THEORY-BASED POST-SIMULATION DEBRIEFING: PERCEIVED EFFECTIVENESS OF DEBRIEFING AND TRANSFER OF LEARNING

by

NATASHA R. COLVIN

ALICE L. MARCH, COMMITTEE CHAIR
JOANN S. OLIVER
BECKY ATKINSON
NIRMALA EREVELLES
AMY L. YODER SPURLOCK

A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree of Doctor of Education in the Department of Educational Leadership, Policy, and Technology Studies in the Graduate School of The University of Alabama

TUSCALOOSA, ALABAMA

2019
ABSTRACT

Background

Nurse educators have an obligation to ensure that students learn, develop, and apply higher-order cognitive skills. New graduates are expected to practice at a higher performance level in order to care for more complex patients, yet barriers to clinical education, such as securing clinical sites, have made it difficult for nurse educators to provide a variety of learning experiences. Many nursing faculty are either supplementing or replacing clinical experiences with simulation-based training with the goal of students transferring the knowledge and skills learned in the laboratory setting to the “real” patient care environment.

Significance

Debriefing has been recognized as the most significant component of a simulated learning experience (Shinnick, Woo, Horwich, & Steadman, 2011; Forneris, 2015). Little is known regarding the effectiveness of debriefing strategies, and so the evaluation of debriefing is critical to ensure learning outcomes and students’ transfer of learning. Specifically, the evaluation of the debriefer’s effectiveness in engaging students during a structured, theory-based debriefing is critical, as the practice of debriefing methods broadens throughout nursing curriculum (Shinnick et al., 2011; Forneris, 2015).

Methods

A quasi-experimental, post-test-only control-group design was utilized to examine how non-theory-based debriefing compared to theory-based debriefing on students perceptions of the debriefing effectiveness and their transfer of learning following a high-fidelity simulation.
Results

Frequencies and percentages, independent t-tests, and Pearson product-moment correlation were applied to the data set. The study results did not show a statistically significance difference between the theory-based versus non-theory based learning groups. Additional data analysis demonstrated a statistically significant negative correlation in age and transfer of learning. Further, there was a statistically significant positive correlation between DASH-SV and LTT total score.

Conclusions

Further research is needed on a larger representation of nursing students. Ideally, transfer of learning and students perceptions of debriefing effectiveness should be evaluated with a more diverse, nationally representative sample of nursing students. Additionally, future research should also examine additional predictors and factors that could influence transfer of learning, For example, sex, type of nursing program, and semester level of the nursing student.
ACKNOWLEDGMENTS

First and foremost, I would like to thank God and my Lord and Savior Jesus Christ for guiding me through this journey.

I especially would like to recognize and acknowledge my parents, Edward and Deborah Colvin for loving me unconditionally and empowering me to dream big. Additionally, I thank the many colleagues, friends, and faculty members who have supported me and encouraged me to stay the course.

I am indebted to Dr. Alice March, the chair of my dissertation, for sharing her research expertise and wisdom, endless support, and tolerance. She believed in me when I did not and she never gave up on me. I would also like to thank all of my committee members, Dr. JoAnn S. Oliver, Dr. Becky Atkinson, Dr. Nirmala Erevelles, and Dr. Amy L. Yoder Spurlock for their invaluable input, inspiring questions, and support of both my dissertation and academic success.

Lastly, I am also indebted to The University of Alabama for providing me with a rigorous program of study. I will remember and apply the standards learned from this university in my future research endeavors.
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>x</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xi</td>
</tr>
<tr>
<td>CHAPTER 1: INTRODUCTION TO THE STUDY</td>
<td>1</td>
</tr>
<tr>
<td>Background</td>
<td>2</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>4</td>
</tr>
<tr>
<td>Statement of Purpose</td>
<td>4</td>
</tr>
<tr>
<td>Research Questions</td>
<td>5</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>5</td>
</tr>
<tr>
<td>Nature of the Study</td>
<td>6</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>7</td>
</tr>
<tr>
<td>Assumptions, Limitations, and Delimitations</td>
<td>8</td>
</tr>
<tr>
<td>Assumptions</td>
<td>8</td>
</tr>
<tr>
<td>Limitations</td>
<td>8</td>
</tr>
<tr>
<td>Delimitations</td>
<td>8</td>
</tr>
</tbody>
</table>
Summary........................................................................................................................... 51

CHAPTER 5: DISCUSSIONS, RECOMMENDATIONS, AND CONCLUSIONS....... 53

Discussion of Findings...................................................................................................... 53

Age.................................................................................................................................... 55

DASH-SV© and LTT total score ...................................................................................... 55

Review of Field Notes ...................................................................................................... 56

Theoretical Frameworks ................................................................................................... 56

Limitations of the Study.................................................................................................... 57

Significance to the Profession........................................................................................... 57

Significance to Nursing Education ................................................................................... 58

Recommendations for Future Research ............................................................................ 58

Conclusions....................................................................................................................... 59

REFERENCES ................................................................................................................. 60

APPENDIX A: DASH-SV©.............................................................................................. 68

APPENDIX B: DML STUDENT WORKSHEETS ................................................................. 71

APPENDIX C: RECRUITMENT SCRIPT ....................................................................... 74

APPENDIX D: INFORMED CONSENT ....................................................................... 76

APPENDIX E: SIMULATION ACTIVITIES .................................................................. 78

APPENDIX F: DML FACULTY GUIDE......................................................................... 79
APPENDIX G: LEARNING TRANSFER TOOL ........................................................... 81

APPENDIX H: IRB APPROVAL: THE UNIVERSITY OF ALABAMA ...................... 83

APPENDIX I: IRB APROVAL: JEFFERSON STATE COMMUNITY COLLEGE ...... 85

APPENDIX J: DEMOGRAPHICS QUESTIONNAIRE .............................. 87
LIST OF FIGURES

1  Kolb’s Experiential Learning Theory .................................................................14
2  Intervention Approach .....................................................................................35
CHAPTER 1: INTRODUCTION TO THE STUDY

An Institute of Medicine (2010) report that indicated thousands of patients died of preventable causes in acute care settings launched several United States safety- and quality-improvement initiatives. One of these initiatives was the Quality and Safety Education for Nurses, which focused on professional preparation. Current societal and healthcare system trends, such as changing demographics and health and disease patterns, also highlight the need to transform nursing education to prepare nurses for safe practices in the twenty-first century (Rosenau, Watson, Vye-Rogers, & Dobbs, 2015). Therefore, nursing faculty are challenged to find experiences that will facilitate students’ preparation without jeopardizing patient safety (Alfes, 2011).

Benner, Sutphen, Leonard, and Day (2010) suggested four shifts in nursing education and curriculum to transform nursing practice in Educating Nursing: A Call for Radical Transformation. One suggestion was to emphasize teaching for a sense of salience, situated cognition, and action in particular clinical situations. The National League for Nursing (NLN) has consistently challenged nurse educators to learn about and implement teaching methodologies that prepare nursing students in today’s complex practice environment. Although there are multiple strategies, this study focused on debriefing strategies. Debriefing is a critical conversation that reframes the context of a situation in order to clarify perspectives and assumptions related to the immediate past event (NLN, 2015).
Simulation facilitates opportunities for nursing students to practice clinical reasoning skills in a controlled environment (Forneris, 2015). For the past 10 years simulation, which includes debriefing, has been utilized as a teaching-learning pedagogy to prepare nursing students to practice in complex clinical environments upon graduation (Jeffries, 2012).

Debriefing is a key component of learning in practice settings as well as simulation environments (Dreifuerst, 2015), and it brings that sense of salience to the forefront for the student. Debriefing facilitates critical reflection and can be utilized in all educational settings (NLN, 2015). In addition, debriefing has been recognized as the most significant component of a simulated learning experience (Forneris, 2015; Shinnick, Woo, Horwich, & Steadman, 2011). Debriefing encourages student reflection related to their ability to apply theoretical knowledge in a practical situation that unfolds over time, and should be emphasized during a simulation experience to provide a sense of salience and to improve learning outcomes in nursing student’s clinical knowledge (Forneris, 2015; Shinnick et al., 2011).

However, little is known about how effectively debriefing strategies are implemented by debriefers. Evaluation of debriefing is critical to ensuring learning outcomes and students’ transfer of learning. It is critical to evaluate the debriefer’s effectiveness in engaging students during a structured, theory-based debriefing, as the practice of debriefing methods broadens throughout nursing curriculum (Forneris, 2015; Shinnick et al., 2011).

**Background**

Employers and new nurse graduates have expressed concerns regarding the transition to practice (Duclos-Miller, 2011; Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Results of a 2006 study by the National Council of State Boards of Nursing (NCSBN) indicated
that registered nurse (RN) graduates felt unprepared to administer medications to a group of patients (52 percent), supervise others (24.5 percent), know when and how to call a physician (21.7 percent), or delegate tasks (23 percent) to other team members. Clearly, nursing education must align student-learning opportunities with the realities of the current health care setting.

Faculty aim to promote the transfer of learning through various teaching pedagogies in order to prepare students for situations they may encounter in clinical practice (Kaddoura, 2010). Traditionally, the application of nursing knowledge occurs in the clinical setting, where the students learn through experience with “real” patients and are given the opportunity to make clinical judgments and practice critical thinking skills (Benner, et al., 2010). Students are placed in clinical settings and assigned one or two patients. On many occasions, students may spend a great amount of time providing basic and total care to a single patient in a non-acute setting (Ironside & McNelis, 2011). Clinical exposure for students is further limited by faculty shortages, limited numbers of clinical sites, fewer learning experiences, increased patient acuity, shorter length of stay, and early discharges (National League for Nursing, 2015). Combining these practice realities with the complexity of the current healthcare environment makes it difficult to provide students with the variety of clinical situations needed to ensure competency development (Yuan, Williams, & Fang, 2012).

In a recent multisite, national study simulation was recommended as a safe substitution for traditional clinical placements when specific conditions existed. One of those conditions was implementing theory-based debriefing (Alexander et al., 2015). Despite the spread of the use of simulation along with debriefing as a teaching-learning pedagogy, many educators have little or no previous formal training in debriefing and struggle to facilitate effective debriefing.
Moreover, the lack of debriefing skills can have a negative impact on a learner’s knowledge, skills acquisition, and perception of the debriefing experience (Eppich & Cheng, 2015).

**Statement of the Problem**

The debriefing process in simulation is crucial to a student’s ability to gain insight into the decision-making process and to provide a deeper learning experience (Salas et al., 2008). Debriefing is a facilitated conversation after critical events or simulations in which participants analyze their actions and thought processes (Brett-Fleegler et al., 2012). Education feedback is the most important part of the learning process (Issenber, McGaghie, Petrusa, Gordon, & Scalese, 2005). Therefore, debriefing should occur immediately after a simulated experience to promote the development of clinical reasoning and judgment skills through the reflective process (Dieckmann, 2012).

Nursing students’ engagement in debriefings improves the overall learning experience, which can then be transferred to the clinical setting (Center for Medical Simulation, 2011). Although there is evidence in the literature that students gain deeper insight into their actions through reflection, there is little research to support the effectiveness of best practices in the reflective process of debriefing (Arafeh, Hansen, & Nichols, 2010; Dreifuerst, 2012; Mariani et al., 2013; Mayville, 2011).

**Statement of Purpose**

The first purpose of this study was to examine how non-theory-based debriefing compared to theory-based debriefing by assessing pre-licensure nursing students’ perceptions of debriefing effectiveness following a high-fidelity simulation. A second purpose was to compare perceived transfer of learning between the two groups.
Research Questions

1. What is the difference between DASH-SV scores for nursing students who experience theory-based debriefing versus nursing students who experience non-theory-based debriefing after completion of a simulation experience?

2. What is the difference between Transfer of Learning scores for nursing students who experience theory-based debriefing versus nursing students who experience non-theory-based debriefing after completion of a simulation experience?

Theoretical Frameworks

Simulation and debriefing are aligned with Kolb’s experiential learning theory (ELT). This theory posits learning as the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experiences (Kolb, 1984). In order to facilitate learning in nursing education, nurse educators are challenged with the task of engaging students in experiences that will enhance their learning. There are two goals in the ELT: learning the specifics of a particular subject; and learning about one’s own learning process (Kolb, 1984). For this research study, the second goal was explored.

Underpinning this study is Schön’s reflective practice theory. Schön (1983) studied professional learning, learning processes in organizations, and self-reflection practice. His studies investigated how students were prepared and how they learned to function in professional-practice occupations such as medicine, counseling, and studio art. Although Schön (1983) did not address the nursing profession, his reflective practice theory can be applied to the nursing profession because nursing best practices are supported by the creative application of
models, theories, and principles from nursing and behavioral and humanistic sciences (Schön, 1983). For this research study, a theory-based debriefing will be explored.

**Nature of the Study**

The researcher compared the perceptions of effectiveness of two groups of students who participated in a simulation event: participants who received theory-based, post-simulation debriefing and participants who received non-theory-based, post-simulation debriefing. A power analysis determined the necessary sample size for a univariate ANOVA conducted on the Debriefing Assessment for Simulation in Healthcare (student version, DASH-SV© copyright 2017, Center for Medical Simulation, Inc. All rights reserved, used with permission) rating scores of effectiveness between the intervention and control groups. Setting alpha < .05 and a power of .90, a sample of 46 (23 per group) would be needed to detect the medium effect ($d = 0.5$) reported in the literature (Dreifuerst, 2012; Forneris et al., 2015; Roh et al., 2016). Estimating attrition of 20 percent ($n = 12$), the final sample size was set at 58.

In order for registered nurses (RNs) to progress from novice to expert, transfer of learning and skills must occur. Therefore, the goal for teaching nursing is to prepare students for clinical practice; specifically, educators want students to transfer what was learned in school to the real world. To assess the perception of effectiveness of the debriefing, participants completed the DASH-SV© (see Appendix A) immediately after the post-simulation debriefing. Participants also completed Elfrink’s Learning Transfer Tool (LTT). The LTT assesses student perceptions of their transfer of learning. The LTT was completed about one week after the post-simulation debriefing to allow students to transfer the knowledge gained during the simulation experience to practice.
The most current Statistical Package for the Social Sciences (SPSS) for Windows was used to analyze the data. Two dependent variables were examined: the perceived debriefing effectiveness as measured with the DASH-SV; and the transfer of learning as measured by the LTT.

**Definition of Terms**

**Debriefing.** The period following a simulated experience in which students and instructors revisit the encounter to understand, analyze, and reflect on actions that occurred during the simulated exercise (Benner et al., 2010). Debriefing can be structured with specific theory-based objectives or it can be unstructured, with a general review of the simulated experience with no particular format or connection to didactic knowledge or theory (Mariani et al., 2013).

**Debriefing for Meaningful Learning.** A specific theory-based debriefing method developed by Dreifuerst that includes a reflective process that assists students in evaluating their actions during a simulated scenario (Dreifuerst, 2012).

**High-fidelity simulation.** A type of simulation using highly sophisticated, computer-programmable, full-body mannequins that provide real-time physiological responses to participant interventions (Nehring & Lashley, 2010).

**Scenario.** A single, simulated encounter designed to replicate a real-life clinical setting, such as an emergency room, intensive care unit, or ward (Wilson & Rockstraw, 2012).

**Simulation.** An attempt to replicate a clinical situation in which participants are provided with a wide range of experiences in which they can practice skills in a safe environment without risking potential harm to actual patients (Nehring & Lashley, 2010).
**Transfer of Learning.** The ability to apply what was previously learned in different contexts, and to recognize and apply that learning to new situations (Haskell, 2001)

**Assumptions, Limitations, and Delimitations**

**Assumptions**

This study was based on the following assumptions: (a) I assumed that the students were willing to learn and actively participate in the study; (b) I assumed that participants would behave in a polite respectful manner and be cognizant of both their verbal and nonverbal communications; (c) I assumed that students would treat the mannequins used in the simulation like real patients; (d) I assumed the contents of the discussion would not go beyond the confines of the debriefing room; and (e) I assumed that the debriefer would use the Debriefing for Meaningful Learning guide correctly to conduct the debriefing sessions.

**Limitations**

This study was conducted using a convenience sample of subjects from one type of pre-licensure nursing program and from a single nursing school in the southeast US. Therefore, the generalizability of the results to other geographic areas or types of students is limited. Another limitation was that the results were based on one nursing course. In addition, participants in the study may have been carrying a full course load and may have experienced stress that could have affected their performance in simulation. Lastly, selection bias; students were self-selected to participate in the research.

**Delimitations**

Delimitations are choices made by this researcher that should be mentioned because they describe the boundaries that were set for this study. In addition, they explain where and why this research study may have been bound or restricted (Simon, 2011). One delimitation of this study
was the choice of debriefing methodology. This study was delimited to the theory-based
debriefings conducted by a trained debriefer. A second delimitation was the choice of the
geographical location of the study. The location of the study was one of convenience, as the
researcher is a former adjunct faculty at the community college that was utilized for this study.
The community college is within the same state as the researcher’s graduate program, which is
located in the southeast region of the country.

**Significance of the Study**

Nursing education is challenged with the ultimate task of improving patient care, which
in turn improves the health of the citizens of the US (National League for Nursing, 2015).
According to the National League for Nursing (NLN) Research Priorities, it is important to
address the gaps between education and practice. Furthermore, the NLN encourages research that
studies teaching-learning strategies in an effort to create evidence-based pedagogies (NLN,
2015). Research of simulation-based activities, using debriefing as a teaching-learning strategy,
meets this goal. Therefore, it is the responsibility of the nursing education community to
determine best practices for simulation and debriefing.

**Summary**

The use of simulation is increasing at all levels of nursing education, and the need to
develop evidence-based pedagogies in this environment is apparent. Despite the identification of
debriefing as an essential element of simulation, there is a lack of knowledge regarding the
effectiveness of best practices, especially as related to the study of debriefing theories. This
research study will address that gap. The call to develop evidence-based debriefing strategies is
supported by the NLN, which has identified simulation as one of the research priorities in
nursing education (NLN, 2015). Therefore, the use and integration of evidence-based debriefing
in pre-licensure and graduate nursing curricula are salient steps in enhancing students’ learning outcomes.

Chapter 2 will present literature related to the effect of simulation and debriefing practices on nursing education. Also, the literature review will present research that investigates the effects of utilizing simulation and debriefing in nursing education, outcomes of the simulation and debriefing experience on student perceptions of transfer of learning and clinical judgment and clinical skills.
CHAPTER 2: LITERATURE REVIEW

As simulation technology has been adopted in many nursing programs, it has been shown that the debriefing portion of the simulation experience is the most essential component – i.e., where the learning takes place (Shinnick et al., 2011; Zigmont et al., 2011). This chapter will describe the application of Kolb’s experiential learning theory (1984) as a guiding framework for investigating the effectiveness of theory-based simulation debriefing. Also, this chapter will discuss the concepts of transfer of learning, debriefing for meaningful learning, experiential learning, and reflective learning as the underlying premises being explored. Finally, this chapter will explore the research completed to date related to simulation debriefing and the need for this research study as identified by the gaps in the literature addressing debriefing theories.

Theoretical and Guiding Frameworks

Simulation and debriefing are aligned with Kolb’s experiential learning theory (ELT) and are applicable to the concept of transfer of learning. The ELT theory posits learning as the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experiences (Kolb, 1984). In order to facilitate learning in nursing education, nurse educators are challenged with the task of engaging students in experiences that will enhance their learning.

There are two goals in the ELT: learning the specifics of a particular subject; and learning about one’s own learning process (Kolb, 1984). Kolb (1984) stressed that learning is cyclical and does not depend solely on outcomes but rather on process. He also posited that learning can
begin with a student performing an action and observing the effects of that action. ELT is particularly aligned with simulation learning since learners are performing actions with the simulator and watching the physiologic effects on their simulated patient.

The ELT consists of four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. These stages are aligned with simulation, debriefing, and transfer of learning (Poore, Cullen, & Schaar, 2014). The concrete experimentation phase explores the feelings and reactions of the participants. Participation in simulation is reflected in the concrete experience phase as the learner engages in an experience. In the reflective observation phase, participants describe and discuss the actual events that took place. Thinking and analyzing events occurs in the abstract conceptualization phase, and generalizing and transferring to the clinical setting are discovered in the active experimentation component (Kolb, 1984).

For the purpose of this research study, reflective observation will be the focus. As nursing students progress through Kolb’s ELT stages, the learning process often begins with a student carrying out a particular action. After reflecting on the effect of that action, the student will be able to understand the consequence of that action. This is salient because it allows the student to recognize the anticipated outcome for the situation when the same action is replicated in similar circumstances. Simulation and debriefing are examples of experiential learning because they require the student to be an active participant in a simulated scenario, reflect back on the simulated experience, think about strengths and weaknesses recognized during the experience, and plan for future experiences accordingly.

Reflection involves looking at our own experiences, connecting with our feelings and attending to our theories (Schon, 1991). Reflection facilitates building new understandings to
inform our actions in the situation that is unfolding. Using reflection as a tool to examine one’s experiences and to relate and connect our feelings can help individuals experience deeper learning. Reflection can be used during a debriefing experience for nursing students “to look back on their performance in a situation, and compare their performances to other performances, such as their own previous performance or those of experts” (Sawyer, 2006, p. 6). Without the reflection on experience, nursing students are in danger of making the same mistakes over and over again.

Kolb’s ELT involves active participation in the learning experience, as well as reflecting on the learning experience (Kolb, 1984). Students may learn from an experience, such as simulation in nursing education, in a way they cannot learn from a lecture. Another important component of Kolb’s experiential learning theory is the assumption that it is not sufficient to have a learning experience; the learner must reflect on the experience in order for learning to occur (Kolb, 1984). In the simulation setting, the reflection-debriefing process is presumed to be where clinical reasoning, judgment, and knowledge development is enhanced (Dreifuerst, 2010). Experiential learning assists in developing nursing skills and allows for focused reflection (Kolb, 1984).

Kolb’s ELT has a vast range of application, such as enhancing student outcomes. The transformation from novice to expert nurse can occur when experience is incorporated into existing knowledge patterns through a process of active reflection and conceptualization of experience (see Figure 1).
A deeper understanding of learning transfer is required to optimize teaching strategies (Simons, 1999). Therefore, transfer of learning is the key to effective instruction and learning. Transfer of learning formulates the foundation for learning, thinking, and problem solving (Haskell, 2001), and occurs whenever existing knowledge and skills facilitate the learning or performance of new knowledge and skills (Cormier & Hagman, 1987).

Often students do not see that two or more situations or conditions as similar, which makes transfer of learning a challenge. Simulated experiences link didactic content to the clinical setting (Maginnis, Croxon & Croxon, 2010). For example, students report they feel adequately prepared to use skills such as assessing pain and wounds, performing aseptic technique, removing sutures, transferring patients, and charting fluid balances and oxygenation saturation.
status (Maginnis et al., 2010). Similar perceptions were seen in an evaluative study exploring student reactions to simulation in a clinical course (Wotton, Davis, Button, & Kelton, 2010).

In a more recent study to understand student’s perceptions of using high-fidelity simulations in an intensive care course (Badir et al., 2015), the findings revealed that simulations helped students transfer theory to practice as well as develop teamwork, confidence, and RN role awareness. In addition, nursing students who participated in a pediatric simulation before a pediatric clinical rotation had overall higher performance scores, more quickly achieved the higher scores, and maintained higher clinical performance levels than those who had not yet attended the simulation (Meyer, 2011).

Simulated experiences link psychomotor skills techniques to the clinical setting (Ross, 2015). For example, students reported they felt more confident in administering intramuscular injections in the clinical setting after a high-fidelity simulation (Ross, 2015). However, while confidence in conducting intramuscular injections is higher for students trained using simulation versus those who did not receive simulation, there were no significant findings on whether or not there were improvement in intramuscular skill transfer to actual patient care. Although evidence of transfer of knowledge and skills from simulation experiences to the clinical care setting is beginning to emerge, further research in the area is needed, specifically in the area of evaluating student perceptions on what part of the simulation experience influenced this transfer. Specifically, minimal research has been conducted to investigate the effects of simulation and debriefing on nursing students’ transfer of knowledge or skills.

**Literature Search Strategy**

An initial database search for publications in peer-reviewed journals was conducted using health sciences and nursing, education, and multidisciplinary databases. Within the health
sciences databases, CINAHL, Medline with Full Text, PubMed, Nursing and Allied Healthsource, Ovid, SAGE, and Science Direct were searched. Within the education databases, ERIC, Education Research Complete ProQuest, Academic Search Complete, and Science Direct were searched. Lastly, multidisciplinary databases were examined, including ProQuest Central, SAGE, and Science Direct. The following keywords were used: nursing simulation, debriefing, debriefing for meaningful learning, high-fidelity simulation, experiential learning, and transfer of learning. Since simulation has been used in the field of aviation, further searches were conducted using the keyword pairs simulation and aviation. The Google Scholar database was searched for peer-reviewed articles obtained from the Debriefing Assessment in Healthcare Simulation (DASH) bibliography (Center for Medical Simulation, 2011).

Debriefing for Meaningful Learning

The debriefing for meaningful learning (DML) theory posits that active learning facilitates students’ transfer of prior knowledge and experience to a present simulation. This guided reflection breaks down invisible barriers by revealing frames of reference on which students base reasoning processes. Nurse faculty can utilize DML to facilitate students’ reflection on their practice and their learning transfer to inform their next patient encounter (Dreifuerst, 2015). The DML is grounded in educational theories that incorporate experiential learning and reflective learning strategies which utilize narrative pedagogy (Dreifuerst, 2015). The DML theory consists of six key components that support reflection. These include (a) engagement of the participants (Dreifuerst, 2015); (b) exploration of options through reflection-in-action (Dreifuerst, 2015; Schön, 1983); (c) explanation of decisions/actions (Dreifuerst, 2015); (d) elaboration through thinking like a nurse (Dreifuerst, 2015); (e) evaluation of the experience by
“reflecting-on-action” (Dreifuerst, 2015; Schön, 1983); and (f) extending thinking by “reflecting beyond action” (Dreifuerst, 2015; Schön, 1983).

Aligned with Kolb’s ELT, engagement of participants provides concrete experience in which students can fully participate and interact. Engagement of participants starts at the conclusion of the simulation when teachers and students gather to debrief. In addition, students transition from the activity to focus on reflective debriefing, analysis, and dialog by utilizing the DML worksheet to record answers to the following questions: (a) note the first thinking that comes to mind about the clinical encounter, (b) list what went right, (c) list what did not go well or could have been done differently, and (d) describe the patient’s story to set the frame (Dreifuerst, 2015). Although students begin by listing what went right and wrong on the DML worksheet, these are not specifically discussed in the group unless they are revealed in the exploration of options component. Non-theory based or customary debriefing utilizes what went right, what went wrong, and what would you do differently as the primary cues for discussion (NLN, 2015). However, the DML theory-based debriefing focuses on the patient situation as the frame and then moves to discussing the actions and thinking of the students within the clinical context to reveal students’ thinking behind their actions (Dreifuerst, 2015).

Exploration of options starts when the debriefer guides students through the processes of thinking-in-action and thinking-on-action. For example, pertinent assessments, findings, decisions, actions, and responses that occurred during the simulation experience are discussed (Dreifuerst, 2015). The exploration of options component uncovers students’ abilities to apply nursing knowledge contextually and determine what they know and do not know. This leads to actionable knowledge that can be transferred to the clinical context (Dreifuerst, 2015).
Explanation of decisions or actions starts when the debriefer uncovers the thinking behind the actions (Dreifuerst, 2015). For example, questioning such as “what if?” and “tell me more?” are common in this component (Dreifuerst, 2015). In addition, during this component, errors are corrected in the areas of assessment steps performed during the simulation, interpretation of the patient condition, and nursing interventions performed (Dreifuerst, 2015).

Elaboration through thinking like a nurse starts when the debriefer and students emphasize strengths that were demonstrated throughout the simulation. In addition, links in nursing knowledge and application are highlighted (Dreifuerst, 2015). For example, the debriefer facilitates significant learning utilizing a structured theory-based approach to emphasize the nursing knowledge, skills, and attitudes that were apparent in the simulation (Dreifuerst, 2015; Fink, 2013).

Evaluation of the experience occurs simultaneously with the other components of DML when the debriefer has students explain their thinking by guiding them into the process of reflection-on-action (Dreifuerst, 2015; Schön, 1983). For example, the debriefer guides students’ reflection on the simulation, their assessments, findings, decisions, actions, and outcomes that occurred. In addition, the evaluation phase concludes with a quick review of what went well, what did not go well, and what should have been done during the simulation experience (Dreifuerst, 2015). This quick review creates significant learning by framing the experience in a meaningful way and facilitating students’ learning transfer to their next encounter in a clinical or simulation environment (Dreifuerst, 2015; Fink, 2013; Kolb, 1984).

Extending thinking concludes the DML theory-based debriefing and starts when the debriefer challenge students to think-beyond-action (Dreifuerst, 2015). For example, students are
asked to consider a different patient encounter and anticipate the decision-making needed when encountering a different patient involving similar concepts (Dreifuerst, 2015).

Meaningful learning involves incorporation of concepts and propositions into a cognitive structure (Dreifuerst, 2015). The DML method for debriefing provides a structure and process by which faculty can consistently facilitate student learning during debriefing (Appendix B). The following subsections describe specific concepts that utilized in this study.

**Experiential Learning**

The debriefing process is the critical component of experiential learning in which the learning takes place (Forneris & Fey, 2018). Debriefing is aligned with experiential learning and transfer of learning because a central component of experiential learning is the element of reflection as it informs the relationship between what is new and what was known (Dreifuerst, 2012; Forneris & Fey, 2018; Kolb, 1984). Debriefing has been identified as the reflective phase of the simulation process. During this time, feedback is constructive, and the facilitator allows time and encourages the participants to evaluate and critique the experience (Moulton, Lucas, Monaghan, & Swoboda, 2016).

**Reflective Learning**

Reflection is a process of learning from experiences, considering and evaluating previous knowledge in light of those experiences, and then incorporating this new knowledge to inform future practice (Moulton, et al., 2016). It is useful for the debriefer to model reflective thinking in a way that provides each participant time to reflect on their own experiences and to be able to identify a “takeaway” from the simulated experience (Moulton et al., 2016). Schön (1987) posited that reflection was central to the understanding of what professional practitioners do. He described the concept of the reflective practicum and proposed that students of professional-
practice occupations used self-reflection as a method for learning their craft. Reflective practicum assists students in acquiring the knowledge and skills needed to become competent in unique professional-practice situations (Schön, 1987). Understanding and analyzing what occurred in the clinical simulation experience is the first step in the development of student thinking about clinical practice.

Nursing students are expected to utilize new knowledge gained from debriefing sessions and apply that knowledge to actual clinical settings. Reflection is used in debriefing sessions for the purpose of extending thinking about clinical performance and identifying rationale for nursing care behaviors (Benner et al., 2010; Moulton et al., 2016). In addition, guided reflection during debriefing is used to improve critical-thinking skills and assists the nursing student to consider alternative patient-care behaviors that can be applied in future clinical situations (Benner et al., 2010; Moulton et al., 2016).

Instructor-led guided reflection during debriefing allows students to explore events that occurred during the simulation to enhance the thinking-on-action activity. Additionally, reflective thinking, facilitated during debriefing, allows students the opportunity to solve problems after the fact without fear of harming a patient (Shinnick et al., 2011). Reflective thinking during debriefing assists learners in the development and integrations of insights from a current situation and helps learner apply them to subsequent situations (Rudolph, Simon, Dufresne, & Raemer, 2006; Moulton et al., 2016). Structured reflection allows students to analyze actions, self-correct, and assimilate new experiences with prior ones. Facilitation of guided reflection assists students to achieve an understanding of concepts learned during the simulation and reinforced by debriefing (Dreifuerst, 2012; Rudolph et al., 2006; Moulton et al., 2016).
Simulation in Nursing Education

The use of simulation is well documented in the education literature, and it has been identified as a critical component of experiential learning (Kolb, 1984). Simulation is a valuable learning experience for pre-licensure nursing students (Shinnick et al. 2011; McCaughey & Traynor, 2010; Ross, 2015). For example, the use of high-fidelity simulators is an important method for learning intramuscular injection skills; thus enhancing the safety of performing intramuscular injections during clinical practice (Ross, 2015).

Competency and safety in clinical practice are among the largest areas of concern for nursing instructors and students (Hansen & Bratt, 2015). For example, a study investigating the relationship between senior nursing students’ perceptions of high-fidelity simulation and their perceptions of their own clinical reasoning skills yielded a positive correlation (Correia, 2015). Although these studies provide evidence that nursing students perceive that simulation experiences assist in application of theory to clinical practice, it is unknown what part of the simulation played a significant role in clinical judgment and safety.

Background of Debriefing

Debriefing is a collaborative learning experience in which reciprocal learning occurs between faculty and student, and also among students in a safe environment (Mariani, Cantrell, & Meakim, 2014). Post-simulation debriefing is a group discussion that allows the nurse educator and learners to critically analyze and reflect upon the simulation experience (Mariani, Cantrell, & Meakim, 2014).

The role of simulation in general, and the role of debriefing in particular related to the learning process has been explained in various ways. The debriefing phase is an intentional and important process that is designed to synergize, strengthen, and transfer
learning from an experiential learning exercise (Warrick, Hunsaker, Cook, & Altman, 1979). Debriefing provides an opportunity for students and faculty to reflect back on what occurred during the simulation process and discern what has been learned. Nursing faculty generally focus the discussion on learning outcomes and the intended objectives of the experience (Fey & Jenkins, 2015). Debriefing can also involve reflective practice when students analyze their own assumptions and think about how to further enhance or develop more skillful nursing practice (Hunter & Arthur, 2016).

Reflective practitioners learn to self-correct and assimilate new experiences with prior ones, which will improve professional competence (Rudolf, Simon, Rivard, Dufresne, & Raemer, 2006). Moreover, when skills in reflection are facilitated during debriefing, students learn to embed this into their practice. Reflecting on practice being taught as a habit was investigated by Paget (2001) to determine if higher-order thinking skills would develop and be applied in clinical practice. He found that the skill of reflecting could be a medium for constant review of professional practice, and the role of the facilitator is critical.

Facilitating debriefing is an important faculty role in the simulation experience. It is as critical for faculty to know how to debrief student experiences as it is to know how to create the scenario and use the equipment to represent human physiological response (Jeffries, 2012). Research studies examining faculty development strategies intended to enhance the facilitation of student debriefing are limited. Many debriefing guidelines and strategies currently available focus on critique and correction of technical components, discussion of cognitive thinking, and attempt to develop evaluation criteria of student performance (Hunter & Arthur, 2016). However, strategies to support debriefing
processes to enhance transfer of learning have received little attention in the simulation literature (Dreifuerst, 2012).

Current research in the area of debriefing includes creation and evaluation of tools for students to use to describe feelings about the experience, including perceptions of the effect of going through the simulation and debriefing, and outcomes of the simulation learning on their developing nursing practice (Mariani, Cantrell, & Meakim, 2014). Moreover, research in the area of debriefing has centered on student self-reporting of satisfaction and confidence (Hunter & Arthur, 2016). More recently, research involving debriefing is beginning to demonstrate an association with clinical reasoning that includes student assimilation of the knowledge brought from prior experiences and other coursework (Sanko, 2017). However, questions remain, such as how to debrief, when to debrief, what to debrief, and who to include in debriefing for best student learning.

An essential goal of nursing education is for the learner to develop an attuned, response-based practice and the capacity to recognize the nature of whole situations quickly (Benner et al., 2010). Debriefing that is structured to promote reflection supports development of skills that inform clinical judgment and decision-making (Mariani, Cantrell, & Meakim, 2014). Debriefing of clinical experiences, learning events, and important curricular components is common among nursing faculty and students. Debriefing is a time to review the events and for students to make their learning visible to nursing faculty (Brown, Roediger, & McDaniel, 2014).

Nursing students today can have inconsistent exposure to different types of patient situations and may not have opportunities to link classroom content to clinical practice through experiential learning strategies (Ross, 2015). For example, they may experience less clinical time and less time for interaction with faculty in addition to fewer opportunities to learn how to
Reflecting is thought to be an innate learning experience, yet not all learners do it consistently or thoughtfully enough for it to be a significant learning event (Dreifuerst, 2012). Therefore, facilitating reflection through debriefing is an essential component of teaching and learning in order to maximize student learning when simulation is used (Kolb, 1984). Although experts agree that debriefing is the key component to student’s deeper understanding and transformational learning, questions remain about the best methods of debriefing in nursing education that may lead to improved learning outcomes.

Debriefing Methodologies

Although the NLN emphasized debriefing across the curriculum, little is known about debriefing practices in nursing education (Fey & Jenkins, 2015). Post-simulation debriefing is a formal session that takes place after the simulation session. In contrast, during in-simulation debriefing, the educator suspends the simulation session to instruct and allow reflection throughout the simulation experience (Fey & Jenkins, 2015). The effect of the timing of debriefing (during or after) was investigated in a group of medical students (Van Heukelom, Begaz, & Treat, 2010). The group who received post-simulation debriefing rated their confidence higher than the in-simulation debriefing group and their perceptions of the simulation experience were more favorable.

Additionally, that survey gathered information on students’ self-reported confidence in their abilities to perform medical resuscitation skills. Questions related to the teaching quality of
the facilitator, the effect of the debriefing strategy used, and the realism of the simulation activity were also included. The results indicated significant differences in self-reported results regarding the effect of the debriefing method on students’ ability to perform medical resuscitation. The group who received post-simulation debriefing rated all measures higher than the in-simulation debriefing group; thus suggesting that debriefing and reflection after the event may be superior.

Chronister and Brown (2012) compared video-assisted verbal debriefing versus verbal-only debriefing on the quality of student assessment and psychomotor skills, response time, and knowledge retention. A convenience sample of undergraduate nursing students engaged in a cardiopulmonary arrest simulation. Students were assigned to one of two groups following a cardiopulmonary arrest simulation: verbal-only debriefing or video-assisted verbal (combined) debriefing. Results indicated higher knowledge retention in the verbal-only debriefing group. However, the quality of skill improvement was higher and response times were faster in students who received the combined strategy for debriefing.

In a similar study, Reed, Andrews, and Ravert (2015) investigated differences between groups of undergraduate nursing students who experienced debriefing using video-assisted verbal debriefing (combined) versus verbal-only debriefing. Supporting the previous study the verbal-only group had higher knowledge retention than the group experiencing the combined approach. In addition, consistent with the other study, the quality of psychomotor skills was better and response times were faster for the group experiencing the combined approach. Results from these studies suggested that students’ skills were influenced by video-assist and verbal debriefing. However, verbal debriefing was more important in improving knowledge retention.

The results of these studies suggest that clinical simulation and debriefing can be effective in increasing students’ knowledge retention and enhancing psychomotor skills. Yet the
effects of differing strategies for the type of debriefing demonstrate mixed results. Although
evidence related to a number of approaches for both the type and timing of debriefing exists, a
specific simulation debriefing theory and its effect on student perception of debriefing and
transfer of learning has not been adequately addressed in current studies.

Options for Theory-Based Debriefing in Simulated Learning

Many faculty who debrief students do not have training in debriefing and their
competence is not routinely evaluated (Fey & Jenkins, 2015). In addition, only 31 percent of
programs utilized a specific theory or model to guide debriefing (Fey & Jenkins, 2015).
Moreover, less than one-half (47 percent) utilized theory-based debriefing. To achieve the goals
of debriefing, it is best to use a theory-based method (Mariani, Cantrell, & Meakim, 2014).

Theory-based, reflective debriefing was investigated among novice nurses employed in
intensive care units (Levoie, Pepin, & Boyer, 2013). In a pilot study reflective debriefing was
structured utilizing Tanner’s model of clinical judgment. This model placed emphasis on the acts
of noticing, interpreting, and responding during a simulated clinical simulation (Tanner, 2006).
Participants reported that reflective debriefing facilitated their understanding of their cognitive
processes during the simulation. Also, participants reported that reflective debriefing facilitated
clinical judgment development (Levoie, et al., 2013).

Another theory-based, reflective debriefing that is structured utilizing the Outcome
Present State-Test (OPT) model was investigated among undergraduate senior baccalaureate
nursing students (Kuiper, Heinrich, Matthias, Graham, & Lorna, 2008). The post-test OPT scores
were higher for listing interventions, recording laboratory data, making judgments regarding
tests, and connecting present outcomes states and nursing diagnoses. In another study, a group of
undergraduate senior baccalaureate nursing students who experienced DML debriefing scored
higher on the Health Sciences Reasoning Test (HSRT) than those using non-theory based methods (Dreifuerst, 2012).

The effects of DML debriefing on clinical judgment were investigated in a group of undergraduate nursing students enrolled in a medical-surgical course (Mariana, Cantrell, Meakim, Prieto, & Dreifuerst, 2013). Results indicated greater score improvements in clinical judgment for the intervention group as well as greater improvement over time compared to the control group. In addition, findings from focus group data suggested that student perceptions of DML theory-based debriefing were more learner-focused versus educator-focused (Mariana, et al., 2013).

Lavoie et al. (2013) combined a simulated critical care experience and guided debriefing in a study focused on participants’ and educators’ perceptions of a simulation-based teaching intervention. Immediately after a 45-minute simulation intervention, participants were given an open-ended questionnaire to complete. Sample questions included: “What did you learn today?” “What did you like most about the activity?” “How did this activity contribute to the development of your clinical judgment?” (p. 38) After completing the questionnaire, participants engaged in a 90-minute discussion and debriefing session. Participants reported that the guided post-simulation debriefing contributed to their nursing assessment, clinical judgment, organization of care, and decision-making abilities. Furthermore, debriefing was perceived to be useful for connecting theory and practice as well as identifying creative solutions to improve communication skills (Lavoie, et al., 2013).

The use of a debriefing script to standardize debriefings was investigated (Eppich & Cheng, 2015). Results indicated that, particularly among novice instructors, the use of a standardized script to facilitate debriefing after a simulation improved knowledge gains in
students and improved team leader behavior performance during the simulation. The conclusion was that debriefing scripts improved learning outcomes and standardized the delivery of the debriefing after a simulation learning experience.

Debriefing allows students the opportunity to reflect on actions and assumptions. It is through reflection that practitioners learn to correct mistakes and assimilate new knowledge and experiences (Dreifuerst, 2012). Therefore, knowing how to debrief simulation experiences is as important as knowing how to use the equipment and create scenarios in the simulation laboratory (Jeffries, 2012). Although experts agree that debriefing is the key component to students’ deeper understanding and transformational learning, questions remain about the best methods of debriefing in nursing education that lead to improved learning outcomes. In addition, there is scant literature on the use of debriefing scripts guided by theory and the effects of those scripts on learner outcomes. This study aims to address these questions by utilizing a theory-based post-simulation debriefing to investigate students’ perceptions of debriefing effectiveness and transfer of learning.

**Effectiveness of Debriefing in Simulated Learning**

The effectiveness of debriefing in simulated learning has been assessed using the Debriefing Assessment for Simulation in Healthcare-Student Version© (DASH-SV©), an instrument that uses a behaviorally anchored rating scale to identify the extent to which students perceive the effectiveness of the debriefing. The effect of peer-led versus instructor-led debriefing was investigated with third year nursing students (Roh, Kelly, & Ha, 2016). The quality of cardiopulmonary resuscitation (CPR) skills and the quality of debriefing was compared between two groups. After completion of a skills testing session, one group experienced an instructor-led debriefing session and reflected on their performances. The other
group underwent a peer-led debriefing session in which students compared their performance to a CPR video. Nursing students in the instructor-led debriefing group demonstrated better CPR skills and reported higher DASH-SV© scores (Roh et al., 2016).

Dreifuerst (2012) compared non-theory based debriefing methods with the Debriefing for Meaningful Learning (DML) method in baccalaureate nursing students. Three weeks prior to a series of high-fidelity simulations, students completed a critical-thinking exam. Three weeks after participating in simulation and debriefing, both the control group (customary debriefing) and the experimental group (DML debriefing) completed the DASH-SV© and a second critical-thinking exam. Results indicated a greater change in critical-thinking skills and higher DASH-SV© scores in the experimental group. Also, a positive correlation between critical-thinking and the perception of effective debriefing was found in the experimental group.

Summary

This literature review described the state of the current evidence related to simulation and debriefing in nursing education within the following contexts: background of debriefing, methodologies utilized in debriefing, the use of theory for debriefing in nursing and healthcare education, and effectiveness of debriefing. Research studies representing a variety of debriefing methods and exploring the value of simulation experiences were presented. The research clearly indicates that debriefing is a valuable component of simulation-based education. Furthermore, simulation has been related to improvements in student outcomes and debriefing positively contributes to student learning.

Although, studies about debriefing methods and perceptions of debriefing effectiveness in nursing education exist, most studies described the effect of simulation and debriefing on critical-thinking or clinical judgment rather than the effectiveness of the debriefing itself on
transfer of learning. In addition, there is a lack of available evidence related to transfer of learning. There is a need for further research related to how to best prepare students for safe practice. In addition, although theory-based debriefing methods have been utilized in nursing education with senior nursing students in baccalaureate programs, few studies have utilized these structured models in junior-level nursing students attending associate degree programs. Most importantly, there is lack of evidence correlating student assessment of debriefing effectiveness and transfer of learning.

The next chapter will illustrate the methodology chosen for this study. Additionally, the population that was studied will be identified, along with sampling, recruitment, and data collection procedures. The steps of the intervention will be revealed in detail, followed by the data analysis plan and potential threats to reliability and validity, as well as ethical considerations will also be addressed.
CHAPTER 3: RESEARCH METHODOLOGY

Research Design

This section includes a discussion of the research design and rationale, population and instrumentation of the study. Data collection, data analysis, and protection of participants’ rights will be discussed.

The research design for this research study was a quasi-experimental, post-test–only control-group design to compare pre-licensure nursing students’ perceptions of the effectiveness of non-theory-based debriefing versus DML theory-based debriefing following a high-fidelity simulation. A second aim of this research was to assess the effectiveness of non-theory-based debriefing versus DML debriefing on students’ perceptions of their transfer of learning.

Population

A convenience sample of junior-level, pre-licensure nursing students in an associate degree program was recruited from a community college in the southeast US. There were two groups of students: an experimental group (DML debriefing) and a control group (non-theory based debriefing). Students were assigned randomly to either the control or experimental group by flipping a coin with the following guide: heads equals DML debriefing, and tails equals non-theory based debriefing.

A power analysis was conducted to determine the necessary sample for an independent samples $t$-test to be conducted using the mean scores on both the DASH-SV© and Transfer of Learning tool to rate the effectiveness of debriefing. This will compare the intervention and
control groups. Setting an alpha of < .05 and a power of .90, a sample of 46 (23 per group) would be needed to detect the medium effect ($d = 0.5$) reported in the literature (Dreifuerst, 2012; Forneris et al., 2015; Roh et al., 2016). Estimating attrition of 20 percent ($n = 12$), the final recruitment number for the sample size was set at 58.

**Inclusions**

Adult students 18 years of age or older enrolled in the adult health nursing course who consented to the study.

**Exclusions**

Students who were not enrolled in the adult health nursing course, who did not consent to the study, or who are less than 18 years of age.

**Procedures for Recruitment**

The study took place in the simulation laboratory of a community college nursing school in the southeastern US. A convenience sample of pre-licensure nursing students enrolled in an adult health theory and practicum course were invited to participate in the research (see Appendix C). At the beginning of the semester, the researcher (who does not teach this course) visited the classroom to recruit students enrolled in the course. The researcher informed the students about the study focusing on students’ perceptions of the effectiveness of debriefing methods, and perceptions of transfer of learning.

During the initial class visit, students were given a consent form for their records (see Appendix D). Students were instructed to contact the researcher if they had any questions or concerns regarding study participation. Subsequently, the researcher sent an e-mail link and gave a Quick Response (QR) Code to a Qualtrics survey post-simulation. At that time they reviewed the consent form again. If they agreed to participate they selected the toggle for “I have read the
form, had an opportunity to ask questions, and I agree to participate.” Toggling “yes” advanced them to the demographic survey. Toggling “no” sent them to a page that thanked them for considering the study and those students did not advance further.

**Intervention**

Students came to the simulation center in their pre-assigned clinical groups. Data were collected only on students who consented to participate. As part of the standard school of nursing operations, students are assigned to a clinical group each semester. Each clinical group attended all simulation activities and practicum assignments at hospitals and clinics together. There were six groups of students (four groups of six and two groups of five) participating in simulation sessions on three different days. Upon arrival, each clinical group was randomly assigned to either the control or experimental group by flipping a coin; with the following guide: head equals DML (theory-based debriefing), tails equals customary (non-theory based) debriefing. The primary investigator, who was trained in the DML debriefing method conducted all debriefing sessions using either customary or DML debriefing method.

The simulation sessions were the same for each group and the faculty teaching the course conducted the simulation sessions, but not the debriefing. Immediately following the simulated exercise, students gathered in a room to participate in the debriefing session as determined by random assignment.

For the DML (theory-based group) a DML worksheet was provided to each student. The DML worksheet (see Appendix B) was designed to promote student reflection about the simulation session and to provide a theory-based framework for the post-simulation debriefing (Dreifuerst, 2015). The first page of the worksheet included prompts for students to encourage them to express their reactions to the simulation session. This was completed by the DML
debriefing group immediately after participating in the patient-care portion (the “action phase” of the simulation session). The debriefing facilitator addressed the following questions immediately following simulation to engage the participants: What is the first thing that comes to mind about the experience?, What went right? , and What would you do differently?

Once the answers to the initial questions were recorded by the students on the DML worksheets, the debriefing facilitator guided the students back to the start of the worksheet and reminded them of the patient’s name, and together the group recounted the details of the patient’s story. Naming and patient story developed frames of understanding by demonstrating what was known and what was unknown (Dreifuerst, 2015). One of the attributes of an expert nurse is the ability to anticipate assessment findings based on patient information (Dreifuerst, 2012). This was done through mapping the patient assessment, and by dialoging and discussion among the group to come to a consensus on the key problems of the patient. Continuing to utilize the DML worksheet, the debriefing facilitator turned to exploring options and explaining alternatives to summarize the simulation experience. In addition, students recorded their responses on the “Reflective Thinking” page of the DML worksheet (see Appendix B) and this concluded the debriefing session.

For the customary (non-theory based group) each student was asked the customary debriefing questions utilized by the program (see Appendix E). The notable difference between the two debriefing methods was that the DML worksheet created an opportunity for guided reflective practice. The written component in the theory-based group prompted student reactions, evaluation of the experience, and caused individual reflection prior to the verbal debriefing session.
The debriefing for the theory-based group and non-theory based group lasted 30 minutes. Although there is no standard timeframe for debriefing, 20 minutes was the timeframe used in the NLN/Laerdal Simulation Study (Jeffries, Dreifuerst, Kardon-Edgren, & Hayden, 2015). Both groups completed the DASH-SV© immediately after the debriefing sessions. Two weeks post-simulation, both groups completed the LTT. This approach provided time to transfer the learning from simulation to practice (See Figure 2).

*Figure 2. Intervention Approach*

Data Collection and Analysis

Data for the demographic survey, DASH-SV©, and LTT were collected electronically using the Qualtrics system. This study compared two groups: DML (theory-based) and non-
theory-based debriefing. Two dependent variables were examined: effectiveness of debriefing as measured by the DASH-SV©; and transfer of learning as measured by the LTT.

Demographics of the sample and data collected on the instruments were analyzed using the latest version of the Statistical Package for the Social Sciences (SPSS). Descriptive statistics of the sample were performed using frequencies to describe categorical variables and means, percentages and, standard deviations for continuous variables. Study variables were analyzed for missing data, checked for errors, and assessed related to the assumptions of the statistical tests (Leech, Barrett, & Morgan, 2011).

**Research question one:** What is the difference between DASH-SV© mean scores for nursing students who experience DML debriefing versus nursing students who experience non-theory-based debriefing after completion of a simulation experience? This question was analyzed utilizing an independent t-test.

**Research question two:** What is the difference between transfer of learning scores for nursing students who experience theory-based debriefing versus nursing students who experience non-theory-based debriefing after completion of a simulation experience? This question was analyzed utilizing an independent t-test.

**Instruments**

**DASH-SV©**

The DASH© is a six-element, unweighted, criterion-referenced, behaviorally anchored rating scale (Brett-Fleegler et al., 2012). Raters compare observed performance of the following defined elements: (a) establishment of an engaging learning environment; (b) maintenance of an engaging learning environment; (c) structuring the debriefing in an organized way; (d) provoking engaging discussions; (e) identifying and exploring performance gaps; and (f) helping simulation
participants achieve or sustain good practice (Brett-Fleegler et al., 2012). The response option for each element is a seven-point effectiveness score. The descriptors for the scale are Extremely effective/Outstanding (7), Consistently effective/very good (6), Most effective/good (5), Somewhat effective/average (4), Somewhat ineffective/poor (3), Mostly ineffective/very poor (2), and Extremely ineffective/abysmal (1).

The DASH-SV© measures students’ perception of the effectiveness of the debriefing. The DASH-SV© was developed at the Center for Simulation (Brett-Fleegler et al., 2012) to address the need for a debriefing instrument that could be utilized to assess the effectiveness of debriefing in a variety of settings in simulation-related health care education. There are two versions of the DASH©: faculty (DASH-IV©) and student (DASH-SV©). For this study, the DASH-SV© for students was utilized. The DASH-SV© consists of both long and short versions. For this study, the long version was utilized to provide data related to the effectiveness of the debriefing (Brett-Fleegler et al., 2012). The DASH-SV© long version takes about five to seven minutes to complete.

The DASH© was reviewed for content and usability by eight simulation experts from five different pediatric, tertiary-care academic medical centers in the US and Canada. After the initial review, experts reviewed and completed the DASH© utilizing two demonstration videos and two debriefing videos. Based on this review, additional modifications were made. Finally, using a teleconference format, final suggestions for changes were made to the language of the elements and behaviors to reflect terminology familiar to clinician educators. After refining the instrument, 151 international health care educators participated in a 4.5-hour interactive DASH© rater training session to further assess and provide evidence for validity and interrater reliability (Brett-Fleegler et al., 2012). To assess internal consistency, a .89 Cronbach alpha was calculated.
after 114 simulation instructors reviewed a series of three standardized debriefing sessions. The intraclass correlation coefficient for the six elements of the DASH© ranged from .57 to .68 with an overall intraclass coefficient of .74 (Brett-Fleegler et al., 2012). Reliability coefficients generally range from .00 to 1.00; the higher the value, the more reliable the measuring instrument (Polit & Beck, 2010). A Cronbach’s alpha is indicative of the internal consistency of a scale. In addition, an alpha of at least 0.80 is expected for established measures used in research (Tappen, 2016).

**Learning Transfer Tool**

The Learning Transfer Tool LTT (see Appendix G) consists of 13 questions measuring learning outcomes as a consequence of simulation. Those learning outcomes include hierarchical cognitive processing in delivering nursing care, prioritizing patient care needs, delegating care, and identifying and communicating data needed to make patient care decisions (Elfrink & Lee, 2010). The 13 questions are: (a) Identify the building blocks for delivering nursing care (e.g. equipment needed or contributing pathophysiology); (b) Deliver nursing care; (c) Evaluate the nursing care that I deliver; (d) Recognize the existing needs of a patient; (e) Anticipate emerging needs of patients; (f) Prioritize existing needs of patients; (g) Prioritize emerging needs of patients; (h) Understand the roles of the health care team; (i) Perform care as part of the health care team; (j) Delegate care to members of the health care team; (k) Identify relevant patient care data to communicate with a supervisor or health care practitioner; (l) Communicate relevant patient care data with a supervisor or other health care practitioner; and (m) Anticipate the data needed for future communication with a supervisor or other health care practitioner (Elfrink & Lee, 2010).

These 13 questions were measured with a three-point scale (which consisted of do
not agree; somewhat agree; and strongly agree). The LTT was developed by Elfrink and was based on a framework developed by Anderson and Kratwohl (Elfrink & Lee, 2010). The framework measures learning outcomes using the cognitive process (remember, understand, apply, analyze, evaluate, and create) and knowledge dimensions (factual, conceptual, procedural, and meta-cognition).

For development and testing, three members of the nursing faculty with at least five years of teaching experience with entry-level nursing students reviewed the LTT to establish content validity (Elfrink & Lee, 2010). The content validity of an instrument is the extent to which the measure a researcher uses is true and accurate to its intended purpose (Tappen, 2016). For example, experts in the content area are often called on to analyze items’ adequacy of coverage of content area being measured. The expert reviewers agreed that all questions in the LTT addressed clinical competence (Elfrink & Lee, 2010).

The LTT was first piloted in a pre-licensure nursing population (n=125). A Cronbach’s alpha score of 0.84 was achieved during the pilot study (Elfrink & Lee, 2010). In a subsequent multisite study a Cronbach’s alpha score of 0.96 was achieved (Elfrink & Lee, 2010). One other study compared students’ perceptions of clinical competence, and a Cronbach’s alpha score of .96 was achieved (Kirkman, 2011).

**Threats to Validity**

**Internal Validity**

Internal validity assesses whether an independent variable made a difference on study results or if it changed within the dependent variable (LoBiondo-Wood & Haber, 2010). For this study, the independent variable was the use of post-simulation DML debriefing as an intervention to affect the dependent variable of nursing students’ perceptions of the effectiveness of the
debriefing and their transfer of learning. The threats to internal validity that were considered included history, maturation, testing, instrumentation, regression, selection, experimental mortality, and an interaction of threats (LoBiondo-Wood & Haber, 2010).

To avoid history being a problem – for example, students being exposed to other debriefing interventions (Tappen, 2016) – the experiment and control groups received the post-simulation debriefing on the same day in the same environment. Maturation is the effect of changes that occur naturally over time (Tappen, 2016), such as, students leaving the study or dropping the course. To avoid maturation, the study procedural timeline was established so that there was limited time between volunteering for the study, participating in the simulation, and participating in the post-simulation debriefing intervention. The effects of having pre-testing in a group could make the groups different from the untested (Tappen, 2016). Testing effects can occur in quasi-experimental studies when there is more than one step, such as, administration of a pre-test and a post-test. (LoBiondo-Wood & Haber, 2010). To control for this, the study did not have a pre-test component.

In research, investigators may complete observation or rating scales differently. In addition, instruments that are utilized in a research study can affect the quality of the data obtained (Tappen, 2016). Instrumentation threats were minimal within this study design, as there were only two assessment tools. In addition, students supplied their own assessment data, eliminating the risk of objective influence by outside raters. Regression to the mean is the occurrence that if a variable is extreme on its first measurement, it will likely move closer to the average on its second measurement (Tappen, 2016). Statistical regression was controlled for by randomly assigning students from the same extreme pool, such as a junior-level nursing students. Experimental mortality, or the loss of study subjects in the treatment group versus control group
(Tappen, 2016), was minimal due to the short time span between the simulation and the post-simulation debriefing intervention. Finally, there may be differences in the way participants are selected for the experimental versus no-treatment group (Tappen, 2016). In addition, some participants who are eager to learn about debriefing may be easier to recruit for the intervention group. Selection bias was controlled for by randomly assigning participants to treatment groups.

**External Validity**

External validity refers to the generalizability of the treatment or condition outcomes (Tappen, 2016). Not all simulation centers are comparable in size, equipment, and staffing. Another factor affecting external validity is the interaction effect of testing that affects the generalization of findings (Creswell, 2012). Effect of testing was controlled for by not having a pre-testing in this study. Research may take place at a certain time of the year, which could make a difference in student responses, especially if students have not been exposed to a certain theory or clinical content. Thus, to control for this possibility, the simulation and debriefing occurred during the weeks the participants were exposed to the content in theory and clinical. In addition, selection effect was a potential factor, where the criteria used to select subjects may limit generalizability. Thus, selection effect was controlled for by randomly assigning participants to treatment groups.

**Ethical Considerations**

The risk to the participants were minimal, but to ensure ethical standards of research were upheld, Institutional Review Board (IRB) permission was obtained from the institutional setting and The University of Alabama before conducting the study. In addition to obtaining institutional IRB approval, informed consent was obtained from all participants prior to any data collection and participating in the intervention.
Students’ identification (ID) numbers, assigned by the institution, were used as an initial identifier. However, once all data were collected and paired with students’ ID numbers, data was de-identified by stripping the data set of the ID number and assigning a study number; thus protecting identity and avoiding a potential breach in confidentiality. Therefore, only de-identified data were analyzed. Students were informed that choosing not to participate in the study would not have any consequence on the student’s grade or standing in the nursing program. There was no reward for participation, and participants will not receive material compensation or extra credit toward their grades.

**Summary**

This chapter described the study design, sample, ethical considerations, description of instruments, data collection procedures, and data analysis. The purpose of this study was to evaluate the influence of theory-based debriefing on student perceptions of transfer of learning and effectiveness of debriefing. In the next chapter, the results of the study will be presented.
CHAPTER 4: RESULTS

This chapter discusses descriptive statistics and inferential analyses related to each research question. The first purpose of this study was to examine how non-theory-based debriefing compares to theory-based debriefing by assessing pre-licensure nursing students’ perceptions of debriefing effectiveness following a high-fidelity simulation. A second purpose of this study was to examine between group differences of perceived transfer of learning.

Research Question 1

What is the difference between DASH-SV© scores for nursing students who experience theory-based debriefing versus nursing students who experience non-theory-based debriefing after completion of a simulation experience?

Research Question 2

What is the difference between Transfer of Learning scores for nursing students who experience theory-based debriefing versus nursing students who experience non-theory-based debriefing after completion of a simulation experience?

Description of the Sample

Data were compiled into a dataset and analyzed using IBM SPSS version 25. Table 1 summarizes the demographic data of the study sample, divided by those in the theory-based debriefing and non-theory based debriefing groups. The majority of the study sample respondents in both groups were white, female, and did not hold a previous degree. In addition, non-nursing baccalaureate degrees (23.5%, \( n = 4 \)) were reported in each group. The theory-based group had two participants (11.8%) who held non-nursing associates degrees. The sample
had an even distribution of those with (70.6%, \( n = 12 \)) and without previous health care experience (29.4%, \( n = 5 \))

Table 1.

**Demographic Frequencies of the Study Sample (\( N = 34 \))**

<table>
<thead>
<tr>
<th>Frequencies</th>
<th>Theory-based ((N = 17))</th>
<th>Non-theory based ((N = 17))</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex/Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Male</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>White</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latino/Latina</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Non-Latino/Non-Latina</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Decline to answer</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Previous Experience in Healthcare</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Highest Degree</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Nursing Associate</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Non-nursing Associate</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Nursing Bachelor’s</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Non-nursing Bachelor’s</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Repeating Course</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

Table 2 summarizes the mean, standard deviation, and range for age, GPA, and number of previous debriefings for the study sample divided by theory-based debriefing and non-theory based debriefing groups. The mean age of participants for the theory-based debriefing group was
25.47 (SD = 6.48) and the non-theory based debriefing group mean age was 25.88 (SD = 5.80). The mean GPA of participants for the theory-based debriefing group was 3.18 (SD = .52) and the mean for the non-theory based debriefing group (M = 3.19; SD = .41). Finally, the mean number of previous debriefings of participants for the theory-based group was 2.35 (SD = 2.76) and the mean for the non-theory based group was 1.64 (SD = 2.27). An independent samples t-test examined differences in the number of debriefings by group, and no significant difference was found (t(28) = .840, p = .408).

Selected variables were analyzed using Pearson chi-square tests. There was no significant difference between groups for highest degree, dichotomized as non-nursing bachelors and any nursing degree ($\chi^2 (1) = .476, p = .490$). There was also no significant difference between groups for gender ($\chi^2 (1) = .971, p = .325$). Additionally, there was no significant difference between groups for race, dichotomized as Caucasian versus non-Caucasian ($\chi^2 (1) = 3.417, p = .065$).

Table 2.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>Range</th>
<th>Mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>25.47 (6.48)</td>
<td>19-39</td>
<td>25.88 (5.80)</td>
<td>20-43</td>
</tr>
<tr>
<td>GPA</td>
<td>3.18 (.52)</td>
<td>2-4</td>
<td>3.19 (.41)</td>
<td>2-4</td>
</tr>
<tr>
<td># previous debriefings</td>
<td>2.35 (2.76)</td>
<td>0-10</td>
<td>1.64 (2.27)</td>
<td>0-8</td>
</tr>
</tbody>
</table>

Descriptive Statistics- DASH-SV©

Table 3 summarizes the mean, standard deviation, and range of the five element scores of the DASH-SV© for the theory-based and non-theory based groups. The mean was lower for the
theory-based group ($M = 34.56; SD = 1.09$) compared to the non-theory based group ($M = 35; SD = 0$).

Table 3.

*Group Comparison of Mean, SD, & Range of the 5 Element Scores*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$n$</th>
<th>$M$</th>
<th>$SD$</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory-based</td>
<td>16</td>
<td>34.56</td>
<td>1.09</td>
<td>31-35</td>
</tr>
<tr>
<td>Non-theory based</td>
<td>13</td>
<td>35.00</td>
<td>0</td>
<td>35-35</td>
</tr>
</tbody>
</table>

Inferential Statistics- DASH-SV©

An independent samples $t$-test was conducted to evaluate the difference in total scores of the DASH-SV© elements by group as found in Table 4. There was no statistically significant difference in mean scores between the theory-based and non-theory-based groups.

Table 4.

*Independent Samples $t$-test of Mean Score by Group ($N = 29$)*

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory-based</td>
<td>34.56</td>
<td>1.09</td>
</tr>
<tr>
<td>Non-theory based</td>
<td>35.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

$t_{(27)} = -1.438, p > .05$

Mann-Whitney U tests were conducted to evaluate the difference between mean scores of each of the five DASH-SV© elements by group. There were no statistically significant differences found (Table 5).
Table 5.

**Mann-Whitney U Table of 5 Elements by Group**

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Theory-based</th>
<th>N</th>
<th>Mean</th>
<th>Rank</th>
<th>U</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>The instructor maintained an engaging context for learning.</td>
<td>Theory-based</td>
<td>16</td>
<td>16.41</td>
<td>126.50</td>
<td>-.551</td>
<td>.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-theory based</td>
<td>17</td>
<td>17.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>The instructor structured the debriefing in an organized way</td>
<td>Theory-based</td>
<td>16</td>
<td>16.97</td>
<td>135.50</td>
<td>-.044</td>
<td>.96</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-theory based</td>
<td>17</td>
<td>17.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>The instructor provoked in-depth discussions that led me to reflect on my performance.</td>
<td>Theory-based</td>
<td>16</td>
<td>15.53</td>
<td>112.50</td>
<td>-.968</td>
<td>.33</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-theory based</td>
<td>15</td>
<td>16.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>The instructor identified what I did well or poorly—and why.</td>
<td>Theory-based</td>
<td>16</td>
<td>16.50</td>
<td>128.00</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-theory based</td>
<td>16</td>
<td>16.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>The instructor helped me see how to improve or how to sustain good performance</td>
<td>Theory-based</td>
<td>16</td>
<td>16.50</td>
<td>128.00</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-theory based</td>
<td>16</td>
<td>16.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Descriptive Statistics- Learning Transfer Tool**

Table 6 summarizes the frequencies of the thirteen items on the LTT, divided by those in the theory-based and non-theory based groups. The response type for both learning groups ranged from “Somewhat Agree to Strongly Agree”.

47
Table 6.

*Frequency of the Items on the LTT*

<table>
<thead>
<tr>
<th>Item</th>
<th>Theory-Based (n = 10)</th>
<th>Non-Theory Based (n = 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Identify the building blocks for delivering nursing care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Deliver Nursing Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Evaluate the nursing care I deliver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Recognize existing needs of the patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Anticipate emerging needs of the patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Prioritize existing needs of patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Perform care as part of a health care team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Delegate care to members of the healthcare team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Identify relevant patient care data to communicate with a supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Communicate relevant patient care data with a supervisor of other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>health care practitioner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>Anticipate the data needed for future communication with a supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>90</td>
</tr>
</tbody>
</table>
Inferential Statistics- Learning Transfer Tool

An independent samples $t$-test was conducted to evaluate the between group difference in mean scores of the LTT totals (Table 7). No statistically significance difference was found.

Table 7.

*Independent Samples $t$-test of LTT Total Score and Group (N = 18)*

<table>
<thead>
<tr>
<th>Group</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory-based</td>
<td>24.7</td>
<td>4.11</td>
</tr>
<tr>
<td>Non-theory based</td>
<td>25.62</td>
<td>.744</td>
</tr>
</tbody>
</table>

$t_{(16)} = -.625, p > .05$

An independent samples $t$-test was conducted to evaluate the between group difference (previous healthcare experience versus no previous healthcare experience) in mean scores on the LTT (Table 8). This was not statistically significant.

Table 8.

*Independent Samples $t$-test of LTT Total Score and Previous Experience (N = 18)*

<table>
<thead>
<tr>
<th>Experience</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you had previous healthcare experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>24.76</td>
<td>3.5</td>
</tr>
<tr>
<td>No</td>
<td>26</td>
<td>0</td>
</tr>
</tbody>
</table>

$t_{(16)} = -.753, p > .05$

An independent samples $t$-test evaluated the between group difference (repeating course versus not repeating course) in mean LTT scores. There was no statistically significant difference found (Table 9).
Table 9.

*Independent Samples t-test of Mean LTT Score and Repeating Course (N = 18)*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you currently repeating this course?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25.75</td>
<td>.500</td>
</tr>
<tr>
<td>No</td>
<td>24.92</td>
<td>3.47</td>
</tr>
</tbody>
</table>

$t_{(16)} = .462, p > .05$

A Pearson product-moment correlation was computed to assess the relationship between LTT total score and age. There was a moderate, indirect and negative relationship between LTT total score and age ($r_{(18)} = -.667, p = .002$); as age increased, LTT score decreased.

In addition, a Pearson product-moment correlation was computed to assess the relationship between DASH-SV© total score and the LTT total score. There was a strong, direct and positive correlation between DASH-SV© total score and LTT total score ($r_{(17)} = .863, p = .000$); as the DASH-SV© total score increased, the LTT total score also increased.

A multiple regression determined whether the following independent variables predicted the dependent variable LTT total score: DASH-SV© total score, group, previous health care experience, overall GPA, number of debriefing experiences, and whether they were currently repeating the course. These variables were eliminated from the model as they were not statistically significant predictors and did not contribute to the variance explained. Additionally, a multiple regression determined whether DASH-SV© total score and group (non-theory based vs theory-based) were predictors of the LTT total score. Review of the tolerance statistics presented in the model indicated that both independent variables were well-tolerated (above 0.1). Additionally, 72% of the variability in the LTT total score was explained by group membership and DASH-SV© total score variables. The model summary and the ANOVA summary indicated that the overall model of the DASH-SV© total score and group (non-theory vs theory-based)
significantly predicted the LTT total score, \( R^2 = .756, R^2_{adj} = .721, F_{(2,14)} = 21.704, p < .0001. \) However, review of beta weights specified that only one variable, the DASH-SV© total score, \( \beta = 2.665, t_{(14)} = 6.435, p = .000 \) significantly contributed to the model. The group variable did not contribute to the model.

**Review of Field Notes**

Additional findings were gathered from students who received theory-based debriefing. Students who received theory-based debriefing completed the DML worksheets (see Appendix B). Students wrote responses to the prompts immediately following the simulation experience, and prior to the debriefing session. The prompt, “Thinking beyond action” asked students to reflect upon the simulation. One participant in the simulation wrote, “be mindful of sterile fields”; another participant commented to “utilize a team approach when tending to a patient needs”. Several participants reported “communication with physician and team members” as being important. Debriefings were not recorded for either group and no notes were taken during the non-theory-based debriefing. Thus, there is no comparison of field notes between groups.

**Summary**

In summary the answer to Research Question 1; the difference between DASH-SV© scores for nursing students who experience theory-based debriefing versus nursing students who experience non-theory-based debriefing after completion of a simulation experience, was that there was no statistically significant difference.

The answer for Research Question 2; the difference between Transfer of Learning scores for nursing students who experience theory-based debriefing versus nursing students who experience non-theory-based debriefing after completion of a simulation experience, was that there was no statistically significant difference.
In addition, a multiple regression to examine possible predictors of LTT scores was completed. This demonstrated that DASH-SV© scores, but not group predicted LTT total scores ($\beta = 2.665$, $t(14) = 6.435$, $p = .000$).

The next chapter will summarize and discuss findings and limitations of this study. In addition, implications of the research and recommendations from the researcher for future studies will be presented.
CHAPTER 5: DISCUSSIONS, RECOMMENDATIONS, AND CONCLUSIONS

This chapter discusses the summary of the study, interpretation of findings, overview of limitations, implications for nursing practice and education, and recommendations for further research. In addition, the aim of this chapter is to relate the research findings of this study to previous research in post-simulation debriefing within the realm of nursing education.

The first purpose of this study was to examine how non-theory-based debriefing compared to theory-based debriefing by assessing pre-licensure nursing students’ perceptions of debriefing effectiveness following a high-fidelity simulation. A second purpose was to examine the between group difference in perceived transfer of learning. Quantitative data were gathered from DASH-SV© scores and LTT scores. There was no statistically significant difference between participants’ perceptions of debriefing effectiveness (DASH-SV© scores) based on the method of post-simulation debriefing. Additionally, there was no statistically significant difference between participants’ perceptions of their transfer of learning (LTT scores) based on the method of post-simulation debriefing.

Discussion of Findings

Research Question 1. The first research question compared the difference between DASH-SV© scores for nursing students who experienced theory-based debriefing versus non-theory-based debriefing after completion of a simulation experience. This study did not show a statistically significance in DASH-SV© scores between learning groups. However, the sample size of the study did not meet power requirements and the possibility of a Type II error must be
considered. It is important to note that the perceptions of the effectiveness of the debriefing were favorable for both groups. This finding is not consistent with previous research conclusions that students’ DASH-SV© scores were higher in theory-based debriefing (Dreifuerst, 2012). Although this study did not find a statistically significance difference in DASH-SV© scores between groups, the reports of favorable perceptions of the effectiveness of post-simulation debriefing were consistent with a previous study. In that report, post-simulation debriefing was superior versus in-simulation debriefing (Van Heukelom et al., 2010).

Although the researcher was cognizant of using theory-based or non-theory-based debriefing, depending on the group assignment, it is also possible that DASH-SV© scores may have indicated no difference between the two learning groups because the researcher was trained in provided consistent debriefing after each simulation session. Further, students’ favorable perceptions of the effectiveness of debriefing may simply indicate that a trained debriefing facilitator is salient, or may be due to students’ desires to please the researcher.

Research Question 2. The second research question examined the between group difference in Transfer of Learning for nursing students who experienced theory-based debriefing versus non-theory-based debriefing after completion of a simulation experience. This study did not find a statistically significant difference between groups for transfer of learning. As noted for Research Question 1, a Type II error may have occurred due to the inability to reach the sample size needed to meet the power expectation. It is important to note that for both learning groups the majority answered “Strongly Agreed” for all 13 items on the Learning Transfer tool. This non-significant finding is not consistent with previous findings that theory-based debriefing groups scored higher in the areas of (a) listing interventions, (b) recording laboratory data, (c) making judgments regarding tests, and (d) connecting nursing diagnoses (Kuiper et al., 2008;
Eppich & Cheng, 2015). In addition, this finding is inconsistent with findings from focus groups that report that theory-based debriefing contributed to students clinical reasoning skills, nursing assessment, clinical judgement, organization of care, and decision-making abilities (Dreifuerst, 2012; Lavoie et al., 2013).

Age

Additional data analysis found a statistically significant negative correlation between age and LTT total scores. As age increased, LTT total score decreased. Non-traditional students who decide to return to school to pursue a degree have been further removed from their former education. Additionally, they may be adapting to returning to the classroom setting which may affect how information is processed. No previous studies reported examining correlations between age and LTT total scores. Thus, future research that examines learning transfer and age of students beginning a career in nursing is recommended.

DASH-SV© and LTT total score

Additional data analysis demonstrated a statistically significant positive correlation between DASH-SV© and LTT total score. As the DASH-SV© total score increased, the LTT total score also increased. Perhaps, the students who perceived the debriefing as being effective, correlated that with understanding and applying what they learned. No previous studies reported examining correlations between DASH-SV© and LTT total score. Thus, future research that examines students’ perceptions of debriefing and their performance in the clinical setting or on examinations is recommended.

Due to the statistically significant correlation between DASH-SV© scores and LTT total score the researcher examined a potential regression model to further explicate the relationship.
A multiple regression determined whether DASH-SV© total score and group (non-theory-based vs theory-based) were predictors of the LTT total score. The model summary and the ANOVA summary indicated that the overall model of the DASH-SV© total score and group (non-theory vs theory-based learning) significantly predicted the LTT total score.

**Review of Field Notes**

Responses from participants in the theory-based debriefing to the prompt “Thinking beyond action” consisted of being mindful of the correct way to do skills and communication with physicians and team members as important takeaways. These responses are consistent with findings from focus groups that report that theory-based debriefing contributed to students clinical reasoning skills, nursing assessment, clinical judgement, organization of care, and decision-making abilities (Dreifuerst, 2012; Lavoie et al., 2013). Another possible explanation could be that the DML strategy may have been innovative to the point that it stimulated student learning and transfer or perhaps it affirmed how students were already reasoning.

**Theoretical Framework**

The debriefing process is the critical component of experiential learning in which the actual learning takes place (Forneris & Fey, 2018). The majority of students in both learning groups “Strongly Agreed” on their transfer of learning. The Debriefing for Meaningful Learning (DML) incorporated experiential learning and reflective learning strategies that utilized narrative pedagogy (Dreifuerst, 2015). The DML was utilized in this study to facilitate students’ reflection on their performance during simulation and their learning transfer to inform their next patient encounter (Dreifuerst, 2015).
Limitations of the Study

This study may not be generalizable to other geographic areas because the study population was restricted to only one nursing course within one nursing program in the southeastern US. In addition, the sample was homogenous (primarily white females) which affects the generalizability of the findings to nursing students who are male or from a minority background.

It is possible that a type II error occurred; a true difference between groups was not detected as a result of a small sample size (Tappen, 2016). An initial power sample of 58 participants was set. However, because of the small class size, only 50 students were invited. Further, only 34 students participated and not all students answered every question. Therefore, power was not achieved. Further, no additional students were enrolled as this would have introduced an additional variable of separate cohorts.

Students may have had concerns about anonymity as they put their responses on the instruments. Social desirability may have caused students to answer in ways that they felt were “expected” (Kemmelmeier, 2016). Additionally, results were limited as data collected relied on self-report instruments that assessed perceptions, rather than hard data.

Significance to the Profession

Current healthcare system trends, such as, health and disease patterns, highlight the need to transform nursing education to prepare nurses for safe practices in the twenty-first century (Rosenau et al., 2015). Therefore, nursing education must ensure that nursing students graduate from programs equipped with the knowledge and skills needed to provide safe patient care. This study incorporated a safe learning environment through a simulation scenario where students were able to prepare and provide direct care without jeopardizing patient safety. Additionally, a
faculty facilitated post-simulation debriefing which nursing students perceived as being effective, may have enhanced their learning transfer into the clinical setting. Learning experiences like this may produce nurses whom have the knowledge and ability needed to provide safe patient care.

**Significance to Nursing Education**

Nursing education is challenged with the charge of educating student for the ultimate task of improving patient care, which in turn improves the health of all U.S. citizens (NLN, 2015). Although nurse educators may question the impact of post-simulation debriefing on transfer of knowledge and skills to the actual clinical setting, this study indicates that students in both groups perceived that transfer of learning did occur. Therefore, the nursing education community should continue to investigate best practices for simulation and debriefing.

Results from this study may inform and guide nurse educators in developing debriefing strategies that facilitate transfer of learning and enhance students’ perceptions of their debriefing experiences. Additionally, this study aligns with the NLN Research Priorities, which recommend research that investigates teaching-learning strategies in an effort to create evidence-based pedagogies (NLN, 2015).

**Recommendations for Future Research**

Further research with larger samples designed to meet power expectations and interventions completed in various geographic locations could add to the body of knowledge. Ideally, transfer of learning and students’ perceptions of debriefing effectiveness should be evaluated with a more diverse, nationally representative sample of nursing students. Additionally, future research should employ a mixed-method approach to better understand the impact of debriefing methods on student perceptions of their transfer of learning and debriefing
effectiveness. Future research should also examine additional predictors and factors that could influence transfer of learning; for example, sex, type of nursing program, and semester level of the nursing student.

Finally, future research about debriefing in nursing education should examine specific aspects of debriefing, such as, who is facilitating the debriefing, what methods are being utilized, the timing of debriefing (during versus after completion of the simulated event), and the environment of debriefing. This study utilized one trained facilitator for each debriefing session. The expertise of that facilitator may be more salient than the method of debriefing; therefore, the examination of faculty expertise in debriefing is another area that needs to be investigated.

Conclusion

Debriefing theories or methods utilized in post-simulation are not fully developed, nor fully understood. Findings from this study revealed no statistical difference between groups who received theory-based versus non-theory-based debriefing. Therefore, nurse educators will need to continue to expand on and contribute to what is known about the impacts of debriefing methods on transfer of learning.
REFERENCES


http://dx.doi.org/110.1016/j.ecns.2010.12.005


uses of high-fidelity medical simulations that lead to effective learning: A BEME systematic review. *Medical Teacher, 27*, 10-28.


Moulton, M., Lucas, L., Monaghan, G., Swoboda, S. (2016). A clear approach for the


Center for Medical Simulation
Debriefing Assessment for Simulation in Healthcare (DASH) Student Version©

Directions Rate how this debriefing felt to you using the following seven-point scale. You will be rating six “Elements” of the debriefing. Each Element comprises specific behaviors, described below. If a listed behavior is impossible to assess (e.g., how they handle upset people if no one got upset), don’t let that influence your evaluation. The debriefer may do some things well and some things not so well within each Element. Do your best to summarize your impression of overall effectiveness for the whole Element, guided by your observation of the individual behaviors that define it.

Please resist scoring individual behaviors and then averaging them for the Element score. Think holistically about your assessment. It’s possible that one especially bad move could sour the effect of an otherwise good performance; likewise, stellar performance in one area could outshine mediocrity in others.

Rating Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>Descriptor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Extremely Ineffective / Abysmal</td>
<td>Consistently Ineffective / Very Poor</td>
<td>Mostly Ineffective / Poor</td>
<td>Somewhat Effective / Average</td>
<td>Mostly Effective / Good</td>
<td>Consistently Effective / Very Good</td>
<td>Extremely Effective / Outstanding</td>
</tr>
</tbody>
</table>

Element #1
The instructor sets the stage for an engaging learning environment before the simulation takes place.

Overall Rating Element #1

• The instructor introduced him or herself (if not already known to me), and described the simulation environment and what would be expected of me during the case.
• The instructor explained the strengths and weaknesses of the simulator, and what she or he and I would need to do to get the most out of simulated clinical cases.
• The instructor showed concern for my physical comfort and well-being by telling me about logistical matters such as breaks, food, bathroom locations, etc.
• The instructor let me know we would be debriefing the simulation sometime after the case.
• The instructor made me feel safe yet stimulated to ask questions and share my thoughts about the upcoming simulation and debriefing without fearing that I would be shamed or humiliated.

Element #2
The debriefer maintains an engaging context for learning during the debriefing.

Overall Rating Element #2

• At the outset, the instructor clarified the point of the debriefing, what was expected of me, and his or her role in the debriefing.
• The debriefing challenged me, yet felt like a safe place for sharing thoughts and emotions without being shamed or humiliated.
• I felt the debriefer respected participants; the focus was on learning and not on “catching” people in a mistake.
• The instructor helped me learn even though the cases were simulated; s/he acknowledged people’s concerns about how realistic or unrealistic things were.
• The instructor made people feel heard by using non-verbal actions like eye contact, nodding, paraphrasing, trying to include everyone, etc.
<table>
<thead>
<tr>
<th>Element #3</th>
<th>Overall Rating Element #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>The debriefer structures debriefing in an organized way.</td>
<td></td>
</tr>
<tr>
<td>• The debriefer organized the debriefing with a start, middle, and end. The conversation had a logical progression and felt focused, rather than jumping from point to point randomly.</td>
<td></td>
</tr>
<tr>
<td>• I was encouraged to share my genuine reactions to the simulated case at the beginning and the instructor took my perspective and concerns seriously.</td>
<td></td>
</tr>
<tr>
<td>• The instructor then helped me analyze actions and thought processes as we reviewed the case.</td>
<td></td>
</tr>
<tr>
<td>• There was a summary phase where the instructor helped tie our observations together and relate the case to ways I can improve my future clinical practice.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element #4</th>
<th>Overall Rating Element #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>The debriefer provokes engaging discussions that lead me to reflect on my performance.</td>
<td></td>
</tr>
<tr>
<td>• The debriefer used concrete examples of things we did—not just abstract or generalized comments—to get me to think about my performance.</td>
<td></td>
</tr>
<tr>
<td>• The debriefer made his or her reasoning clear; I didn’t have to guess what she was thinking.</td>
<td></td>
</tr>
<tr>
<td>• The discussions were in depth; the debriefer did not focus only on whether I knew facts.</td>
<td></td>
</tr>
<tr>
<td>• The debriefer used the video effectively to help students analyze and learn from the simulated case.</td>
<td></td>
</tr>
<tr>
<td>• If someone got upset during the debriefing, the debriefer tried to help them deal with it the debriefer validated the person’s concerns rather than just ignoring them.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element #5</th>
<th>Overall Rating Element #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The debriefer identifies what I did poorly or well—and why.</td>
<td></td>
</tr>
<tr>
<td>• I received concrete feedback on my team’s or my performance based on the debriefer’s accurate and honest description of the performance during the simulation.</td>
<td></td>
</tr>
<tr>
<td>• The debriefer helped me explore what I was thinking or trying to accomplish at key moments in the case.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element #6</th>
<th>Overall Rating Element #6</th>
</tr>
</thead>
<tbody>
<tr>
<td>The debriefer helps or inspires me to improve and/or shows me how to sustain excellence.</td>
<td></td>
</tr>
<tr>
<td>• The debriefer helped me learn how to improve weak areas or how to repeat good or excellent performance.</td>
<td></td>
</tr>
<tr>
<td>• The debriefer was knowledgeable and able to use that knowledge to help me understand the things we discussed.</td>
<td></td>
</tr>
<tr>
<td>• The debriefer made sure we covered the topics important in this course.</td>
<td></td>
</tr>
</tbody>
</table>

Copyright, Center for Medical Simulation, [www.harvardmedsim.org](http://www.harvardmedsim.org), 2009
APPENDIX B:
DML STUDENT WORKSHEETS

DML Student Worksheet

1. What is the first thing that comes to mind about the clinical experience you just had?
2. What went right and why?
3. What would you do differently and why?

Framing: (What is the client’s story?)

Focused Key Problem/diagnosis:
I don't know how this fits with the key problems:

Medical Diagnosis/Surgical Procedure:

Key Assessments:

Key problem/diagnosis #_______

Key problem/diagnosis #_______

Key problem/diagnosis #_______

Key problem/diagnosis #_______

Key problem/diagnosis #_______

Key problem/diagnosis #_______
Reflective Thinking

Thinking-in-Action

Thinking-on-Action

Thinking-beyond-Action
APPENDIX C:

RECRUITMENT SCRIPT

Natasha Colvin, MSN, RN-BC, CNL, EdD (c)

Subject: Invitation to Participate in Research Study

Hello Students,

I am here to ask for your help in understanding the effectiveness of two types of debriefing. I am specifically looking at two things: your perceptions of the effectiveness of debriefing following a simulation, and your perception of the transfer of learning following a simulation that included debriefing.

Your participation in the study is not required but may be very important and will help advance debriefing theory. It may also inform and guide nurse educators toward developing debriefing activities that best enhance transfer of learning.

This study will take place on your scheduled simulation days. There are no identified risks to you as a participant. If you choose not to participate in this study, you will still participate in all simulation assignments in order to meet the requirements of the course, but your data will not be used in the research study.

Your participation in this study is entirely voluntary and all of your responses will be kept confidential. No personal identifiable information will be associated with your responses in any published reports of this study. Should you have any further questions or comments, please feel
free to contact me at nrcolvin@crimson.ua.edu.

I appreciate your time and consideration. It is only through the help of students that we can begin to understand the effectiveness of debriefing and its influence on transfer of learning.

Many thanks,

Natasha Colvin, MSN, RN-BC, CNL, EdD (c)
APPENDIX D:

INFORMED CONSENT
Informed Consent to Participate in a Research Study

TITLE: Theory-Based Post-Simulation Debriefing: Perceived Effectiveness of Debriefing and Transfer of Learning

INVESTIGATOR: Natasha R. Colvin, MSN, RN-BC, CNL, EdD
Student: A doctoral student at The University of Alabama located in Tuscaloosa, AL.

PURPOSE: You are being asked to participate in a research project that seeks to investigate the effectiveness of a debriefing theory, following simulation, on students’ perceptions of debriefing and transfer of learning.

WHAT WILL YOU BE ASKED TO DO: If you agree to be in this study, Ms. Natasha Colvin will randomly assign you to a specific type of debriefing group, theory-based or non-theory based, in order for the study to compare debriefing methodologies. Participants will be required to answer demographic questions. Also, participants will be asked to complete two instruments; one right after the debriefing and the other at two weeks.

HOW MUCH TIME WILL I SPEND BEING IN THIS STUDY: The post-simulation debriefing should last about 20-30 minutes and time to complete the two instruments should take about 10 minutes each.

RISKS AND BENEFITS: There are minimal risks. Participation will have no impact on your relationship with the nursing program, course grade, or progression in the program. Although there are no benefits to you for participating in this study, you will have the knowledge and satisfaction that the nursing education community may benefit from understanding of the effects of a theory-based debriefing following simulation related the perceptions of debriefing and transfer of learning of pre-licensure RN students.

COST OF BEING IN STUDY: The only cost to you from this
APPENDIX E:

SIMULATION ACTIVITIES

Questions to be asked during debriefing

1. What was the experience like for you?

2. How did you decide on your priorities for care and what would you change?

3. Discuss your interventions (technical and non-technical). Were they performed appropriately and in a timely manner?

4. How did patient safety concerns influence your care? What did you overlook?

5. In what ways did you personalize your care for this patient and family members (recognition of culture, concerns, anxiety)?

6. Discuss your teamwork. How did you communicate and collaborate? What worked, what didn’t work and what will you do differently next time?

7. What are you going to take away from this experience?
APPENDIX F:
DML FACULTY GUIDE

**Engage**

A. Anticipate client care priorities before the simulation experience based on the prebrief including preparation materials. After simulation, begin with welcome to debriefing and introduce students to the worksheets and guidelines for discussion. Begin with the initial concepts of emotion and self-reflection.

**Evaluate**

B. Break down the clinical scenario as individuals and also a clinical group: Evaluate What happened? and What comes to your mind as you think about the experience you just had? (Links Thinking-in-Action with the patient story and frames the cues within the clinical context).

C. Critique the clinical scenario as individual participants using the student tool and as a clinical group through discussion. Guided Reflection is based on open-ended questions addressed to each student: —What went well? What would you do differently and why? Make visible consensus as well as disagreement (Thinking-on-Action).

**Explore**

D. Discuss/Debrief and review the experience from each participant’s perspective and the faculty involved (Guided Reflective Thinking). Use the concept mapping strategy to visually represent nursing assessments and decision-making points.
**Explain and Elaborate**

E. Experience (of the simulation) is integrated into the nursing process using the DML concept mapping tools based on Schuster’s format (Schuster, 2008). Assessment and actions are linked to patient response and outcomes. Audiovisual review of the simulation may be included but is not required. Prior student knowledge is made explicit and tacit knowledge is recognized through dialogue and discussion. Knowledge, skills, and attitudes are reviewed contextually as the worksheets are completed. Students are guided into praxis through discussion and reflection to provide a frame for meaningful learning and assimilation (Thinking-on-Action).

**Extend**

F. Frame the clinical situation differently. Anticipate (Thinking-Beyond-Action) how the cues, assessment data, and client clinical responses would be similar or different if the frame, client’s assessment, or clinical diagnosis were changed. Use assimilation and accommodation to move the actionable behaviors, clinical thinking, and decision-making from the meaningful frame already learned to the anticipated situation ahead. (Clinical Reasoning).

DML © copyright 2010. May not reproduced without written permission of the author.
APPENDIX G:

LEARNING TRANSFER TOOL

Please select the number that best reflects your answer to the following statement:

“As a result of my simulation experiences, I have a greater ability to…”

<table>
<thead>
<tr>
<th></th>
<th>Do Not Agree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify the building blocks for delivering nursing care, e.g. equipment needed or contributing pathophysiology (FU)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2. Deliver nursing care (PAP)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. Evaluate the nursing care that I deliver (PE)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. Recognize the existing needs of a patient (PAP)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5. Anticipate emerging needs of patients (CA)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6. Prioritize existing needs of patients (PA)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7. Prioritize emerging needs of patients (CA)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8. Understand the roles of the health care team (CU)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9. Perform care as part of the health care team (PAP)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10. Delegate care to members of the health care team. (PA)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Task</td>
<td>F</td>
<td>C</td>
<td>P</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>11. Identify relevant patient care data to communicate with a supervisor or health care practitioner (PA)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12. Communicate relevant patient care data with a supervisor or other health care practitioner (PAP)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13. Anticipate the data needed for future communication with a supervisor or other health care practitioner (PA)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Key: Knowledge domain (F = factual, C = conceptual, and P = procedural knowledge); Cognitive domain (U = understand, AP = apply, A = analyze, E = evaluate)
NOTICE OF APPROVAL FOR HUMAN RESEARCH

DATE: June 20, 2018
TO: Calvin, Natasha, Capstone College of Nursing
    March, Alice, Nursing Continuing Studies, Major, Claire, Educational Leadership, Policy and Technology Studies
FROM: Graham, Jeanelle, MPH, Research Compliance Specialist, NM Expedited
PROTOCOL TITLE: Theory-Based Post-Simulation Debriefing: Perceived Effectiveness of Debriefing and Transfer of Learning
FUNDING SOURCE: NONE
PROTOCOL NUMBER: 18-05-1178
APPROVAL PERIOD: Approval Date: June 14, 2018 Expiration Date: June 13, 2019

The Institutional Review Board (IRB) for the protection of human subjects has reviewed the protocol entitled: Theory-Based Post-Simulation Debriefing: Perceived Effectiveness of Debriefing and Transfer of Learning. The project has been approved for the procedures and subjects described in the protocol. This protocol must be reviewed for renewal on a yearly basis for as long as the research remains active. Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.

If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice.

This approval is issued under University of Alabama's Federal Wide Assurance 00004939 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under Committee's Assurance, please do not hesitate to contact us.

Please direct any questions about the IRB's actions on this project to:


 Approval Period: June 14, 2018 through June 13, 2019
Review Type: FULLBOARD
IRB Number: 03
APPENDIX I:

IRB APPROVAL: JEFFERSON STATE COMMUNITY COLLEGE
Institutional Review Board: Jefferson State Community College

☑️ The attached proposal is approved and can be executed according to the outline on the IRB proposal

___ The IRB has declined to sign off on the attached proposal until the requested changes are resolved

___ The IRB does not approve the project

- Dean of Institutional Effectiveness

Instructional Officer

- President
APPENDIX J:

DEMOGRAPHICS QUESTIONNAIRE
Age __________

2. Sex
   □ Female
   □ Male
   □ Other
   □ Decline to answer

3. Race
   □ American Indian/Alaska Native
   □ Asian
   □ Black/African American
   □ White
   □ Decline to answer (Select all that apply)

4. Ethnicity
   □ Latino/ Latina
   □ Non-Latino/ Non-Latina
   □ Decline to answer

5. Current overall GPA __________

6. Have you had previous health care experience?
   □ Yes
   □ No

7. If you have a previous degree, what is the highest degree you have earned?
   □ None
   □ Nursing Associate Degree
   □ Non-nursing Associate Degree
   □ Nursing Bachelor’s Degree
   □ Non-nursing Bachelor’s Degree
   □ Nursing Master’s Degree
   □ Non-nursing Master’s Degree
   □ Nursing terminal degree
   □ Non-nursing terminal degree

8. How many times up until now have you had any type debriefing experience in which you acted as a participant? __________

9. Are you currently repeating this course?
   □ Yes
   □ No