "In-situ simulation is the only time it is not ok to prebrief on scenario topic" (70% disagreement R3, S110). These findings were supported by the open-ended comments of round three. One panelist stated:

> I believe it is hard to make blanket statements that will cover every type of session and how the prebriefing should be designed. Is the session for nursing students, medical students, residents, practicing nurses, etc.? Each level of learner has different needs for prebriefing that also have to do with the type of simulation.

Another panelist reported:

> Many of the responses I wanted to give were dependent on the learner group and my learning objectives, i.e., post licensure group—I may opt for less or no prebriefing . . . but for undergraduate students, I found myself wanting different answers.

And another respondent stated "there seems to be a big difference in the prebriefing practices for students compared to practicing clinicians. That may explain the differences in approach to prebriefing." A final response was "I think there will be a difference in answering depending on the kind of students you have in your lab. Medical and nursing students, residents or consultants all ask for a different prebriefing." These findings suggest a need for future research with different types of prebriefing for students versus practicing clinicians.

Results from this Delphi study suggest that the simulation scenario and the prebriefing activities should be planned to reflect the previous knowledge and experiences of SBL learners. These findings support the existing literature and further elaborate on the components of the NLN/JSF as mentioned previously. Likewise, the SDS notes that the facilitative approach should be "participant centered and driven by the objectives, participant's knowledge/level of experience, and the expected outcomes" (Meakim et al., 2015, p. 311). As indicated by study findings and supported by the literature, novice learners may require more planned prebriefing activities than more experienced learners or learners from the practice setting.

Findings from this study support the importance of planning by the simulation educator to prepare learners for SBL. According to the experts, planning appropriate prelearning activities to ensure that the learner is prepared for the SBL is an essential role of the simulation educator (83.8% R2, S36). When planning for prebriefing activities, simulation educators will need to consider the purpose and learning objectives of the SBL and the characteristics of the SBL learner.

Briefing

The second role of the simulation educator in preparing learners for SBL is briefing. Briefing emerged from round one data as having two components: (a) setting the tone and expectations, and (b) orientation. All 11 item statements regarding setting the tone, expectations and environment of psychological safety as well as seven of the orientation themed statements reached consensus by the panelists in round two. These findings are consistent with and support the extant literature, the conceptual framework of the NLN/JSF, the INACSL SDS, and the article released by Rudolph et al. (2014) prior to data collection. These two briefing components will be presented in more detail.

Setting the tone and expectations. Although not referred to as briefing or prebriefing, the NLN/JSF introduced the concept of establishing ground rules for simulation participants (Jeffries, 2012). Setting expectations was also prevalent in the prebriefing literature as a widely accepted although not evidence-based practice (Howard et al., 2011; Jeffries et al., 2015; Reese et al., 2011). In addition, the literature suggested that the simulation educator promote an environment of respect and mutual trust to ensure simulation success (Alinier et al., 2014; Childs & Sepples, 2006; Gantt, 2013; Howard et al., 2011; Jeffries & Rogers, 2007; Reese et al., 2010; Sharpnack et al., 2013; Waxman, 2010).

Rudolph et al. (2014) provided explicit instructions for setting the tone and expectations of the SBL. Their recommendations include clarifying SBL learner roles and expectations and include specific behaviors of the simulation educator such as addressing confidentiality, explaining assessment/evaluation, introducing the manikins, and describing the instructor's role during the SBL (Rudolph et al., 2014). The authors

recommended that the simulation educator create a "safe container" for simulation learning through the presimulation briefing by establishing trust and a collaborative learning environment (Rudolph et al., 2014). Rudolph and colleagues (2014) also introduced the concept of the "basic assumption" that learners have good intentions, do their best according to their foundation or skill set, and may make mistakes along the way while learning. In addition, the authors discussed establishing the fiction contract with participants. They defined the fiction contract as "a joint agreement that debriefers and students create" and stated that the instructor acknowledges that simulation cannot be exact to real life but will be close as possible and that learners should act as if it were real (Rudolph et al., 2014, p. 10). Finally, the authors recommended that the simulation educator attend to the logistical details of the SBL experience such as providing a physically comfortable learning environment and providing learners with information about the session length, breaks and locations of food or bathrooms (Rudolph et al., 2014). The INACSL SDS also provides guidance for briefing and recommends:

> Briefing activities include the establishment of an environment of integrity, trust, and respect. Briefing includes identification of expectation for the participant(s) and the facilitator(s). This includes establishment of ground rules and a fiction contract. (Meakim et al., 2015)

Findings from this Delphi study strongly support these recommendations from the literature. Initially, the round one data unanimously reflected the concepts of fiction contract, basic assumption, establishing a safe learning environment, and providing logistical information and expectations to SBL participants. Subsequently, in round two, all 11 item statements that reflected establishing an environment of psychological safety

for the learner and setting expectations reached consensus by greater than 83.7% of the experts. Setting clear expectations of mutual respect, trust, and support among the participants and facilitators and discussing rules of confidentiality reached 100% agreement by the expert panel. These study findings, supported by the literature, present the simulation educator with clear instructions during the briefing period to: (a) define roles prior to each SBL (89.2% R2, S11), (b) review time frames and processes (prebriefing, scenario, debriefing) (86.4% R2, S13), (c) set the tone for a safe learning environment where mistakes can be made without consequences (89.2%, R2, S16), (d) provide information about whether recording will take place (97.3%, R2,S18) and/or how recordings will be stored/used (86.5%, R2, S19), (e) acknowledge the basic assumption (83.7%, R2, S17), and (f) acknowledge the fiction contract (91.9%, R2, S21). As the evidence and literature recommend, setting the tone and expectations of the SBL experience is an essential element of the educator role during prebriefing.

Orientation. The other component of briefing that arose from both the literature and the study findings is orientation. Orienting students to the manikin and equipment, and the learning environment are recommended practices in the NLN/JSF and the literature (Alinier et al., 2014; Aronson et al., 2013; Bruce et al., 2009; Cazzell & Howe, 2012; Childs & Sepples, 2006; Fey et al., 2014; Gantt, 2013; Gore et al., 2014; Howard et al., 2011; Jeffries, 2012; Johnson et al., 2012; Reese et al., 2010; Sharpnack et al., 2013). Orientation to the manikins, equipment, and conditions of the scenario were mentioned by all 59 panel experts in round one. Of the 10 statements regarding the orientation component of briefing, only one did not reach consensus. Panelists could not reach agreement on whether learners needed to be reoriented to the manikin and simulation

equipment before each and every scenario if they had prior experience with SBL; however, they agreed that learners should be oriented to the purpose and learning objectives of the SBL (86.5%, R2, S1), to the manikin and equipment before each experience (83.8%, R2, S5), to what the manikin can and cannot simulate (100%, R2, S7), to the location of supplies (100%, R2, S8), and to procedural aspects of the simulation (such as calling the lab or pharmacy) (97.3%, R2, S9). The experts did agree that it was necessary to provide learners with time to interact with the manikin prior to the start of the scenario (83.7%, R2, S10). As previously mentioned, these findings may be consistent with the panelist open-ended comments of round three that the level of the learner and the purpose of the SBL should be considered when briefing the learners.

Results of this Delphi study support the importance of briefing by the simulation educator to prepare learners for SBL. According to the panelists, simulation educators play an important role in briefing learners about the expectations of the SBL and establishing a learning environment of mutual respect and trust. In addition, panelists concurred with the extant and newly emerged literature that the simulation educator should ensure that students are properly oriented to the manikins, equipment, and rules of engagement of the SBL experience.

Facilitating

The third role of the simulation educator is facilitating the prebriefing. Interestingly, during the first phase of data collection, panelist responses indicated that they were focused on the role of the educator as a facilitator or guide for students; however, many of the developed statements that reflected the facilitation role failed to reach consensus as the study progressed. In the NLN/JSF, Jeffries (2012) described the

facilitator as someone who provides support and asks questions during the simulation and debriefing, yet no mention was made of the role of facilitation in the prebriefing period. Similarly, the literature review of chapter two revealed no standardized format, time frame, or strategies for providing prebriefing to SBL learners. From the findings of this Delphi study, several subthemes of facilitation emerged that were similar to those found in the planning theme: the role of the simulation facilitator, the role and/or characteristics of the learner, and the SBL purpose/learning objectives. In addition, strategies for preparing students were noted as a subtheme of facilitation and directly address the third research question of this study: what strategies are recommended for prebriefing students? Strategies will be presented as a separate finding to address research question three.

Role of the facilitator. According to the INACSL standards of best practice, the facilitator is defined as an individual who provides guidance and structure during SBL (Meakim et al., 2013). The task force that examined the NLN/JSF Facilitator construct noted that this area was the least studied area of the NLN/JSF; however, they recommended that the facilitator be trained in best practices of SBL (Jones et al., 2014). The prebriefing concept analysis by Page-Cutrara (2015) noted a variety of faculty facilitation methods such as "guiding students, answering questions, leading discussions or conveying information" (p. 337). The author described "perceiving meaning" as one of the attributes of prebriefing. In addition, Page-Cutrara (2015) suggested that the simulation facilitator may assist students to connect prebriefing activities to the other phases of SBL such as debriefing. The panelists in this study concurred (91.9% R2, S35) that the prebriefing session should be led by someone who is knowledgeable about best

practices in SBL. This finding is consistent with findings from the NCSBN study which concluded that faculty members should be formally trained in simulation pedagogy and of adequate number to support the student learners (Hayden et al., 2014).

Another area of consensus by the experts was the responsibility of the facilitator to engage all students in the prebriefing learning activities (83.7% R2, S39). Engagement is reinforced in the literature. Rudolph et al. (2014) provided an appendix that provided simulation educators with instructions on establishing an engaging environment prior to SBL. Many of the activities in this appendix were supported by panel responses of this Delphi study especially in the briefing statements. All of these activities were developed to help facilitators engage students prior to SBL. Panel responses indicated that this should be an active time for SBL learners to ask questions (94.4% R2, S27) and discuss the simulated patient before entering the room to develop a plan of care (86.5% R2, S45). In addition, study data indicated that prebriefing allowed simulation educators to identify gaps in learners' knowledge prior to entering the simulation scenario (70.2% R2, S50). As previously mentioned, assessing prerequisite knowledge was also reinforced in the simulation literature.

Surprisingly, despite repeated references to the facilitation role of the simulation educator during the first round open-ended comments, 12 of the statements about facilitation did not reach consensus in subsequent rounds. Round one data yielded comments such as "the role of the simulation educator is facilitation of active experimentation and clinical reasoning by encouraging activities such as thinking aloud (during prebriefing)" and also "the facilitator is a process monitor, an information provider, a guide, who takes on a leader role in this phase." Several panelists indicated

that discussion of the patient case, lab values, medications, and priorities of care prior to the simulation was an essential element of prebriefing (R1, question 1). One panelist mentioned the use of concept mapping to plan care and scenario expectations. Another expert stated that "sufficient time is spent discussing what students anticipate in sim cases, based on their preparation." Although close to the 70% benchmark, the following statements did not reach consensus as part of the facilitator role in prebriefing: helping learners determine care priorities for the simulated patient (R3 D66.7%, S28), guiding learners to help them understand what they might expect based upon the scenario information (R3 60%, S37), and providing time to coordinate with other simulation participants prior to starting the SBL (R3 63.3%, S43). In addition, when asked to consider the statement (S71): when learners have too much information prior to the scenario, they lose the ability problem-solve on their own, the experts were evenly divided with 40% disagreement, 23.3% neutral response, and 37.8% agreement. One explanation for this lack of consensus may be the study attrition of champions of this role when the participants decreased from 59 panelists (R1) to 30 panelists (R3). Another explanation may be that evidence-based discussion of prebriefing facilitation and strategies to provide information to SBL learners is lacking in the prebriefing literature. Although many prebriefing strategies are listed in the literature, the prebriefing strategy itself was never the intended topic of the research. In the literature review of Chapter Two, a few innovative approaches to facilitation of prebriefing were noted such as: concept mapping (Decker et al., 2010); using resources to plan patient care, identify nursing diagnoses and interventions, and ask questions prior to beginning the simulation scenario (Gore et al., 2014); viewing a videotape of an expert role model performing a

simulation scenario as part of the preparation for simulation (Anderson et al., 2013; Aronson et al., 2013; Johnson et al., 2012); a prebriefing session to review the major components of the scenario (Hermanns et al., 2011); and receiving an algorithm of myocardial infarction management and the opportunity to practice oxygen administration and arrhythmia recognition in skill lab sessions (Bruce et al., 2009). Clearly, this area of prebriefing requires additional study to further define the facilitation role of the simulation educator. Another important variable for the simulation educator to consider when facilitating prebriefing is the role and characteristics of the learner.

Role of the learner. The attitudes and characteristics or traits of the learner developed as an important consideration during the facilitation phase of prebriefing. Panelists strongly agreed that prebriefing may decrease learner anxiety (94.6% R2, S116), increase learner confidence (81.1% R2, S104), and improve simulation performance (91.9% R2, S55). These Delphi study findings about learner traits and attitudes are consistent with the literature review findings of Nielsen and Harder (2013) regarding student anxiety during simulation. They recommended that educators be aware of and attempt to moderate student anxiety to enhance SBL (Nielsen & Harder, 2013). According to this Delphi study results, prebriefing may be one way to decrease student anxiety prior to participation in the SBL scenario.

Findings suggest that learner attitudes and effort in preparation are important variables for successful prebriefing. Results of this Delphi study indicate that prebriefing may be affected by negative learner attitudes such as fatigue, boredom, or inability to suspend disbelief (83.7% R2, S48) and also by learners understanding of content (89.2% R2, S49). One of the qualitative comments in round one presented a picture of ideal

simulation learners as students who are "attentive, prepared, awake, nourished, and willing and eager to learn." Several other panelists in round one commented on student preparation or lack of preparation. Many panelist comments reflected the student's attitudes about the "seriousness of the simulation," "the amount of time they took for preparing on their own," and "how motivated the students were to complete preassigned work." In the NLN/JSF, Jeffries (2012) stated that learners need to be "responsible for their own learning, self-directed and motivated" (p. 29). Surprisingly, despite these comments about student preparation from the panelists and the literature, the statements regarding student accountability during prebriefing did not reach consensus among the expert panel in rounds two or three. For example, although mentioned by several study experts during round one, requiring learners to bring proof of preparatory work as an admission ticket to the SBL did not reach consensus (45.9% R2, 53.3% R3, S44). In addition, when asked if learners who were not prepared for simulation should be permitted to participate, the experts again failed to reach consensus (S46). The panelists also could not agree on whether administering a presimulation quiz would ensure learner preparation for simulation (S51). One possible reason for this lack of agreement may be the attrition of experts who were proponents of the admission ticket from the study. Another plausible explanation may be the recurring theme that panelist answers would depend on the purpose and learning objectives of the simulation. These findings indicate that little information is known about the importance of the learner in preparing for SBL or perhaps that simulation educators are not holding learners accountable for completing simulation preparation activities. These findings will be elaborated further in the discussion of strategies for prebriefing. Because strategies were present in both the

planning and facilitating roles of the educator, this research question will be addressed first before discussion of research question two about the importance of prebriefing to learner success.

Strategies for Prebriefing

Research question three asks: What strategies are recommended for prebriefing students? According to the literature review of chapter two, no evidence-based strategies were available, but several strategies such as lecture, online modules, and assigned readings or videos were mentioned as part of the descriptions of student preparation. Although none of the reviewed studies examined prebriefing as the topic of study, they mentioned several innovative methods for preparing students such as the use of skill lab stations, the use of concept mapping, and the use of videos where an expert role modeled simulated care of either a different or similar type of patient scenario (Anderson et al., 2013; Aronson et al., 2013; Bruce et al. 2009; Decker et al., 2010; Johnson et al., 2012). Gore et al. (2014) provided students with a facilitation session to plan patient care, identify nursing diagnoses and interventions, and ask questions prior to beginning the simulation scenario.

When asked about strategies used to prepare students for SBL in round one, panelists provided detailed information about strategies and each strategy was listed in an item statement for consideration in rounds two and three; however, panelists had difficulty choosing ideal strategies for preparing students in those subsequent rounds. Round three open-ended comments revealed that this choice was difficult due to the previously mentioned variables of the purpose of the SBL and the characteristics of the learners. In fact, the panel experts stated they were frustrated by trying to select a strategy

in this section of the survey. As one panelist stated, "the lack of agreement is due to false choices in the questions." As previously discussed, several of the round three comments addressed that the variability in selecting a strategy depended on the purpose of the simulation, the learning objectives, and the level of the simulation learner. One respondent stated "Some of the statements sound all or none, when in many cases, the simulation educator might use two techniques but they appear in your statements as completely separate." Eleven of the respondents indicated that they frequently chose the neutral response because they were unable to select the importance of the strategy based upon the lack of knowledge about the specific simulation variables. Methods for delivering prebriefing as well as time frames for delivering prebriefing were also incorporated into item statements for rounds two and three based upon qualitative data from round one. These findings are presented in more detail in the following sections.

Timing and setting of prebriefing. The literature review provided little guidance about the timing and setting for prebriefing for SBL. Jeffries (2007) recommended a brief 10 minute prebriefing. Several other studies listed the length of time spent on prebriefing but provided no details or evidence about the recommended time frame. Time frames in the reviewed literature ranged from five minutes to one hour. In the qualitative data from round one, many different time frames were mentioned by the expert panel and an attempt was made to incorporate these comments into statements for rounds two and three. Perhaps not surprisingly, most of the statements regarding time spent in prebriefing lacked panel consensus as the study progressed. Experts did finally agree (72.4% R3, S56) that prebriefing should include time to provide all necessary information for successful simulation performance. The only other statement that reached consensus was

disagreement by the experts that prebriefing time should be as long as time spent on debriefing (76.6% R3, S59). Time frames offered in the item statements and considered by the participants included: no longer than 15 minutes, time should be less than simulation scenario time, should be at least 30-60 minutes, should be twice as long as simulation scenario time. None of these time frames were even close to consensus and it is interesting to note that all of these statements had high neutral responses. It is difficult to determine if the higher neutral response was due to lack of information about the specific simulation variables that have been mentioned previously: purpose, learning objectives, and learner characteristics or if it was because the panelists did not have an answer to the question about the ideal prebriefing time frame.

The setting of the prebriefing was another mentioned factor by the panelists in round one. Several panelists stated that a comfortable environment with minimal distractions was ideal for prebriefing, while others reported that prebriefing occurs at the bedside of the simulated patient. Rudolph et al. (2014) recommended that prebriefing occur in a physically comfortable environment to help learners focus on learning. No consensus was reached by panelists when asked if prebriefing should be conducted in the simulation room (S62) versus a comfortable setting similar to debriefing (S63); however, preference for a comfortable setting did come close to reaching agreement (61.1% R2; 66.7 % R3). The neutral response for both of these statements regarding prebriefing setting was approximately 30% of the panelists so it is again, difficult to determine if the variables of SBL purpose and learning characteristics were an influence or if the panelists had no preference for the ideal setting. No open-ended comments were noted about the setting or the time frame for the prebriefing. Future studies comparing prebriefing time

frames and settings may provide additional guidance for simulation educators and facilitators.

Methods for prebriefing. According to the expert panel, pre-simulation learning activities help to reinforce previously learned concepts (75.6% R2, S30) and to identify gaps in learners' knowledge (70.2% R2, S50) prior to entering the simulation scenario. The simulation and prebriefing literature does not provide evidence-based guidance about these presimulation learning activities to prepare students. The new SDS does provide guidelines in criterion 10 (participant preparation) for preparing the learner to meet the SBL objectives (Meakim et al., 2015). The SDS recommends that these preparation activities be completed prior to the briefing and be related to the content of the scenario. Strategies such as "reading assignments, coursework, didactic sessions, answering simulation specific questions, watching preparatory audiovisuals, and completing a pre-test" are given as examples (Meakim et al., 2015, p. 312). In the prebriefing concept analysis by Chamberlain (2015), engagement activities such as "preparation assignments involving cognitive and/or psychomotor domains, scenario discussion and application of nursing process" were mentioned as attributes of prebriefing. Similarly, Page-Cutrara (2015) discussed strategies that allowed students to demonstrate scenario understanding such as discussion, focusing on patient needs, and talking aloud. Similar to the Chapter Two literature review, these activities were presented in their concept analyses based upon studies where the strategies were not the primary focus of research.

During round one of this Delphi study, panelists were asked what strategies they used for providing information to learners about the scenario content. Although every panelist provided specific and multiple methods, there were several comments that

alluded to strategy choice being dependent on the purpose of the SBL. Frequent comments were "it depends on the simulation," and it "depends on the setting." One panelist stated "this also varies depending on the level of the learner and the goal of the experience. However, all simulation experiences require preparation work." Many of the panelists reported that SBL occurred after learners had received didactic content in their coursework or clinical setting. One panelist stated "I never simulate anything that has not been thoroughly taught in class and hopefully introduced in clinical." This statement was reinforced by other panelists with "sims are incorporated in the curriculum only after the general content is covered in lecture" and "we always cover the content prior to the simulation."

In addition to methods used, timing and delivery of preparation materials were described by the panel experts in round one. Some methods such as readings or watching videos were assigned prior to the SBL day while other methods such as receiving report on the simulated patient were completed by learners on the day of SBL. The most frequently mentioned strategy was providing the learners with a report on the simulated patient. Panelists noted that patient report could be provided ahead of time or on the day of the SBL just prior to students entering the room. Providing report on the day of SBL was supported with a high consensus by the panel (91.9% R2, S89). When asked if patient report was the only information that learners needed prior to the SBL, panelists disagreed (70.2% R2, S42) yet intriguingly, the statement that "learners do not need more than a brief patient report to be successful in the simulation scenario (S70)" failed to reach consensus.

Many panelists noted delivery methods for preparation activities to students prior to the SBL. Electronic methods of delivery were reported by the majority of the panelists and included the use of email, an online learning management system, or a simulated electronic health record (EHR). Electronic delivery of prebriefing materials prior to the SBL day was supported by the panel (81.1% R2, S52) as was the use of patient chart or EHR (73% R2, S83).

Strategies, delivery methods, and timing of preparation activities were extracted from the panel responses in round one and provided for review by the panelists in subsequent rounds. Strategies were divided into two separate sections: those delivered to learners prior to the day of SBL and those that were completed by learners on the same day as the SBL. Panelists were asked to rate their opinions about which of these strategies were most effective in preparing learners for the scenario topic. In round two, in the category of strategies that learners received prior to the day of SBL, half of them reached consensus as follows: videos (94.4% R2, S74), case studies (89.2% R2, S75), practicing skills in a lab setting (86.5% R2, S79), assigned readings (86.5% R2, S73), review of medications (86.5% R2, S82), and review of patient chart or EHR (73% R2, S83). An additional four of the strategies provided in advance of the SBL day reached agreement in round three: viewing a model case of a different scenario (83.4% R3, S80), completing a concept map (73.4% R3, S78), lecture (73.3% R3, S72), and completing a preparatory sheet (70% R3, S77). Many of the agreed upon strategies were presented as options in the simulation literature. Strategies such as concept mapping (Decker et al., 2010), assigning readings, videos, and review of patient information (Alinier et al., 2014; Childs &

Sepples, 2006; Howard et al., 2011; Johnson et al., 2012; Reese et al., 2010; Sharpnack et al., 2013) were mentioned as methods for preparing students for SBL.

When asked about the strategies to be completed by learners on the day of the SBL, only three panelists reached consensus in round two: receiving report on a patient (91.9% R2, S89), review of simulated patient chart (78.4% R2, S88), and providing time for planning care with peers (77.8% R2, S97). After round three, only four additional strategies were selected by panelists as being effective methods of preparing learners on the day of SBL: a facilitation session between facilitator and learners with discussion and answering of questions (86.7% R3, S99), a discussion of the simulated patient case (76.7% R3, S99), a review of procedures (73.3% R3, S94), and practice of a skill to be used in the SBL (70% R3, S86). Again, many of these strategies, although not the primary topic of study, were noted in the simulation literature (Childs & Sepples, 2006; Gore et al., 2014) as well as in the SDS. The SDS states that "designer and facilitator are responsible for ensuring that preparatory activities address the knowledge, skills, attitudes, and behaviors that will be expected of the participants during the SBL" (Meakim et al., 2015 p. 312).

It is interesting to note a disparity in the expert opinion regarding facilitation of the strategies. On the day of SBL, there was an 86.7% consensus (R3, S99) that a facilitation session with discussion and answering questions was an effective method for preparing students; however, a general statement about the ideal prebriefing including a facilitation session to help learners determine priorities for the patient did not reach consensus. In fact, half of the panelists in round three disagreed with this statement (40.5% D R2, 50% D R3, S64). In addition, another statement suggesting that prebriefing

should include discussion about the patient diagnosis and pertinent information such as medications, side effects, labs, and vital signs also did not reach consensus with the experts (S65). This statement had a higher neutral response from the panelists (40.5% neutral R2, 43.3% neutral R3). After round two, one of the panelists sent an email to the researcher asking for clarification of some of the prebriefing strategies such as the prep sheet or a skills station. This expert recommended a more thorough definition of terms to ensure that all panelists had a shared mental model for answering the survey questions. It is difficult to ascertain whether consensus was not reached on some of the strategies due to lack of understanding about the specific method or as stated previously, because the strategy selected depended on other variables such as the purpose of the SBL or the characteristics of the learners (novice versus experienced, student versus practicing clinician). Attrition of expert panelists who originally championed a facilitation session may also account for the lack of strategy consensus.

One other strategy for prebriefing was prevalent in the panel responses for round one and reinforced as the study progressed. The recommendation for use of a briefing script for all facilitators to ensure consistency in what all learners hear on the day of the SBL was repeatedly noted in panel responses. Two item statements were created for rounds two and three. Both of the statements about using a preplanned or prewritten script during the prebriefing session so that learners hear consistent standardized information reached consensus (86.4% R2, S33; 81% R2, S38). The use of a briefing script is also noted in the SDS in briefing guideline three: “a written or recorded briefing plan standardizes the process and content for each scenario/case” (Meakim et al., 2015, p. 312).

This section has discussed the findings in relation to the role of the simulation educator and the strategies to prepare learners for prebriefing. According to study data, the simulation educator assumes the roles of planner, briefer, and facilitator in prebriefing. Findings support the literature that the simulation educator selects prebriefing strategies based upon the purpose or learning objectives of the SBL and the characteristics of the learner. According to the expert panel, the ultimate goal of the simulation educator is to ensure that learners are prepared, engaged, and supported to meet the learning objectives of the SBL.

Importance of Prebriefing to Simulation-Based Learning

Discovering the importance of the prebriefing phase of SBL to learner success was the goal of research question two. In round one, panelists were asked to discuss their beliefs about the importance of prebriefing to SBL success. Unanimously, the panelists answered that prebriefing was an essential component of SBL. Words such as crucial, imperative, critical and vital were used by the panelists to describe the prebriefing component of SBL. This section will discuss the importance of the prebriefing component of SBL to successful simulation outcomes. In addition, the relevance of prebriefing to the debriefing component of SBL will be discussed.

Learner Success in Simulation-Based Learning

According to the NLN/JSF, the expected outcomes of SBL are an increase in: "(1) learning or knowledge, (2) skill performance, (3) learner satisfaction, (4) critical thinking, and (5) self-confidence" (Jeffries, 2012, p. 36). The SDS states that SBL should be purposefully designed to meet identified learning outcomes (Meakim et al., 2015). In this

Delphi study, many of the panelist responses in round one reflected the importance of prebriefing to the SBL outcomes. As reported by one panelist:

> Reducing student anxiety and engaging the students in the process is vital to success. Simulation used to be a big secret here with the students feeling like they were being led to slaughter not knowing what to expect. My philosophy is to be sure they know we expect them to make mistakes here and learn from them. My goal and I tell them this frequently, is that I want them to leave here better able to care for patients safely. That's my belief and goal—make them safer better nurses.

Another respondent stated "significant damage can be done to students if the simulation is not correctly set up for them to feel some measure (maybe small) but some measure of success and mastery." And another panelist noted prebriefing "decrease anxiety, increases team work, and fosters skill building regarding nursing planning and processing." In fact, the majority of the experts overwhelmingly stated in round one that prebriefing is essential for improving simulation performance, for decreasing learner anxiety, for increasing learner confidence, and for preparing students for simulation learning.

Thirteen statements about the importance of prebriefing to learner success were generated for consideration in rounds two and three. Of these 13 statements, only one did not reach consensus—a negatively worded statement indicating that learners do not need more than a brief patient report to be successful in the simulation scenario (S70). This statement did come close to a disagreement consensus with 62.1% disagreement in round two and 63.4% disagreement in round three. Eleven of the statements reached consensus

in round two including well prepared learners are more confident (86.4% R2, S104); prebriefing affects learner performance (91.9% R2, S55); without prebriefing, objectives might not be met (75.6% R2, S67); learners may not engage if they do not know expectations (83.8% R2, S69) and makes a difference by decreasing student anxiety (94.6% R2, S47). Also reaching consensus in round two, prebriefing helps share a clear mental model (89.1% R2, S102) and contributes to the development of: (a) learner's ability to provide competent care (83.7% R2, S103), (b) learner confidence (86.4% R2, S104), and (c) learner's decision making (78.3% R2, S105). In addition, panelists agreed that prebriefing is vital to simulation success by engaging learners (78.3% R2, S111) and allows for students to gain the skill of planning and anticipating problems (75.6% R2, S112). The one remaining statement, prebriefing should include time to provide all necessary information for successful simulation performance, reached consensus in round three (72.4% R3, S56).

When asked (in a negatively worded statement) if it was unnecessary to have a formal prebriefing session before every SBL scenario, in round three experts firmly disagreed (83.3% R3, S113) indicating the importance that they placed on preparing students for SBL. Data from this study suggested that prebriefing was believed to be a critical element of SBL to promote learner success (78.3% R2, S105, 111) through learner engagement. Although parts of the prebriefing process (objectives, participant, and facilitator factors) are noted, the concept of prebriefing is not clearly evident in the NLN/JSF. The SDS stated that the elements of briefing and participant preparation are essential components of the SBL experience to achieve optimal simulation outcomes (Meakim et al., 2015). According to the literature review by Nielsen and Harder (2013),

an optimum level of anxiety during SBL to promote student learning has not yet been identified and in fact, higher levels of stress may inhibit learning. They recommended that educators should attempt to moderate anxiety levels of learners to enhance learning. According to data from this study, prebriefing may be one way to decrease learner anxiety, improve learner performance, and increase learner confidence in SBL. As one respondent stated "Prebriefing has made the most difference in terms of decreasing student anxiety, improving student learning, and providing a positive learning experience."

Relevance to Debriefing

Debriefing is widely published in the simulation literature as a reflective period following the simulated experience where learners re-examine and reflect on the patient scenario (Dreifuerst, 2009). It is thought to be the crucial phase of SBL where the most learning occurs (Brett-Fleegler et al., 2012; Fey et al., 2014; Gaba, 2004). Debriefing is also a documented component of the NLN/JSF under the simulation design characteristics. Currently, debriefing is probably the most frequently studied aspect of SBL. As indicated from Chapter Two, literature review and the two newly published prebriefing concept analyses, the importance of debriefing has been well published in the simulation literature with little to no focus on the prebriefing phase of SBL and its effect on learning (Chamberlain, 2015; Page-Cutrara, 2015). Therefore, it was interesting to note that many panelists related the importance of prebriefing to the debriefing component of SBL. Comments such as "no less important than other facets of simulation, including debriefing," and "prebriefing is just as critical as debriefing" were made by the panelists. Additionally, one panelist reported "the better the prebrief, the better the

debrief and that equals more learning." Debriefing comments made by the panelists in round one were extracted from the data and reflected in five item statements for panelist review in subsequent rounds.

According to the majority of the panelists (86.4% R2, S101), simulation preparation time is as important as debriefing time. Panelists also agreed that prebriefing is essential for a successful debriefing session (81% R2, S114) and that learners who are better prepared for simulation performance are more reflective during debriefing (72.9% R2, S115). The only two debriefing statements that failed to reach consensus reflected the time frames and setting of prebriefing, as discussed in the strategies section, rather than its importance to debriefing success. These findings regarding the importance of prebriefing provide simulation educators with further insight into the impact of prebriefing on SBL as well as demonstrate a future need for research.

This section has discussed the findings of this study about the importance of prebriefing to learner success in SBL. Specifically, the role of prebriefing in decreasing learner anxiety, improving simulation performance, and increasing learner confidence was illustrated through study data. In addition, the relevance of prebriefing to the debriefing component of SBL was addressed.

Strengths and Limitations

There were a few limitations to this study. One of the major criticisms of the Delphi study is the lack of universal guidelines for conducting the study (Keeney et al., 2011). For this reason, several measures were used to ensure trustworthiness of the data. A detailed study protocol indicating three rounds of survey with firm guidelines for establishing a preset level of consensus (>70%) was provided prior to data collection. The

round one qualitative questions were determined from the literature review and confirmed with a simulation expert. Subsequent rounds of survey served as a method for confirming the accuracy of the data analysis.

Another criticism of the Delphi study is the size and composition of the expert panel. Although an attempt was made to secure an adequate number of CHSE experts, the request for the initial round of inquiry was placed on a new SSH community message board for the CHSE population of members. Unless eligible CHSE participants were signed up to receive email notifications about postings, they may not have seen or been aware of the request for study participation. However, the target panel size for round one was set at 50 participants and 59 experts of varying educational, professional, and practice backgrounds participated in this study. Because these 59 participants represent approximately 14.7% of the CHSE population, it is possible that selection bias occurred. Currently, SSH has no compiled demographic data available about the 500 plus members with the CHSE certification. Respondents who chose to participate in all three rounds of study may have been passionate about the subject of prebriefing. It is also possible that their opinions were not representative of the majority opinions of the CHSE population.

Due to the time consuming nature of the Delphi technique, attrition is frequently an issue. In round one, 59 panelists responded. The attrition rate for round two was 37.3% and 19% for round three. The attrition rates in this study were comparable or lower than noted attrition rates in the Delphi literature reviewed in Chapter Two (Blackwood et al. 2011; Boldt et al., 2012; Mannix, 2011; Rauta et al., 2013; Wilson et al., 2012).

Because the Delphi study relies on judgments of the experts, situational and personal biases may cause study variances and influence results (Keeney et al., 2011). As stated previously, immediately prior to the data collection phase of this study, new literature emerged on the subject of presimulation learning (Rudolph et al., 2014). This article was published in the SSH journal and available to all CHSE experts just prior to data collection and may have created a historical or situational bias and influenced panelist responses in the study.

One final limitation may have been the measurement tools for rounds two and three. Although every attempt was made to clarify definitions, some confusion of terms and strategies for selection was indicated by panel respondents in both the open-ended comments and in emails to the researcher. For example, an email was received from a panelist asking for clarification of the term "prep sheet" and also about the meaning of the time frame for "prior to sim." Although an attempt was made to establish consistency of terminology and provide definitions for terms used in the item statements, it became apparent that multiple meanings were assigned to various terms, phrases, and activities relating to simulation-based learning. In addition, some of the original uniquely worded phrases from panelists of round one were used to develop item statements which may have had different meanings for other panelists. Phrasing of the item statements may have been interpreted differently among participants and influenced study results. Finally, many of the respondents reported difficulty with agreeing with the item statements due to lack of knowledge about the simulation purpose and/or the level of the learner. Lack of clarity on directions for answering statements without that knowledge may also have influenced the study results.

Implications

The purpose of this study was to seek consensus from simulation experts about the prebriefing component of simulation learning. At the INACSL conference in June 2015, a prebriefing luncheon discussion was attended by approximately 100 INACSL members including this researcher. Several questions about prebriefing that continuously arose during the session were the amount of time to spend on prebriefing, what information to include during the prebriefing, and the best way to deliver prebriefing materials and content. The results of this study offer simulation educators insight about the importance of prebriefing to SBL learner success, as well as attempt to answer some questions about prebriefing. The findings of this study can be used to provide prebriefing guidelines for SBL educators and facilitators, administrators, and SBL learners. These findings include clarification of the role of the simulation educator according to the three themes of prebriefing: planning, briefing, and facilitating.

Simulation-Based Learning Educator/Facilitator Implications

The results of this study have several implications for SBL educators and facilitators. According to study findings, prebriefing should be conducted by a qualified SBL facilitator or educator who is knowledgeable about best practices in simulation education. Panelists repeatedly agreed that the learning objectives or purpose of the scenario will guide not only the SBL scenario, but also the learner preparation. Results indicate that the amount and type of prebriefing information will vary depending on learner level, scenario level, and previous simulation experience. Study data indicated that the SBL educator should recognize that pre-existing clinical, work, or personal experiences may influence knowledge and emotional responses of learners in SBL;

therefore, novice learners (to the clinical setting or to SBL) will require more prebriefing time and activities than learners who are familiar with these environments. In addition, findings suggest that learners in the practice setting (even in situ) also need prebriefing time and activities to prepare them for SBL. Additional implications are discussed for each of the three phases of prebriefing.

Plan. For the planning phase, results suggested that prebriefing time should be a planned part of the schedule on the day of the SBL experience. Experts agreed that prebriefing should include enough time for the briefing and facilitation activities that are deemed necessary to meet SBL purpose and objectives. The SBL educator should plan preparation learning activities based upon previous learner experiences and knowledge. Findings suggest that a variety of strategies should be considered to prepare learners for the simulated scenario. Strategies such as lecture on scenario topic, completing a patient preparatory sheet or concept map, assigned readings or videos, case studies, review of patient medications, skill practice and viewing of another simulated patient case (live or video) may be used to successfully prepare learners for SBL. However, the overarching theme from the data was that these strategies should be developed according to the level of the learner and the purpose of the simulation. Findings suggest that electronic delivery of prebriefing materials or expectations to learners prior to the SBL day may assist with learner preparation. Although many of the strategies in this study did not reach consensus, they were mentioned as possibilities in the qualitative round one data. It remains unclear whether panelists thought they were ineffective or required additional information about the learner or the simulation purpose. Further study of the efficacy of

additional facilitation strategies may provide educators with additional tools for preparing learners for the decision-making and problem-solving required for SBL scenarios.

More research is indicated to guide simulation educators about learner accountability for completing SBL preparation activities. Although the admission ticket to participate in SBL was mentioned repeatedly in the qualitative data, experts lacked consensus about requiring it for participation in subsequent rounds. Additional studies should be considered to determine if the admission ticket ensures that learners come prepared on SBL day or if simulation facilitators are holding students accountable for completing prebriefing learning activities.

Brief. For the briefing phase, study findings, supported by the SDS, indicate that the simulation educator should use a standardized briefing script to ensure that all SBL learners hear consistent information. The simulation facilitator should set the tone and expectations and provide information about the logistics (breaks, lunch, restrooms, etc.) and agenda for the SBL day. In addition, experts agreed that the SBL educator should provide learners with information about what type of evaluation is being used (formative, summative, high stakes) and the purpose of the SBL. When deciding whether to disclose the specific learning objectives of the scenario, the facilitator should consider the goals of the scenario. The SDS suggested providing general information about the learning objectives, but not disclosing specific participant performance measures or actions (Meakim et al., 2015). Although findings from this Delphi study appear to reinforce this statement by the SDS, there was some inconsistency in panel responses regarding provision of the learning objectives versus a general overview of the simulation purpose.

Additional study is needed to determine the effects of providing learners with too much information prior to the SBL scenario.

In accordance with recommendations by Rudolph et al. (2014), study findings indicate that it is imperative to set the expectation of mutual respect, trust, and support between the participants and facilitators to establish a psychologically safe learning environment. The facilitator should clarify learner roles and expectations during the SBL experience and discuss rules of confidentiality during and after the SBL experience. During the briefing, the facilitator should explain the fiction contract or limitations of technology and ask learners to try their best to overlook things that are not real. In addition, in SBL situations learners should be provided with information about whether recording will take place, if debriefing will use the recording, and how recordings will be stored or used after the session is completed.

According to study findings, orientation is an essential task of the simulation educator during the briefing. Orientation is also well documented in the extant simulation literature. Facilitators should orient learners to the simulation space including the manikins and/or standardized patients, equipment, supplies prior to each SBL experience as well as to procedural aspects of the simulation such as calling for additional information (i.e., calling lab, pharmacy, and/or other healthcare providers). Orientation is also a time for simulation educators to establish the context of the realism of the SBL—what can and cannot be done in the scenario. For example, should the learner really stick the manikin's finger to obtain blood glucose? They should notify learners how they will receive additional assessment findings that cannot be obtained from a manikin. Finally, at the end of the briefing session, facilitators should provide learners with time to interact

with the manikin or equipment prior to the start of the scenario. Findings from this Delphi study support the existing literature that briefing is one of the most essential roles of the simulation educator.

Facilitate. Study results indicated that a facilitation phase of prebriefing may engage learners in prebriefing activities and promote scenario engagement. Findings suggest that SBL educators consider a variety of facilitation strategies that will promote learner understanding of the scenario and prepare learners for the simulated scenario. Strategies such as: a report on the simulated patient, review of patient chart/electronic health record, review of patient medications, completing a concept map, viewing a video of a simulated patient, practice of a skill that will be used in the scenario, and a facilitation session with time for discussion and to answer questions were reported by expert panel members as successful methods for preparing students for SBL. However, the repeated emphasis was that the length and complexity of prebriefing will vary based on learner level, complexity of the scenario and purpose of the simulation. Results suggested that allowing time for learners to discuss the simulated patient before entering the room and to develop a plan of care may enhance SBL learner performance and reflection in debriefing. Finally, the SBL educator should provide opportunity for learners to ask questions before entering the simulated scenario. Several areas about prebriefing methods of delivery remain unclear such as the setting and time frames in which prebriefing should occur. Lack of consensus about the time and setting required for prebriefing indicates that additional research is needed.

Implications for Administrators

Results of this study should also be considered from an administrative perspective. The implementation of these guidelines requires financial, personnel, and time resources. Some of these resources were identified as potential barriers to the implementation of the ideal prebriefing session by the expert panel. In April 2015, the National League for Nursing (NLN) released a vision statement for teaching with simulation. In this statement, the NLN confirmed practice trends in simulation as well as factors that have expanded the use of simulation. The release of the NCSBN study results and the INACSL standards of best practice served as an impetus for this vision statement. In this vision statement, a call to action and recommendations for deans, directors, and chairs of nursing programs were noted (National League for Nursing Vision Simulation, 2015). In addition, Jeffries et al. (2015) made recommendations for faculty development after the NCSBN study (Jeffries et al., 2015). Findings from this Delphi study support and provide some additional recommendation about the importance of setting time for faculty development in prebriefing and for ensuring that prebriefing continues as an element of best practice in preparing learners for SBL. Although these documents discuss the importance of faculty development in debriefing, findings from this Delphi study illustrate that prebriefing may be an additional important area of consideration.

Data about the importance of prebriefing to SBL serves as a reminder for administrators when allocating resources for SBL. Both academic and practice administrators have the potential to promote SBL as a pedagogy developed according to best practices. Results from this study support recommendations from the literature that administrators should ensure an adequate number of dedicated simulation faculty with

training and expertise in SBL (National League for Nursing Vision Simulation, 2015; Jeffries et al., 2015). Findings suggest that administrators may need to budget for faculty development in simulation pedagogy. Similar to debriefing, prebriefing should be added as competency to be mastered in simulation training and education. Support of the extra time and resources for SBL including additional time for prebriefing would enable simulation educators and facilitators to incorporate simulation standards of best practice in the design of SBL and prebriefing activities.

Implications for Simulation-Based Learning Learners

The results of this study offer suggestions for SBL learners. The NLN/JSF discussed participant factors and educational practices to be considered when designing SBL experiences. Simulation learners were expected to be responsible for their own learning and have high expectations from the simulation experience (Jeffries, 2012). Findings from this study support these learner goals and expectations. According to results of this Delphi study, simulation learners are recommended to assume accountability and responsibility for their own learning with SBL. Findings from this study indicate that learners should complete all preparation activities as assigned prior to the simulation day. SBL learners should be prepared to participate on the day of simulation learning activities with an open mind, positive attitude, and willingness to learn. Results of this Delphi study indicate that prebriefing may be affected by negative learner attitudes such as fatigue, boredom, or inability to suspend disbelief. In addition, confidentiality and respecting the opinions and actions of peers and facilitators during the SBL were important components of the briefing. Results suggested that learners who fully engage in the simulated scenario may improve simulation performance and

confidence. Open-ended comments from the expert panel encouraged SBL learners to problem solve, ask questions, and take the opportunity to learn from errors; however consensus was not reached on how to best achieve that goal or how to hold learners accountable for their own preparation. More research is clearly indicated to determine the best methods to prepare SBL learners for scenario engagement and reflection on their areas of success and of improvement.

Recommendations

The findings of this study offer recommendations for the continued use of the term "prebriefing" and future prebriefing research. First, a discussion about the prebriefing terminology is provided. Due to the confusion regarding the use of the term prebriefing in both the literature and in expert responses, two options exist for future use of this term—clear definition of the term or change in terminology that better represents preparing students for SBL. As previously mentioned, the term prebriefing was omitted from the terminology in the new Standard of Best Practice: Simulation Design (Meakim et al., 2015).

This Delphi study suggests that prebriefing is a three phase process used by the simulation educator prior to the SBL scenario. According to the study data, the prebriefing process of planning, briefing, and facilitating prepares the learner for successful performance in the simulated scenario as well as for reflective practice in debriefing. The term "prebriefing" parallels or aligns with the term "debriefing" which is used to describe the post scenario reflective session. For continued use of the term "prebriefing," it is recommended that the definition be amended to:

> Prebriefing is an essential three phase process of planning, briefing, and facilitating that occurs prior to the SBL experience based upon the purpose/learning objectives of the scenario. Prebriefing should be planned and facilitated by a qualified simulation facilitator/educator who is familiar with characteristics of the SBL learner regarding level, program, and profession. Strategies should be employed to promote learner success and confidence in the simulated experience and to encourage reflective practice in debriefing.

Because the term prebriefing aligns with the debriefing phase of simulation, this researcher recommends the continued use of the prebriefing terminology with the amended definition and the separation into three phases: planning, briefing, and facilitating. The new definition of prebriefing will eliminate the confusion that occurs and ensure that prebriefing is a noted phase of SBL which incorporates not only briefing but also the preparation aspect of SBL. Although prebriefing is alluded to in the NLN/JSF in several components, further definition and acceptance of prebriefing as a noted component of SBL is recommended. Perhaps the addition and clarification of the prebriefing roles in the NLN/JSF may assist simulation educators as they seek guidance about the best methods for preparing learners for simulation.

Results from this study provide many recommendations for additional research in prebriefing. First, it is important to note that this study was the first to investigate the components of prebriefing and attempt to determine its importance to SBL. Although these results provide an initial contribution to the literature, many additional areas of study exist for prebriefing. A theme repeated in the literature and in the study findings was that learner characteristics play an important role in determining prebriefing

activities. Additional research is recommended to distinguish different prebriefing methods according to the level and type of learner. Research about the impact of learner characteristics such as profession (medicine, nursing, other health sciences), level (academic student versus practitioner), or experience with the clinical or simulated setting is warranted. In addition, revealing learning objectives to participants remained an unanswered question in this study. Additional research comparing methods of prebriefing which provide or conceal learning objectives may provide further insight into this practice. When choosing strategies to best prepare learners, many expert panelists had difficulty reaching consensus. Additional research comparing methods of preparation would be a fertile topic for further research that would have implications for both educators and learners. Studying the effects of innovative prebriefing strategies may become a priority for determining the contribution of prebriefing to learner decision-making and problem-solving during SBL.

Findings from this study suggest that prebriefing comprises three different roles for the simulation educator or facilitator. While the briefing role of the simulation facilitator is well supported by the literature and findings from this Delphi study, future research about the planning and facilitation aspects will further define these roles. In addition, consensus was not reached regarding the optimal setting and length of time for prebriefing. Studies which focus on the length of prebriefing time and comparisons of prebriefing settings may provide educators with additional guidance for facilitation of prebriefing.

Furthermore, study results indicated that prebriefing may have an effect on the debriefing component of SBL. Additional research examining the effects of prebriefing

on debriefing would contribute to the growing body of debriefing literature. Finally, collecting additional data about the impact of prebriefing on simulation learning outcomes such as critical thinking and decision-making may further illuminate the importance of preparing learners for SBL.

Conclusion

This study sought to expand the body of knowledge about the prebriefing component of SBL. The findings of this study provide simulation educators and facilitators with information about their roles in planning, briefing, and facilitating prebriefing. The results of this study provide insight into the importance of prebriefing to SBL learner success. The implications of this study may be used to develop guidelines for simulation educators, administrators, and SBL learners to prepare for a successful SBL experience. Findings from this study support the need for clarification of the prebriefing terminology. In addition, future areas of prebriefing research are needed to develop evidence-based prebriefing methods, and to determine prebriefing relevance to debriefing, and the impact of learner preparation on SBL success.

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Appendix A

Permission to Use NLN/JSF Model

Dear Donna:

The NLN has received your request for permission to include the figure of the NLN/Jeffries Simulation Framework in your dissertation. We are pleased to grant you copyright permission according to the following.

"The NLN/Jeffries Simulation framework," developed as part of the 2003- 2006 NLN/Laerdal Simulation Study and most recently published on page 37 of the work noted below, may be used within your dissertation."

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

In granting permission to use this Framework, it is understood that the following assumptions operate and "caveats" will be respected.

- The Framework will only be used for the purpose outlined above.
- The Framework will be included in its entirety and not modified in any way.
- The National League for Nursing is the sole owner of these rights being granted.
- No fees are being charged for this permission.

Best wishes as you complete your research.

Respectfully,

Amy

Amy McGuire | Administrative Coordinator, NLN Chamberlain Center | National League for Nursing | www.nln.org |amcguire@nln.org | Tel: 202-909-2509 | The Watergate | 2600 Virginia Avenue NW, 8th Fl, Washington, DC 20037

Appendix B

IRB Approval Letter Round One

Indiana University of Pennsylvania
Letterhead

March 16, 2015

Donna S. McDermott
822 Deep Lake Drive
Cranberry Twp., PA 16065

Dear Ms. McDermott:

Your proposed research project, "Seeking Consensus on Prebriefing: Preparing Students for Simulation-Based Learning," (Log No. 15-076) has been reviewed by the IRB and is approved as an expedited review for the period of March 10, 2015 to March 10, 1026. This approval does not supersede or obviate compliance with any other University requirements, including, but not limited to, enrollment, degree completion deadlines, topic approval, and conduct of university-affiliated activities.

You should read all of this letter, as it contains important information about conducting your study.

Now that your project has been approved by the IRB, there are elements of the Federal Regulations to which you must attend. IUP adheres to these regulations strictly:

1. You must conduct your study exactly as it was approved by the IRB.
2. Any additions or changes in procedures must be approved by the IRB before they are implemented.
3. You must notify the IRB promptly of any events that affect the safety or well-being of subjects.
4. You must notify the IRB promptly of any modifications of your study or other responses that are necessitated by any events reported in items 2 or 3.

Should you need to continue your research beyond March 10, 2016 you will need to file additional information for continuing review. Please contact the IRB office at irb-research@iup.edu or 724-357-7730 for further information.

The IRB may review or audit your project at random *or* for cause. In accordance with IUP Policy and Federal Regulation (45CFR46.113), the Board may suspend or terminate your project if your project has not been conducted as approved or if other difficulties are detected.

Although your human subjects review process is complete, the School of Graduate Studies and Research requires submission and approval of a Research Topic Approval Form (RTAF) before you can begin your research. If you have not yet submitted your RTAF, the form can be found at http://www.iup.edu/page.aspx?id=91683.

While not under the purview of the IRB, researchers are responsible for adhering to US copyright law when using existing scales, survey items, or other works in the conduct of research. Information regarding copyright law and compliance at IUP, including links to sample permission request letters, can be found at http://www.iup.edu/page.aspx?id-165526.

I wish you success as you pursue this important endeavor.

Sincerely,

Jennifer Roberts, Ph.D.
Chairperson, Institutional Review Board for the Protection of Human Subjects
Professor of Criminology

JLR:jeb

Cc: Dr. Teresa Shellenbarger, Dissertation Advisor
Ms. Brenda Boal, Secretary

Appendix C

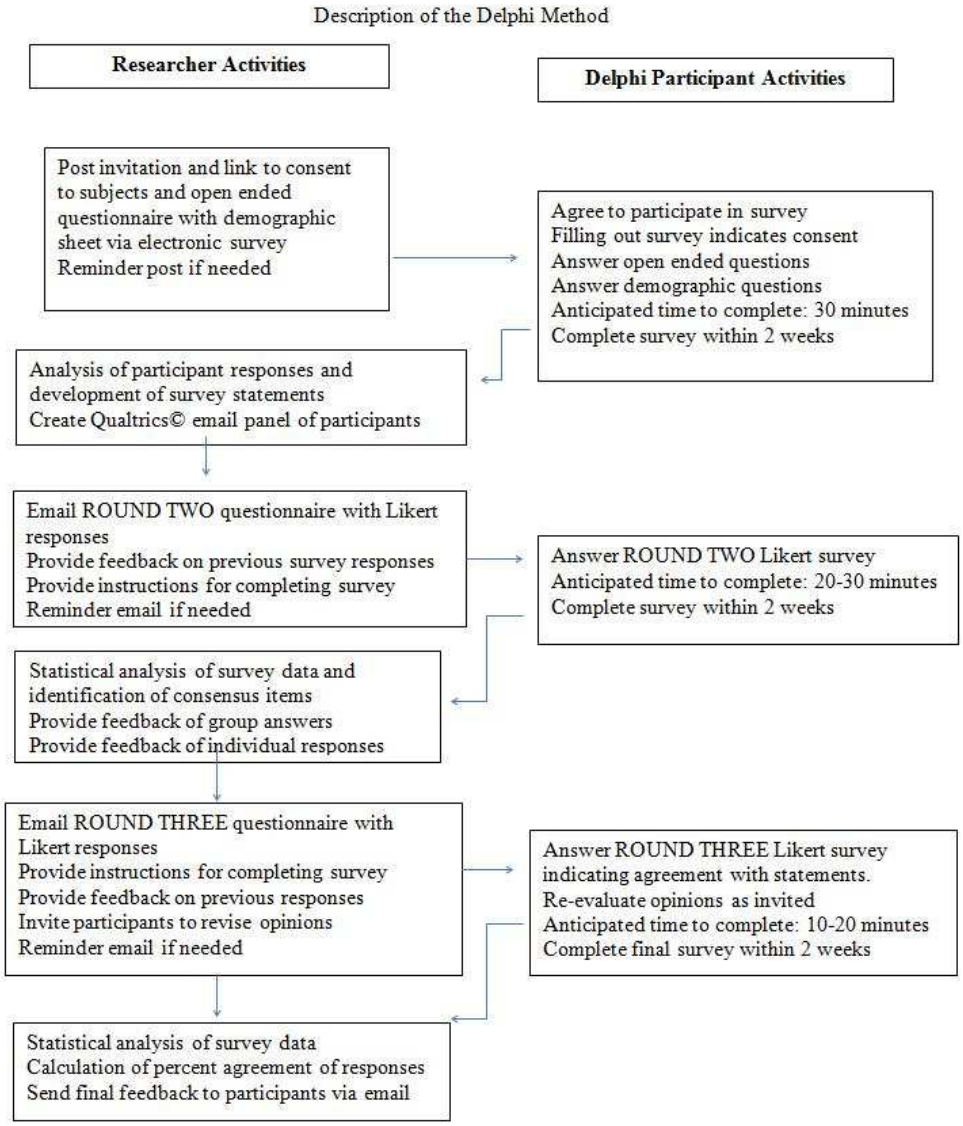

Figure 2. Description of the Delphi Method.

Appendix D

SSH Permission to Post Recruitment Request

SSH Letterhead

2021 L Street, NW
Suite 400
Washington, DC
20036

Society for Simulation in Healthcare

March 17, 2015

Dear Donna:

Pursuant to your request for posting your survey, this letter serves as official notification that you may use the SimConnect CHSE group to post your survey. It is understood that this survey supports your dissertation research and work, and that it is being done for academic purposes. This is within the rules of use for the SimConnect community, and benefits the healthcare simulation community.

Should you have any further questions, or require additional documentation, please feel free to contact me at aspain@ssih.org. I will be happy to assist as possible.

Sincerely,

Andrew E. Spain, MA, EMT-P, NCEE
Director of Accreditation and Certification

Appendix E

Research Participation Request

Post to Sim Connect CHSE Community site with link to Qualtrics© Survey

Discussion Title: Seeking your expert CHSE opinion for research

Hello. My name is Donna McDermott and I am conducting a simulation research study on prebriefing. I am a doctoral student at Indiana University of Pennsylvania, a faculty member who uses simulation in healthcare education, and a fellow certified simulation healthcare educator. My study seeks consensus on essential elements of prebriefing in Simulation-Based Learning using the Delphi method of research.

The Delphi method of research involves data collection from an identified panel of experts over several rounds. By inviting participants with the CHSE credentials, I am ensuring that the expert panel has the simulation knowledge and skills to provide expert input about prebriefing in simulation-based education.

This posting includes a link to the Qualtrics© survey which includes consent for participation. Please click on the link if you would like to participate in the study. Please feel free to contact me or post any additional questions. I hope you will agree to participate and provide your expertise to this much needed study on prebriefing. Thank you for your valuable contribution to my study.

Primary Investigator: Mrs. Donna S. McDermott RN MSN CHSE
Doctoral Student Indiana University of Pennsylvania
email: d.s.mcdermott2@iup.edu

Appendix F

Informed Consent

Dear Certified Healthcare Simulation Educator,

You are invited to take part in a dissertation research project titled: *Seeking Consensus on Prebriefing: Preparing Students for Simulation-Based Learning*. This study will be conducted using the Delphi method of research by Donna S. McDermott, an Indiana University of Pennsylvania doctoral candidate and fellow CHSE simulation educator. There is little research to date examining best practices in prebriefing students for simulation-based learning. This study will seek consensus from simulation education experts on the importance of prebriefing and determine guidelines for preparing students for simulation learning.

The inclusion criteria for this study are:

1. CHSE-A or CHSE certification by the Society for Simulation in Healthcare
2. Currently using simulation in your own practice
3. Ability to read and write English
4. Willing to participate

The following information is provided to help you make an informed decision whether or not to participate. If you have any questions, please do not hesitate to email me at d.s.mcdermott2@iup.edu.

The purpose of this study is to seek consensus from simulation experts on prebriefing guidelines to prepare students for simulation learning. As a CHSE individual, you are recognized as a knowledgeable expert of simulation-based learning and education.

The aims of this study are:
1) to determine expert simulation educators' perspectives of the prebriefing role to simulation- based learning and success
2) to develop guidelines for simulation educators in preparing students for simulation learning.

This research will be carried out using the modified electronic Delphi technique consisting of 3 questionnaires (known as rounds) aiming to achieve consensus. If you consent to participation in this study, please indicate yes and continue with the questions. Simple and specific instructions will be provided for each round and questionnaire.

The amount of time necessary for completion of each questionnaire or round will vary with each panelist, but should range from approximately 20-30 minutes for Round 1, 10-20 minutes for Round 2, and 10-20 minutes for Round 3. There are no correct or incorrect answers to the questions. This study is seeking your expert opinion. I think you will find the process interesting and you will receive feedback with each additional round and results will be made available to you at the conclusion of this study.

It is important that you understand that your participation in this study is entirely voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or IUP. Any information that you provide will be kept confidential and when the results of this study are reported, you will not be identifiable in the findings. Your name will not be recorded on any rounds. You will be asked to provide your email address to allow the researcher to match your responses for each round and send the next round of survey. You will remain anonymous to the other panel experts throughout this Delphi study and only the researcher will be able to identify your specific answers. Completing each of the Delphi rounds implies your consent to participate. You may choose not to participate at any time by exiting the survey and closing out your browser. There are no known risks or discomforts associated with this research. The information gained from this study will help simulation educators gain insight about preparing students for simulation-based learning.

By clicking on the radio button for yes, you are indicating your consent. Thank you for contributing your expert opinion to this important research regarding the prebriefing component of simulation education!

I would really appreciate if you could complete this survey within two weeks.

Sincerely,

Donna S. McDermott
Principal investigator

If you have any questions about this study, you can contact the study investigator or dissertation chairperson using the email addresses below

Primary Investigator: Mrs. Donna S. McDermott RN MSN CHSE
Doctoral Student Indiana University of Pennsylvania
email: d.s.mcdermott2@iup.edu

Dissertation chair: Dr. Teresa Shellenbarger
246 Johnson Hall, 1010 Oakland Avenue
Indiana, PA 15705
email: tshell@iup.edu

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

Adapted from sample letter in: Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi technique in nursing and health research*. West Sussex, UK: Wiley-Blackwell.

Appendix G

Round One Delphi Questions: Prebriefing

This study asks for your expert opinion about prebriefing in three surveys. To receive the second survey that will consist of the aggregated results of this survey in the form of Likert statements, please provide your email address so that I can send you the second round of survey questions directly.

Your email and responses will be kept confidential and will only be known to the primary investigator and will remain anonymous to the other experts in the study.

Instructions and Questions

Please answer the following questions about prebriefing. I ask you to thoughtfully consider each question and provide your expert opinion about prebriefing and/or preparing students for simulation-based learning. Use any format that you like for your answers. You do not need to provide complete sentences.

What are the essential elements of prebriefing?

What information do you provide to the learners prior to the simulation-based learning?

How do you provide information to the learners about the scenario topic prior to the simulation-based learning? Please discuss specific strategies that you use such as lecture, report about a simulated patient, videos or live model demonstrations, readings or handouts, skill station practice, learning modules, or others.

What are the learner responsibilities in prebriefing and/or preparing for simulation-based learning?

What learner characteristics affect prebriefing?

What is the role of the simulation educator (and/or facilitator) in prebriefing?

If time or resources were not an issue, what would your ideal prebriefing look like?

Please describe your beliefs about the importance of prebriefing to simulation-based learning success.

Thank you for taking the time to complete this survey. Your expert opinion is an important part of this research. Your answers will be complied and analyzed for themes and patterns. Item statements will be generated and you will receive a second survey asking you to rate each item on a Likert scale according to their importance to prebriefing. You should receive the second survey within approximately one month.

End of Survey

Appendix H

Demographic Questions for Qualtrics® Survey Round One

Please select the best response and fill in the blanks where appropriate

1. What is your gender?

   Male
   Female

2. What is your age? _____

3. In what country do you reside?

   United States. Please indicate state. _____
   Canada _____
   Other (please list) _____

4. What category most accurately represents your current employment position?

   Educator/Faculty
   Clinical Practice/Practitioner
   Manager/Administrator/Coordinator
   Other (please list) _____

5. What 'category' most accurately represents your organization?

   Hospital
   Practice Setting
   Academic (please indicate type of program from selections below; choose all that apply
      Medical School
      Associate Degree Nursing
      BSN
      Master's
      Doctor of Nursing Practice
      PhD
      Other please list _____

How long have you been using simulation in education?

Less than 2 years
2 - 5 years
6 - 10 years
over 10 years

What is the highest academic degree you have completed? (Please fill in the blank)

Bachelor's degree in the field of _____
Master's degree in the field of _____
Doctoral/terminal degree. In the field of _____
Other: please list _____

Please indicate what type of simulations you use. Select all that apply.

Standardized patients
High fidelity
Moderate or mid-level fidelity
Low fidelity
CD or DVD
Virtual reality
Other: please describe

Please indicate any memberships in professional simulation organizations. Select all that apply.

SSH
INACSL
ASPE
SimGHOSTS
Other: please list _____

Do you incorporate the INACSL Standards into your simulation work?

Yes
No

Appendix I

Research Participation Second Request Post

Post to Sim Connect CHSE Community site with link to Qualtrics© Survey

Two options exist for requesting additional participants for study. I will first repost to the initial thread that I started on the Sim Connect discussion, and then move to option two if that does not achieve the projected 50 participants. When posting on a discussion board, each new post makes that discussion rise to the top of the discussion list on a listserv/discussion board site.

1. Repost another request on the same discussion board link to raise it to the top of the Sim Connect forum:

I'm reposting to again request help from CHSE experts on my simulation research study: *Seeking Consensus on Prebriefing: Preparing Students for Simulation-Based Learning.* One of the main premises of a Delphi study is establishing agreement from identified experts on a topic such as prebriefing. Your input about the essential elements of prebriefing would be such a valuable contribution to simulation education. It is my hope to develop guidelines for prebriefing based upon your expert opinion. Please consider providing your expertise on this subject. Thank you!

This posting includes a link to the Qualtrics© survey which includes consent for participation. Please click on the link if you would like to participate in the study. Please feel free to contact me or post any additional questions. I hope you will agree to participate and provide your expertise to this much needed study on prebriefing. Thank you for your valuable contribution to my study.

Primary Investigator: Mrs. Donna S. McDermott RN MSN CHSE
Doctoral Student Indiana University of Pennsylvania
email: d.s.mcdermott2@iup.edu

2. Repost another new post on the Sim Connect CHSE Community Site

Discussion Title: Still seeking your expert CHSE opinion for prebriefing research

Hello. My name is Donna McDermott and I am conducting a simulation research study on prebriefing. I am a doctoral student at Indiana University of Pennsylvania, a faculty member who uses simulation in healthcare education, and a fellow certified simulation healthcare educator. My study seeks consensus on essential elements of prebriefing in Simulation-Based Learning using the Delphi method of research.

The Delphi method of research involves data collection from an identified panel of experts over several rounds. By inviting participants with the CHSE credentials, I am

ensuring that the expert panel has the simulation knowledge and skills to provide expert input about prebriefing in simulation-based education.

This posting includes a link to the Qualtrics© survey which includes consent for participation. Please click on the link if you would like to participate in the study. Please feel free to contact me or post any additional questions. I hope you will agree to participate and provide your expertise to this much needed study on prebriefing. Thank you for your valuable contribution to my study.

Primary Investigator: Mrs. Donna S. McDermott RN MSN CHSE
Doctoral Student Indiana University of Pennsylvania
email: d.s.mcdermott2@iup.

Appendix J

IRB Approval Letter Round Two

Indiana University of Pennsylvania
Letterhead

April 22, 2015

Donna McDermott
822 Deep Lake Drive
Cranberry Twp., PA 16066

Dear Ms. McDermott:

Your proposed modifications to your previously approved research project, "Seeking Consensus on Prebriefing: Preparing Students for Simulation-Based Learning," (Log No. 15-076) have been reviewed by the IRB and are approved as an expedited review for the period of April 20, 2015 to March 10, 2016. This approval does not supersede or obviate compliance with any other University requirements, including, but not limited to, enrollment, degree completion deadlines, topic approval, and conduct of university-affiliated activities.

You should read all of this letter, as it contains important information about conducting your study.

Now that your project has been approved by the IRB, there are elements of the Federal Regulations to which you must attend. IUP adheres to these regulations strictly:

1. You must conduct your study exactly as it was approved by the IRB.
2. Any additions or changes in procedures must be approved by the IRB before they are implemented.
3. You must notify the IRB promptly of any events that affect the safety or well-being of subjects.
4. You must notify the IRB promptly of any modifications of your study or other responses that are necessitated by any events reported in items 2 or 3.

Should you need to continue your research beyond March 10, 2016 you will need to file additional information for continuing review. Please contact the IRB office at (724) 357-7730 or come to Room 113, Stright Hall for further information.

The IRB may review or audit your project at random *or* for cause. In accordance with IUP Policy and Federal Regulation (45CFR46.113), the Board may suspend or terminate your project if your project has not been conducted as approved or it other difficulties are detected.

While not under the purview of the IRB, researchers are responsible for adhering to US copyright law when using existing scales, survey items, or other works in the conduct of research. Information regarding copyright law and compliance at IUP, including links to sample permission request letters, can be found at http://www.iup.edu/page.aspx?id=165526

I wish you success as you pursue this important endeavor.

Sincerely,

Jennifer Roberts, Ph.D.
Chairperson, Institutional Review Board for the Protection of Human Subjects
Professor of Criminology

JLR:jeb

Cc: Dr. Teresa Shellenbarger, Dissertation Advisor

Appendix K

Delphi Method Round Two Email Sent from Qualtrics

Dear CHSE Expert Panel Member,
Thank you for providing your expert opinion on prebriefing and returning the first round Delphi questionnaire. The second round of this Delphi study lists aggregated responses from 59 CHSE panel members who responded to round one. The results from round one have been analyzed and similar responses clustered together according to patterns and themes. The meaning of the responses has not been changed. The responses have been developed into item statements for this second round of data collection.

I am now asking you to thoughtfully consider each statement and its importance to prebriefing and/or preparing students for simulation-based learning.

You will see a Likert scale beside each statement about prebriefing. This scale is numbered 1 to 5. Please select the number that best describes how important the statement is for prebriefing students for simulation-based learning. These numbers correspond to a response as indicated below:

1) Strongly disagree
2) Disagree
3) Neither agree nor disagree
4) Agree
5) Strongly agree

This survey should take you approximately 20-30 minutes to complete.

I would really appreciate if you could complete this survey within two weeks.

If you wish to discuss any aspect of this further, please contact the study investigator or dissertation chairperson using the email addresses below
Primary Investigator: Mrs. Donna S. McDermott RN, MSN, CHSE
Doctoral Student Indiana University of Pennsylvania
email: d.s.mcdermott2@iup.edu

Dissertation chair: Dr. Teresa Shellenbarger
246 Johnson Hall, 1010 Oakland Avenue
Indiana, PA 15705
email: tshell@iup.edu

Thank you for your continued time and participation in this study.
Sincerely,

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

Appendix L

Delphi Round Two Questions

Survey Directions:
The first round of this study provided rich data about prebriefing, however, it became evident when reviewing the responses that there were many different terms and meanings assigned to some of the questions. In an attempt to establish a clear picture of prebriefing, please consider this clarification of terms as you answer this next survey.

For the purposes of this study:

Prebriefing - encompasses the entire period of time prior to the students entering the simulation learning activity. This includes prior learning activities, briefing on the day of simulation, and any other preparation by the learner or educator.

Simulation learner – anyone who is participating in the simulated learning activity – this could include students or participants from the practice setting.

Simulation educator – the person who plans/facilitates the prebriefing, simulation and/or debriefing. Many of the first round responses indicated having several people – faculty, directors, facilitators but also many only had one person performing all roles. Please think of the simulation educator as a general role in prebriefing planning and facilitating.

For this survey, please indicate your agreement/disagreement with each of the statements about the prebriefing component of simulation-based learning. Themes from the previous responses were generated and attempts were made to leave all uniquely worded statements from panel members when possible.

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Simulation learners should be provided with the purpose and the objectives of the simulation before starting the scenario.	**1**	**2**	**3**	**4**	**5**
Simulation learners should be given the specific learning objectives even if they provide clues about what is to come in the scenario.	**1**	**2**	**3**	**4**	**5**
Sharing the specific learning objectives depends upon the goals of the simulation experience.	**1**	**2**	**3**	**4**	**5**
Simulation learners should be given a general overview of the simulation purpose rather than the specific learning objectives.	**1**	**2**	**3**	**4**	**5**
Simulation learners should be oriented to the manikin and simulation equipment before each simulation experience.	**1**	**2**	**3**	**4**	**5**
Simulation learners do not need to be reoriented to	**1**	**2**	**3**	**4**	**5**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
the manikin and simulation equipment before each simulation scenario if they have experienced prior simulation-based learning.					
Orientation to the simulation space includes what the manikin can and cannot simulate and what assessment information will be verbally provided.	**1**	**2**	**3**	**4**	**5**
Simulation learners should be oriented to the location of necessary supplies and materials and how to access them.	**1**	**2**	**3**	**4**	**5**
Simulation learners should be oriented to procedural aspects of the simulation such as calling for additional information (i.e. calling lab, pharmacy, and/or other healthcare providers).	**1**	**2**	**3**	**4**	**5**
Providing simulation learners with time to interact with the manikin or equipment prior to the start of the scenario is an important component of prebriefing.	**1**	**2**	**3**	**4**	**5**
Roles of the simulation learners and educators should be defined prior to beginning each simulation scenario.	**1**	**2**	**3**	**4**	**5**
During prebriefing, stating clear expectations for the learner fosters an environment of trust.	**1**	**2**	**3**	**4**	**5**
The approximate time frames and process of each of the blocks (prebriefing, simulation, and debriefing) should be reviewed with the simulation learners.	**1**	**2**	**3**	**4**	**5**
The simulation educator should set the expectation of mutual respect, trust, and support between the participants and facilitators.	**1**	**2**	**3**	**4**	**5**
During prebriefing, rules of confidentiality should be discussed with simulation learners.	**1**	**2**	**3**	**4**	**5**
The simulation educator should set the tone that simulation-based learning occurs in a safe environment where mistakes can be made without academic or employment consequences.	**1**	**2**	**3**	**4**	**5**
The simulation educator should acknowledge the basic assumption that each learner has a foundation (aka 'skill set') that each brings as a result of prior education.	**1**	**2**	**3**	**4**	**5**
Simulation learners should be provided with information about whether or not recording will take place and if debriefing will use the recording.	**1**	**2**	**3**	**4**	**5**
Simulation learners should be provided with information about how recordings are stored/used after the session is completed.	**1**	**2**	**3**	**4**	**5**
Simulation learners should be provided with information about what type of evaluation is being used (formative, summative, high stakes).	**1**	**2**	**3**	**4**	**5**
The simulation educator should acknowledge the “fiction contract” or limitations of technology and ask participants to try their best to overlook things that are not real	**1**	**2**	**3**	**4**	**5**
Prebriefing time should be incorporated into the	**1**	**2**	**3**	**4**	**5**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
schedule on the simulation day.					
The simulation educator plays an important role in preparing learners for the simulation experience.	**1**	**2**	**3**	**4**	**5**
Planned prebriefing learning activities will depend on the level of the student (novice versus experienced).	**1**	**2**	**3**	**4**	**5**
Planned prebriefing learning activities will depend on the purpose of the simulation.	**1**	**2**	**3**	**4**	**5**
Providing learners with too much information prior to the simulation experience may reveal too many simulation scenario details.	**1**	**2**	**3**	**4**	**5**
During prebriefing, the simulation educator should plan time to answer learner questions prior to the simulation.	**1**	**2**	**3**	**4**	**5**
During prebriefing, the simulation educator should help learners determine care priorities for the simulated patient.	**1**	**2**	**3**	**4**	**5**
The simulation educator should provide didactic or other form of presimulation education so that learners are prepared to participate in the simulation in a meaningful way.	**1**	**2**	**3**	**4**	**5**
Pre-simulation learning activities help to reinforce previously learned concepts.	**1**	**2**	**3**	**4**	**5**
Pre-existing clinical, work, or personal experiences may influence knowledge and emotional responses of students in simulation.	**1**	**2**	**3**	**4**	**5**
The amount and type of prebriefing information vary depending on learner level, scenario level, and previous simulation experience.	**1**	**2**	**3**	**4**	**5**
During prebriefing, the use of a script is essential to standardize information communicated to learners by all simulation educators.	**1**	**2**	**3**	**4**	**5**
Learners in the practice setting do not need as much prebriefing information as learners in an academic setting.	**1**	**2**	**3**	**4**	**5**
The prebriefing session should be led by someone who is knowledgeable about best practices in simulation-based learning.	**1**	**2**	**3**	**4**	**5**
One role of the simulation educator is to ensure the learner is prepared for the simulation with appropriate pre-learning activities.	**1**	**2**	**3**	**4**	**5**
One of the roles of the simulation educator is to guide learners through the simulation process to help learners understand what they might expect based upon the scenario information.	**1**	**2**	**3**	**4**	**5**
It is important to follow a preplanned script so all learners consistently hear the same standardized information prior to the scenario.	**1**	**2**	**3**	**4**	**5**
One of the roles of the simulation educator is to engage all students in the prebriefing learning activities.	**1**	**2**	**3**	**4**	**5**
The simulation educator should present learning	**1**	**2**	**3**	**4**	**5**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
opportunities that correlate to didactic information but require students to apply knowledge to a new situation.					
It is important for the simulation educator to know if the learners have had prior exposure to any protocols used in the simulation.	**1**	**2**	**3**	**4**	**5**
Patient report is the only information about the scenario topic that the learners need to have prior to the simulation.	**1**	**2**	**3**	**4**	**5**
Simulation learners should have time to coordinate with other simulation participants prior to starting the simulation.	**1**	**2**	**3**	**4**	**5**
Requiring learners to bring proof of preparatory work as an admission ticket to simulation ensures completion of activities.	**1**	**2**	**3**	**4**	**5**
Allowing time for learners to discuss the simulated patient before entering the room helps them develop a plan of care.	**1**	**2**	**3**	**4**	**5**
Learners who are not prepared for simulation should not be permitted to participate in simulation activities.	**1**	**2**	**3**	**4**	**5**
Prebriefing may decrease learner anxiety during simulation performance.	**1**	**2**	**3**	**4**	**5**
Prebriefing may be affected by negative learner attitudes such as fatigue, boredom, or inability to suspend disbelief.	**1**	**2**	**3**	**4**	**5**
Prebriefing may be affected by the learners' understanding of the content from didactic courses and clinical experiences.	**1**	**2**	**3**	**4**	**5**
Prebriefing allows simulation educators to identify gaps in learners' knowledge prior to entering the simulation scenario.	**1**	**2**	**3**	**4**	**5**
Administering a presimulation quiz ensures learners prepare for simulation.	**1**	**2**	**3**	**4**	**5**
Simulation preparation learning activities may be provided to students electronically prior to the simulation day.	**1**	**2**	**3**	**4**	**5**
Simulation preparation learning activities may not be provided until the day of simulation.	**1**	**2**	**3**	**4**	**5**
Learners who are well prepared for simulation are more confident during simulation activities.	**1**	**2**	**3**	**4**	**5**
Prebriefing does not affect learner performance in simulation.	**1**	**2**	**3**	**4**	**5**
Prebriefing should include time to provide all necessary information for successful simulation performance.	**1**	**2**	**3**	**4**	**5**
Prebriefing time should be brief and no longer than 15 minutes.	**1**	**2**	**3**	**4**	**5**
Prebriefing time should take between least 30-60 minutes.	**1**	**2**	**3**	**4**	**5**
Prebriefing time should be as long as the time spent on debriefing.	**1**	**2**	**3**	**4**	**5**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Prebriefing time should be less than simulation scenario time.	**1**	**2**	**3**	**4**	**5**
Prebriefing time should be twice as long as the simulation scenario time.	**1**	**2**	**3**	**4**	**5**
Prebriefing should be conducted in the simulation room.	**1**	**2**	**3**	**4**	**5**
Prebriefing should be conducted in a comfortable setting similar to debriefing.	**1**	**2**	**3**	**4**	**5**
The ideal prebriefing should include a facilitation session with the educator to help learners determine priorities for the patient.	**1**	**2**	**3**	**4**	**5**
The ideal prebriefing should include discussion about the patient diagnosis and pertinent information such as medications, side effects, labs, and vital signs.	**1**	**2**	**3**	**4**	**5**
Length and complexity of prebriefing will vary based on learner level, complexity of the scenario and purpose of the simulation.	**1**	**2**	**3**	**4**	**5**
Without a prebriefing, the simulation may not achieve the desired objectives.	**1**	**2**	**3**	**4**	**5**
Without a prebriefing, the simulation may create anxiety for the learner and inhibit learning.	**1**	**2**	**3**	**4**	**5**
Learners may not engage fully in the simulation if they do not know what is expected.	**1**	**2**	**3**	**4**	**5**
Learners do not need more than a brief patient report to be successful in the simulation scenario.	**1**	**2**	**3**	**4**	**5**
When learners have too much information prior to the scenario, they lose the ability to problem solve on their own.	**1**	**2**	**3**	**4**	**5**
During the prebriefing period, the following strategies are most effective in reinforcing knowledge of the <u>scenario topic</u> (not orientation, expectations, etc.) and preparing learners for simulation participation:					
When assigned PRIOR to the simulation day, the following strategies are most effective to prepare students:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Lecture	**1**	**2**	**3**	**4**	**5**
Assigned readings	**1**	**2**	**3**	**4**	**5**
Videos	**1**	**2**	**3**	**4**	**5**
Case studies	**1**	**2**	**3**	**4**	**5**
Completing a pre-quiz	**1**	**2**	**3**	**4**	**5**
Completing a prep sheet	**1**	**2**	**3**	**4**	**5**
Concept mapping activity	**1**	**2**	**3**	**4**	**5**
Practicing skills in a laboratory setting.	**1**	**2**	**3**	**4**	**5**
Viewing a model case of a different scenario (live or video)	**1**	**2**	**3**	**4**	**5**
Viewing a model case of the same scenario (live or video)	**1**	**2**	**3**	**4**	**5**
Review of medications					
Review of patient chart or EHR	**1**	**2**	**3**	**4**	**5**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
When used <u>on the simulation day</u> during the prebriefing period, the following strategies are most effective to prepare students:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Completing a pre-quiz	**1**	**2**	**3**	**4**	**5**
Visual demonstrations of skills	**1**	**2**	**3**	**4**	**5**
Practice of a skill used in the simulation	**1**	**2**	**3**	**4**	**5**
Skill stations	**1**	**2**	**3**	**4**	**5**
Review of simulated patient chart	**1**	**2**	**3**	**4**	**5**
Receiving report on the patient	**1**	**2**	**3**	**4**	**5**
Viewing a model case of a different scenario (live or video)	**1**	**2**	**3**	**4**	**5**
Viewing a model case of the same scenario (live or video)	**1**	**2**	**3**	**4**	**5**
Review of case studies	**1**	**2**	**3**	**4**	**5**
Review of policies	**1**	**2**	**3**	**4**	**5**
Review of procedures	**1**	**2**	**3**	**4**	**5**
Discussion of patient case	**1**	**2**	**3**	**4**	**5**
Discussion of patient priorities	**1**	**2**	**3**	**4**	**5**
Review of patient medications	**1**	**2**	**3**	**4**	**5**
Time for planning care with peers	**1**	**2**	**3**	**4**	**5**
Review of patient interventions	**1**	**2**	**3**	**4**	**5**
Facilitation session – discussion and answer questions	**1**	**2**	**3**	**4**	**5**
No additional information is necessary about the scenario topic	**1**	**2**	**3**	**4**	**5**
Please answer the following questions regarding the importance of prebriefing as a component of simulation based learning.					
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Simulation preparation time is as important as simulation debriefing time.	**1**	**2**	**3**	**4**	**5**
Prebriefing helps share a clear mental model so that everyone is "on the same page" as they begin the experience.	**1**	**2**	**3**	**4**	**5**
Prebriefing contributes to the development of the learner's ability to provide competent patient care.	**1**	**2**	**3**	**4**	**5**
Prebriefing contributes to the development of the learner's confidence.	**1**	**2**	**3**	**4**	**5**
Prebriefing contributes to the development of the learner's decision making ability.	**1**	**2**	**3**	**4**	**5**
Prebriefing contributes to the development of the learner's ability to recognize subtle signs of patient status deterioration.	**1**	**2**	**3**	**4**	**5**
Lack of resources may be a barrier to the integration of prebriefing into simulation-based learning.	**1**	**2**	**3**	**4**	**5**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Lack of faculty time may be a barrier to the integration of prebriefing into simulation-based learning.	**1**	**2**	**3**	**4**	**5**
Lack of knowledge regarding how to integrate prebriefing may be a barrier to the integration of prebriefing in simulation-based learning	**1**	**2**	**3**	**4**	**5**
In-situ simulation is the only time it is ok not to prebrief on scenario topic.	**1**	**2**	**3**	**4**	**5**
Prebriefing is vital to simulation success because it engages learners.	**1**	**2**	**3**	**4**	**5**
Prebriefing allows for students to gain the skill of planning and anticipating patient problems.	**1**	**2**	**3**	**4**	**5**
It is not necessary to have a formal prebriefing session for every simulation.	**1**	**2**	**3**	**4**	**5**
Prebriefing is essential for a successful debriefing session.	**1**	**2**	**3**	**4**	**5**
Learners who are better prepared for simulation performance are more reflective during debriefing.	**1**	**2**	**3**	**4**	**5**
Prebriefing makes a difference in terms of decreasing student anxiety.	**1**	**2**	**3**	**4**	**5**

Thank you for taking the time to complete this survey! Once data analysis is completed, the statement items that have not reached agreement among CHSE panel experts will be resent for your thoughtful consideration.

Appendix M

Delphi Method Round Two Reminder Email from Qualtrics©

Dear CHSE Expert Panel Member,

I am emailing again to ask you to consider providing your expert opinion about prebriefing on these item statements. Your contribution to the round one survey was very valuable and allowed me to generate these item statements. I need your help to rate these items according to their importance to prebriefing.

The second round of this Delphi lists aggregated responses from panel members in round one. The results from round one have been analyzed and similar responses clustered together according to patterns and themes. The meaning of the responses has not been changed. The responses have been developed into item statements for this second round of data collection.

I am now asking you to thoughtfully consider each statement and its importance to prebriefing and/or preparing students for simulation-based learning.

You will see a Likert scale beside each statement about prebriefing. This scale is numbered 1 to 5. Please select the number that best describes how important the statement is for prebriefing students for simulation-based learning. These numbers correspond to a response as below:

1) Strongly disgree
2) Disgree
3) Neither agree nor disagree
4) Agree
5) Strongly agree

This survey should take you approximately 20 minutes to complete and I would really appreciate if you could complete this survey within two weeks.

If you wish to discuss any aspect of this further, please contact the study investigator or dissertation chairperson using the email addresses below

Primary Investigator: Mrs. Donna S. McDermott RN MSN CHSE
Doctoral Student Indiana University of Pennsylvania
email: d.s.mcdermott2@iup.edu

Dissertation chair: Dr. Teresa Shellenbarger
246 Johnson Hall, 1010 Oakland Avenue
Indiana, PA 15705
email: tshell@iup.edu

Thank you for your continued time and participation in this study.

Sincerely,

Donna S. McDermott

Appendix N

IRB Approval Letter Round Three

Indiana University of Pennsylvania
Letterhead

June 1, 2015

Donna McDermott
822 Deep Lake Drive
Cranberry Twp., PA 16066

Dear Ms. McDermott:

Your proposed modifications to your previously approved research project, "Seeking Consensus on Prebriefing: Preparing Students for Simulation-Based Learning," (Log No. 15-076) have been reviewed by the IRB and are approved as an expedited review for the period of May 26, 2015 to March 10, 2016. This approval does not supersede or obviate compliance with any other University requirements, including, but not limited to, enrollment, degree completion deadlines, topic approval, and conduct of university-affiliated activities.

You should read all of this letter, as it contains important information about conducting your study.

Now that your project has been approved by the IRB, there are elements of the Federal Regulations to which you must attend. IUP adheres to these regulations strictly:

1. You must conduct your study exactly as it was approved by the IRB.
2. Any additions or changes in procedures must be approved by the IRB before they are implemented.
3. You must notify the IRB promptly of any events that affect the safety or well-being of subjects.
4. You must notify the IRB promptly of any modifications of your study or other responses that are necessitated by any events reported in items 2 or 3.

Should you need to continue your research beyond March 10, 2016 you will need to file additional information for continuing review. Please contact the IRB office at (724) 357-7730 or come to Room 113, Stright Hall for further information.

The IRB may review or audit your project at random *or* for cause. In accordance with IUP Policy and Federal Regulation (45CFR46.113), the Board may suspend or terminate your project if your project has not been conducted as approved or it other difficulties are detected.

While not under the purview of the IRB, researchers are responsible for adhering to US copyright law when using existing scales, survey items, or other works in the conduct of research. Information regarding copyright law and compliance at IUP, including links to sample permission request letters, can be found at http://www.iup.edu/page.aspx?id=165526

I wish you success as you pursue this important endeavor.

Sincerely,

Jennifer Roberts, Ph.D.
Chairperson, Institutional Review Board for the Protection of Human Subjects
Professor of Criminology

JLR:jeb

Cc: Dr. Teresa Shellenbarger, Dissertation Advisor

Appendix O

Delphi Method Round Three Email from Qualtrics©

Dear CHSE Expert Panel Member,

Thank you for completing the second round Delphi survey. Your contributions have been very important to this research. This round includes details on the prebriefing components that you have been involved in identifying and rating in relation to importance. This third round of data collection includes those items that have not yet reached agreement from the panel on their importance to prebriefing.

This survey is completely different from the second round and the instructions will guide you through this process. Please read the instructions carefully and complete the Delphi questionnaire as fully as you can. This survey should take you approximately 10-20 minutes to complete.

The group response to the prebriefing item is indicated for each item as well as the response you indicated in round two. This will appear as a number that corresponds to the same scale as in Round two and which is outlined below:

1) Strongly disagree
2) Disagree
3) Neither agree nor disagree
4) Agree
5) Strongly agree

I would appreciate it if you would reconsider your original response in the context of the group response to each benchmark and if you wish to change your response, please do so by selecting the appropriate number. Please note that you do not have to change your original response if you do not wish to. Please mark a response to each question whether changing your response or not.

I would really appreciate it you complete this survey within two weeks.

After completion of my study, I will send you a report of the findings via emailed report. It's my way of thanking you for your valuable contribution to this research on prebriefing.

If you wish to discuss any aspect of this further, please contact the study investigator or dissertation chairperson using the email addresses below

Primary Investigator: Mrs. Donna S. McDermott RN MSN CHSE
Doctoral Student Indiana University of Pennsylvania
email: d.s.mcdermott2@iup.edu

Dissertation chair: Dr. Teresa Shellenbarger
246 Johnson Hall, 1010 Oakland Avenue
Indiana, PA 15705
email: tshell@iup.edu

Thank you for your continued time and participation in this study.
Sincerely,

Donna S. McDermott

Appendix P

Delphi Method Round Three Reminder Email from Qualtrics©

Dear CHSE Expert Panel Member,

I am emailing you again to ask you to continue to provide your valuable input into this prebriefing research. This is the final round of survey and will not take much of your time. Thank you for completing the second round Delphi survey. This round includes details on the prebriefing components that you have been involved in identifying and rating in relation to importance. This third round of data collection includes those items that have not yet reached agreement from the panel on their importance to prebriefing.

This survey is completely different from the second round and the instructions will guide you through this process. Please read the instructions carefully and complete the Delphi questionnaire as fully as you can. This survey should take you approximately 10-20 minutes to complete.

The group response to the prebriefing item is indicated for each item as well as the response you indicated in round two. This will appear as a number that corresponds to the same scale as in Round two and which is outlined below:

1) Strongly agree
2) Agree
3) Neither agree nor disagree
4) Disagree
5) Strongly disagree

I would appreciate it if you would reconsider your original response in the context of the group response to each benchmark and if you wish to change your response, please do so by selecting the appropriate number. Please note that you do not have to change your original response if you do not wish to. Please mark a response to each question whether changing your response or not.

<u>I would really appreciate it you complete this survey within two weeks.</u>

After completion of my study, I will send you a report of the findings via emailed report. It's my way of thanking you for your valuable contribution to this research on prebriefing.

If you wish to discuss any aspect of this further, please contact the study investigator or dissertation chairperson using the email addresses below

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Thank you for your continued time and participation in this study.
Sincerely,

Donna S. McDermott

Appendix Q

Summary of Prebriefing Delphi Study for Expert Panel Participants

Expert Panel information:

Round 1: n = 59 18 States, 2 Canada, and 1 from the Netherlands; age 36-68 years (mean age 53); 83.7% > 6 years sim experience; Diverse organizational settings (81.8% academic) and all modes of simulation; 91.9% reported using INACSL standards in work.
Round 2: n = 37 Response rate 62.7%
Round 3: n = 30 Response rate 81.0%

Round One: Identified Themes: Three phases of prebriefing

1. Planning
2. Briefing
3. Facilitating

Additional theme created about the importance of prebriefing to simulation success.

Subthemes identified: SBL purpose and learning objectives; orientation to equipment and manikins; expectations and ground rules, logistics, psychological safety, role of the simulation educator, learner characteristics, learner success, strategies for prebriefing, barriers to prebriefing, and relevance to debriefing

Round Two: 116 item statements generated from qualitative data.
Consensus reached (at least 70% agreement or disagreement) on 68 statements by the panelists. Items that did not reach agreement were resent to participants in round three.

Round Three: 48 statements resent to panel.
Additional 15 statements reached greater than 70% consensus.
33 statements remained that did not reach agreement with the expert panel.
Statements that did not reach agreement reflected the strategies and methods for prebriefing.

Findings suggest:

1. Lack of consistency in terminology remains a concern. Recommendations to amend definitions of prebriefing.
2. Amount, type, and complexity of prebriefing will depend on the learner characteristics, the purpose of the SBL, and the learning objectives.
3. Prebriefing is vital to simulation success and may enhance debriefing and reflection.
4. The simulation facilitator role incorporates 1) planning for the simulation preparation, 2) briefing learners prior to simulation, and 3) facilitating discussion for simulation preparation for learners into a prebriefing session.
5. Additional research on prebriefing methods and strategies is warranted.