

https://dspace.org/

Simulation debriefing and the development of clinical judgement of student nurses at a University in Gauteng

Dubula, Mapule Pamella

2018
https://hdl.handle.net/10539/25402

Downloaded from a DSpace repository. https://dspace.org/

SIMULATION DEBRIEFING AND THE DEVELOPMENT OF CLINICAL JUDGEMENT OF STUDENT NURSES AT A UNIVERSITY IN GAUTENG

Mapule Pamella Dubula

A Research Report to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfillment of the requirement for the degree of Master of Science in Nursing

Johannesburg, 2018

DECLARATION

I, Mapule Pamella Dubula, declare that this research report (Human Research Ethics Clearance number **M170430**) is my own work. It is being submitted for the degree of Master of Science in Nursing at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

.....

Signed at Johannesburg

On the 4th day of June 2018

ABSTRACT

Background: There are limited learning opportunities available for students in the clinical settings due to the reduction in the length of patient hospital stays, the shortage of clinical educators and increasing number of students competing for clinical learning opportunities. Simulation-based learning is an innovative way of replicating the real-life clinical scenarios in the nursing school setting. Clinical simulation includes prebriefing, simulation action, and debriefing phases. Debriefing is a critical component of simulation-based learning because most knowledge is gained during that phase.

Objective: This study sought to assess the effect of debriefing on the development of clinical judgement in second and fourth-year nursing students in a university in Gauteng.

Methods: A one group pre-test/ post-test quasi-experimental design was utilized in this study. Ethical clearance was obtained from the university's Human Research Ethics Committee. 60 out of the 64, second and fourth year students consented to participate in the study. Only 56 out of the 60 consenting students completed the self-administered pre and post-test Lasater Clinical Judgement Rubrics.

Results: The data were analysed quantitatively using descriptive and inferential statistics. The mean difference between the post- and pre-tests is 3.267857 at 95% confident interval. There was a significant improvement in the level of clinical judgement after debriefing (p-value=0.000006421). The results have also shown that debriefing improved clinical judgement among the 4th more than the 2nd years (2nd-year p-value 0.00305, 4th-year p-value 0.0004326)

Conclusion: Debriefing is a critical element of simulation for the development of clinical judgement as it gives the students the opportunity to reflect on their thoughts and actions during the simulation action, and plan for improvement.

PRESENTATIONS ARISING FROM THIS STUDY

Dubula M P, Thurling CH & Armstrong SJ (2018), Simulation Debriefing and the Development of Clinical Judgement of Student Nurses at a University in South Africa, *INACSL Conference: Advancing the science of healthcare simulation June 13-16, 2018, Toronto, Canada [accepted for presentation].*

DEDICATION

I dedicate this work to:

My heavenly father,

Jesus Christ my saviour and my helper the Holy Spirit.

I would not have done this without divine intervention.

ACKNOWLEDGEMENTS

I would like to take this opportunity acknowledge everyone who supported and prayed for me throughout this difficult journey.

My supervisors Dr Hilary Thurling and Dr Sue Armstrong, you believed in me and encouraged me to carry on when I was about to give up. Thank you.

My husband, Henry Phakamile Dubula. My love you always want what is best for me and you believe in me. Your support was indeed valuable. Thank you for praying for me and for looking after the kids while I spent hours at the Medical School post grad Hub.

My daughter, Neo and my son, Daniel thank you for being so understanding and supportive.

Thanks to my friend Emma, my mom in-law, Priscilla and my sister, Nomsa for making sure my family had a cooked meal when I was unable to do so.

Sithembile Gwebu, my friend, no words can express how much I appreciate the impact you have in my academically and spiritually life.

My supportive class mates, especially Nakedi, Tolu and Romy, Thank you.

Thanks to the participants who made this study possible.

I am grateful to the Department of Nursing Education at the University of the Witwatersrand for a financial contribution through the Shirley Williamson Bursary.

Thanks to the Gauteng Department of health for granting me study leave and my HOD at Chris Hani Baragwanath Nursing College, Ms.N.J Mqokozo for being supportive.

A very special thank you goes to Chrismal Jonah Kpodo. You were my “unofficial” supervisor. Thank you for holding my hand as I walked through this journey.

TABLE OF CONTENTS

CHAPTER 1 : OVERVIEW OF THE STUDY 1

1.1 INTRODUCTION AND BACKGROUND 1

1.2 DEFINITION OF TERMS 3

1.2.1 CLINICAL JUDGEMENT 3

1.2.2 DEBRIEFING 3

1.2.3 SIMULATION 4

1.2.4 HIGH FIDELITY SIMULATION (HFS) 4

1.3 PROBLEM STATEMENT 4

1.4 RESEARCH QUESTION 5

1.5 PURPOSE OF THE STUDY 5

1.6 OBJECTIVES OF THE STUDY 5

1.7 SIGNIFICANCE OF THE STUDY 5

1.8 OVERVIEW OF THE RESEARCH DESIGN AND RESEARCH METHODS 6

1.9 CONCLUSION 6

CHAPTER 2 LITERATURE REVIEW 7

2.1 INTRODUCTION 7

2.2 SIMULATION IN HEALTHCARE EDUCATION 7

2.3 SIMULATION DEBRIEFING 9

2.4 REFLECTIVE THINKING 12

2.5 CLINICAL JUDGEMENT 15

2.6 CONCLUSION 17

CHAPTER 3 : RESEARCH METHODOLOGY 18

3.1 INTRODUCTION 18

3.2 RESEARCH DESIGN 18

3.2.1 QUANTITATIVE METHOD 18

3.2.2 QUASI-EXPERIMENTAL 18

3.2.3 ONE GROUP PRE-TEST/POST- TEST DESIGN 19

3.3 RESEARCH SETTING 19

3.4 POPULATION AND SAMPLE 19

3.4.1 POPULATION 19

3.4.2 SAMPLING 20

3.5 DATA COLLECTION 21

3.5.1 Data Collection Method 21
3.6 DATA ANALYSIS 26
3.6.1 Data preparation for analysis 26
3.6.2 Data Analysis Process 27
3.7 VALIDITY AND RELIABILITY 28
3.7.1 Validity 28
3.8 ETHICAL CONSIDERATIONS 29
3.8.1 Permission to conduct the study 29
3.8.2 Informed Consent 29
3.8.3 Confidentiality and Anonymity 30
3.8.4 Beneficence and non-maleficence 30
3.8.5 Fairness 30
3.9 CONCLUSION 30

CHAPTER 4 : RESULTS 31
4.1 INTRODUCTION 31
4.2 DEMOGRAPHIC DATA 31
4.2.1 Participants according to gender 31
4.2.2 Participants according to age 32
4.3 PRE- AND POST-TEST SCORES FOR ALL PARTICIPANTS 32
4.4 PRE-AND POST-TEST SCORES FOR EACH CLINICAL JUDGEMENT DIMENSIONS 34
4.4.1 Pre- and post-test scores on effective noticing 35
4.4.2 Pre- and post-test on effective interpreting 36
4.2.3 Pre- and post-test scores on effective responding 37
4.2.4 Pre- and post-test scores of effective reflecting 38
4.4.5 Average Pre-test and Post-test scores for each of the clinical judgement dimensions 39
4.5 COMPARISON OF OVERALL SCORES BETWEEN SECOND AND FOURTH YEAR PARTICIPANTS .. 40
4.5.1 Comparison between Pre-and post-test average scores for second and fourth-year participants. 41
4.5.2 Average scores for pre- and post-test comparison between second and fourth-year students for each dimension 42
4.6 COMPARISON OF PRE-TEST AND POST TEST SCORES ACCORDING TO GENDER 45
4.7 CONCLUSION 45

CHAPTER 5: DISCUSSION, CONCLUSION, AND RECOMMENDATIONS 46
5.1 INTRODUCTION 46

5.2 SUMMARY OF FINDINGS **46**
5.2.1 PRE-TEST VS POST-TEST SCORES FOR THE FOUR DIMENSIONS OF CLINICAL JUDGEMENT. 46
5.2.2 COMPARISON BETWEEN EFFECTIVE INTERPRETING AND EFFECTIVE RESPONDING SCORES. 46
5.2.3 EFFECTIVE REFLECTING 48
5.2.4 COMPARISON OF SECOND AND FOURTH YEAR STUDENTS' CLINICAL JUDGEMENT 48
5.2.5 COMPARISON OF MALE AND FEMALE PARTICIPANTS' PRE-TEST AND POST TEST SCORES 49
5.3 RECOMMENDATIONS **50**
5.3.1 NURSING EDUCATION 50
5.3.2 RECOMMENDATIONS FOR CLINICAL 50
5.3.3 NURSING RESEARCH. 51
5.4 LIMITATIONS **51**
5.5 CONCLUSION **52**
REFERENCES **53**
ANNEXURE A: LASATER CLINICAL JUDGEMENT RUBRIC (PRE- TEST) **61**
ANNEXURE B: LASATER CLINICAL JUDGEMENT RUBRIC (POST- TEST) **68**
ANNEXURE C: PERMISSION TO USE LASATER CLINICAL JUDGEMENT RUBRIC **75**
ANNEXURE D: INFORMATION SHEET **76**
ANNEXURE E: INFORMED CONSENT FORM **78**
ANNEXURE F: FACULTY POSTGRADUATE RESEARCH COMMITTEE APPROVAL **79**
ANNEXURE G: ETHICS CLEARANCE CERTIFICATE **80**
ANNEXURE H: PERMISSION FROM FACULTY OF HEALTH SCIENCES **81**

LIST OF TABLES

TABLE 4.1: OVERALL PRE- AND POST-TEST SCORES 32
TABLE 4.2: PAIRED SAMPLES T-TEST FOR OVERALL PRE- AND POST-TEST SCORES 34
TABLE 4.3: EFFECTIVE NOTICING PRE-AND POST-TEST SCORES 35
TABLE 4.4: PAIRED SAMPLES T-TEST (PRE- AND POST-TEST SCORES FOR EFFECTIVE NOTICING) 35
TABLE 4.5: DESCRIPTIVE STATISTICS SHOWING PRE- AND POST-TEST SCORES FOR EFFECTIVE INTERPRETING 36
TABLE 4.6: PAIRED SAMPLES T-TEST (PRE- AND POST-TEST SCORES FOR EFFECTIVE INTERPRETING) 36
TABLE 4.7: DESCRIPTIVE STATISTICS SHOWING PRE- AND POST-TEST SCORES FOR EFFECTIVE RESPONDING 37
TABLE 4.8: PAIRED SAMPLES T-TEST (PRE- AND POST-TEST SCORES FOR EFFECTIVE RESPONDING) 37
TABLE 4.9: DESCRIPTIVE STATISTICS SHOWING PRE- AND POST-TEST SCORES FOR EFFECTIVE REFLECTING 38
TABLE 4.10: PAIRED SAMPLES T-TEST (PRE- AND POST-TEST SCORES FOR EFFECTIVE REFLECTING) 38
TABLE 4.11: DESCRIPTIVE STATISTICS SHOWING PRE- AND POST-TEST SCORES FOR SECOND AND FOURTH-YEAR PARTICIPANTS 40
TABLE 4.12: PAIRED SAMPLES T-TEST (PRE- AND POST-TEST SCORES FOR SECOND AND FOURTH-YEAR PARTICIPANTS) 41
TABLE 4.13: DESCRIPTIVE STATISTICS SHOWING PRE- AND POST-TEST SCORES FOR SECOND AND FOURTH-YEAR PARTICIPANTS FOR EACH CLINICAL JUDGEMENT 42
TABLE 4.14: COMPARISON OF GENDER DIFFERENCES FOR EACH DIMENSION FOR CLINICAL JUDGEMENT 45

LIST OF FIGURES

FIGURE 2.1:GIBBS (1988) REFLECTIVE CYCLE (HUSEBØ, O'REGAN & NESTEL, 2015) 14
FIGURE 3.1: STEPS OF DATA COLLECTION 19
FIGURE 4.1: DISTRIBUTION BY GENDER 32
FIGURE 4.2: BOXPLOT FOR OVERALL PRE- AND POST-TEST SCORES 33
FIGURE 4.3: AVERAGE PRE- AND POST-TEST SCORES FOR EACH CLINICAL JUDGEMENT DIMENSION 39
FIGURE 4.4: AVERAGE PRE- AND POST-TEST SCORES FOR EACH CLINICAL JUDGEMENT DIMENSION 40

CHAPTER 1 : OVERVIEW OF THE STUDY

1.1 INTRODUCTION AND BACKGROUND

Nurses rely on their clinical judgement every day when caring for patients with any condition but more so for those patients who have complex problems and require well calculated and thought-through interventions. Clinical judgement guides and facilitates decision-making that allows a nurse to diagnose, plan and implement appropriate courses of treatment. The development of clinical judgement is considered a crucial element in the training of nursing students. It is a process that necessitates careful consideration and planning to equip students to be able to observe, analyse and understand their findings and take appropriate action in patient care (Phaneuf, 2008; Seidi, Alhani & Salsali, 2015).

Historically, clinical judgement was developed in the clinical setting through exposure to complex conditions during clinical placement. It is becoming challenging for students to gain clinical exposure due to various reasons such as reduction in the length of patient hospital stays, resulting in limited educational opportunities, the shortage of clinical facilitators, and a high volume of students competing for patients. The limited clinical exposure delays the development of clinical judgement. (Fawaz & Hamdan-Mansour, 2016).

Currently, teaching and learning methods such as simulation are being used to close this educational gap. High Fidelity Simulation (HFS) and debriefing are often used to provide the necessary learning opportunities needed and may develop skills such as clinical judgement. HFS uses complex clinical scenarios that require student nurses to respond to identified patient problems the same way they would with a real patient (Munshi, Lababidi & Alyousef, 2015). Neill and Wotton (2011) state that the educational concept that underlies HFS is that of experiential and constructivist learning. Students rely on their previous experiences and knowledge to manage complex patient scenario using the HFS manikin. Literature suggests that this alone is insufficient and that a substantial amount of the knowledge is gained during the post-simulation debriefing or reflection phase (Lasater,

2007; Mayville, 2011; Shinnick et al., 2011; Decker et al., 2013; Levett-Jones & Lapkin, 2014; Shea, 2015).

Reflection “on action” is part of experiential learning which is facilitated by debriefing (Wickers, 2010). Reflecting “on action” elevates a student nurse from just ‘doing’ to a higher level of critical thinking thus assisting in developing their clinical judgement. A reflective student is more able to effectively progress from novice to expert in clinical practice (Benner, Stannard & Hooper, 1996; Tanner, 2006).

The concept of reflective practice was introduced so that nurses can develop their proficiency through gaining in-depth knowledge and understanding when providing patient care, which is a basic attribute needed in making a sound clinical judgement. Van Graan (2016:281) highlights the concept of “critical creative thinking” in the development of essential skills required for nursing and the development of clinical judgement. It is evident that though nursing skills can be taught, Nursing Education Institutions (NEIs) do not always succeed in producing graduates who have sound clinical judgement, as it has been noted to being often underdeveloped even in new graduates and nurses with up to three years’ experience. Reasons for the underdevelopment of clinical judgement are not known (AL Sabei & Lasater, 2016).

“An evidence-based clinical judgement model incorporates four features that nurses use to make rational clinical judgements about patient care. These aspects are: (1) noticing, when the nurse develops an initial expectation of the situation; (2) interpreting, a perceptual understanding of the situation; (3) responding, which focuses on developing a care plan with appropriate interventions; and (4) reflecting, focuses on evaluating the effectiveness of the process ” (Tanner, 2006). The model by Tanner (2006) identifies the reflective process where clinical learning takes place through reflection-in-action and reflection on- action, and the process of debriefing encourages students to self-reflect on their actions during simulation.

Debriefing is an important part of simulation but lecturers are not always including it in simulation-based learning. Debriefing after simulation helps to ensure that there is a movement towards critical reasoning and clinical judgement.

Debriefing originates from the army, where the leader gathered information from the soldiers at the end of each operation (Motola et al., 2013). The military and psychological types of debriefing have contributed to the development of debriefing in simulation-based learning. (Fanning & Gaba, 2007).

Simulation debriefing, which is also referred to as guided reflection, is a prearranged discussion following the simulation activity. The educator or facilitator, who directs the debriefing process affords students an opportunity to reflect, and discuss how they think the simulation went. The students also reflect on how they were able to handle any unexpected situations that occurred during the simulation. Debriefing can be a verbal discussion, audiotape, videotape or written using worksheets. Audio and videotaped debriefing helps students hear or visualize their own actions during the simulation (Cantrell, 2008; Decker et al., 2013).

This research assesses the effect of the post-simulation debriefing process for the development of clinical judgement in student nurses.

1.2 DEFINITION OF TERMS

1.2.1 Clinical Judgement

Clinical judgement is “The art of making a series of decisions in situations that allow the individual to recognize remarkable aspects or changes in a clinical situation, interpret their meaning, respond appropriately, and reflect on the effectiveness of the intervention” (The INACSL Standards Committee, 2017)

1.2.2 Debriefing

For this study, debriefing will be referred to as simulation debriefing. Several literature sources have defined post simulation debriefing as a directed reflection process whereby

a facilitator directs students to reflect on their simulation performances (Mayville, 2011; Dreifuerst, 2015).

1.2.3 Simulation

Simulation is an advanced instructive method that attempts to duplicate vital aspects of clinical care (Buckley & Gordon, 2011). It is a technique that amplifies actual experiences with directed practices that duplicate significant features of the actual world in a fully interactive manner (Fanning & Gaba, 2007).

1.2.4 High Fidelity Simulation (HFS)

HFS refers to the degree to which the simulation replicates reality whereby computerized manikins and standardised patients may be used. (Cant & Cooper, 2010).

1.3 PROBLEM STATEMENT

Clinical judgement assists in identifying and interpreting a patient's diagnosis in a clinical setting, making the right decision and intervening appropriately. It also involves looking back at the actions taken to learn from them (Tanner, 2006). A challenge exists in developing nursing students' clinical judgement in the healthcare environment due to shortage of staff *for accompaniment of students*, and decreasing patients' length of stay. There is evidence to indicate that newly qualified nurses are not yet able to fully integrate critical thinking and clinical judgement into their practice due to limited exposure to complex conditions in the clinical setting (Anderson & Leflore, 2008).

Literature suggests that debriefing after simulation can improve student nurses 'clinical judgement through the reflection in and on action (Dreifuerst, 2015) but there remains a paucity of information about how student nurses perceive the post-simulation debriefing process as a critical part in the development of their clinical judgement.

The researcher's own anecdotal evidence suggests that the practice of simulation has not fully been integrated into the South African nursing curricula and therefore the benefits of debriefing post simulation are not well known. Post-simulation debriefing is not given priority by educators due to pressure on students' timetables, clinical placement and other commitments within the curriculum. If evidence can be generated to show that post-

simulation debriefing does improve clinical judgement, it will provide motivation to concentrate on this aspect during simulated teaching and learning.

1.4 RESEARCH QUESTION

Does post simulation debriefing assist in the development of student nurses' clinical judgement?

1.5 PURPOSE OF THE STUDY

This study is aimed at assessing whether post simulation debriefing assists in the development of clinical judgement in student nurses enrolled for a Bachelor of Nursing degree at a university in Gauteng. The intention is to create a wider understanding of the benefits of debriefing as part of simulation practices.

1.6 OBJECTIVES OF THE STUDY

- To compare the students' clinical judgement pre- and post-simulation debriefing using the Lasater Clinical Judgement Rubric (LCJR).
- To compare the pre-test and post-test baseline clinical judgement scores between second and fourth-year students
- To compare the level of clinical judgement pre- and post-simulation debriefing between second and fourth-year students

1.7 SIGNIFICANCE OF THE STUDY

The results of this study will increase insight into the importance of post simulation debriefing in simulation-based education (SBE) and its significance in the development of clinical judgement. The knowledge will help develop nurse educators' awareness of the benefits and hence the educators will plan for the incorporation of debriefing when developing simulation based education practices.

1.8 OVERVIEW OF THE RESEARCH DESIGN AND RESEARCH METHODS

The research method used in this study is a quantitative, quasi-experimental pre-test/ post-test design. The setting for this study is the simulation laboratory in the School of Therapeutic Sciences at the University of the Witwatersrand. This setting has been purposively selected as it is in the process of introducing high fidelity simulation as a teaching and learning modality. The population of the study are student nurses registered in the second and fourth year of study at a University in Gauteng enrolled in the Bachelor of Nursing course in 2017.

1.9 CONCLUSION

The background of this study, the problem statement, research question, purpose, objectives and the overview of the study and method were explained. The following chapter provides an overview to simulation, debriefing and clinical judgement as reviewed from existing literature. In chapter three the research methodology was explained .In chapter four the data was analysed and in chapter five, the researcher's voice was expressed in the discussion. Conclusion, limitations and recommendations were also discussed.

CHAPTER 2 LITERATURE REVIEW

2.1 INTRODUCTION

This chapter identifies what is known about simulation debriefing and the development of clinical judgement in student nurses in healthcare education. The literature review orientates the reader to the topic of the study. The following aspects of simulation and critical judgement are reviewed in this chapter: simulation in healthcare, simulation debriefing; reflective thinking, clinical Judgement and the effects of simulation debriefing on learning and clinical judgement.

2.2 SIMULATION IN HEALTHCARE EDUCATION

Simulation has been exponentially inculcated into healthcare education in recent years (Motola et al., 2013; Shin, Park & Kim, 2015). Simulation is an experiential based learning method that is found within the constructivist learning philosophy (Neill & Wotton, 2011). Students work together in small groups relying on their previous experiences and developing new knowledge as a group through their participation in a complex high-fidelity simulation scenario.

High fidelity simulation is followed by a planned debriefing session, where the members of the simulation learning experience come together to discuss the scenario including the course of events and actions taken during the patient simulation. During this debriefing stage, the students are encouraged to critically think about their own performance and those of their simulation team members, in a non-judgemental and inclusive manner working together to improve their management of the patient.

Healthcare education has implemented simulation-based learning due to the significant roles it has played in the training of other professionals such as the military and the aviation over the years (Motola et al., 2013). Healthcare professionals need to be able to make fast decisions in often stressful situations, therefore simulation provides a safe environment where mistakes can be made, and the sequence of patient management can be perfected before the healthcare professional is in contact with a real patient. Debriefing practices that were also initiated in the military have been adapted to healthcare education

to encourage reflection on-action and in-action (Motola et al., 2013). Factors that stimulated the shift towards simulation-based healthcare education are multi factorial and include: the need for safe patient care, shifting of healthcare education from health facilities to higher education institutions, the need to standardise health educational opportunities, and to provide practice opportunities for students without harming patients. The research evidence on the advantages of simulation in healthcare education has also been an influencing factor (Motola et al., 2013).

A study by D'Souza et al. (2017) comparing the use of high fidelity simulation (HFS) and video debriefing in critical care nursing students, found that HFS is effective at closing the theory-practice gap. Students in another study by Swenty and Eggleston (2011), expressed their satisfaction with the learning experience and said that they gained confidence in managing critical care patients, with an associated improved performance level and significant increase on knowledge testing after being exposed to HFS. D'Souza et al. (2017) identified in their study that HFS facilitated active interaction between students and faculty and improved critical thinking, clinical judgement, skills acquisition and clinical reasoning.

Simulation-based education is important for undergraduate and postgraduate healthcare education, having benefits for both students and Nurse Educators (Motola et al., 2013). Students feel that they can practice and be provided with immediate feedback in a non-threatening environment. Nurse Educators appreciate the ability to be able to control the scenarios and the learning environment (Hyland et al., 2012; Motola et al., 2013; Ullom et al., 2014), as well as being able to offer all students the same learning experience which does not depend on the availability of patients in the clinical settings.

The current healthcare system has an increased emphasis on primary health care and preventive medicine, which means that in- hospital patients often have higher acuity levels. This is often challenging to healthcare professionals during their undergraduate training (D'Souza et al., 2017). Worldwide, the challenges are exacerbated by the shortage of clinical sites for students to gain adequate exposure to the clinical diagnosis

and patient management, to develop their critical thinking and clinical judgement skills (Hyland et al., 2012).

The challenges are compounded by the increase in student numbers which results in limited time being allocated to clinical placements. This has a negative impact on the students' opportunity for clinical experience with real patients (Shin, Gi Park & Shim, 2015). Simulation-based teaching and learning has been incorporated into healthcare education to address these problems (Hyland et al., 2012). The move in healthcare education towards simulation-based teaching and learning has a positive impact on the quality of clinical education in that it provides an opportunity for the facilitation of the development of specific technical, clinical and decision making skills (Mayville, 2011; Yeun et al., 2014).

A study by (Letcher, Roth & Varenhorst, 2017), exploring 130 neonatal nurses' management of the critically ill infants in a neonatal intensive care unit, found that there was an improvement in their decision-making post-simulation. It also concluded that through the debriefing process of self-reflection on actions taken during the scenario, improvement in the nurses' clinical knowledge was evident.

Kelly et al. (2014) made the observation that nursing students, no matter what level of training they are in, could benefit from simulation experiences as it offers them the opportunity to enhance their psychomotor, cognitive and affective skills. Nurses are also able through simulation to practice managing deteriorating patients and respond effectively, reflecting on their course of action, knowledge gaps and possible patient outcomes post-simulation in the debriefing session. Mayville (2011) states that the relationship between debriefing and learning is in the reflective process and debriefing at its best is an essential component of the learning process.

2.3 SIMULATION DEBRIEFING

Debriefing is also referred to as feedback or guided reflection and is known to be the most important part of simulation-based teaching and learning, as it is at this stage where most

of the knowledge gain is said to take place (Neill & Wotton, 2011; Shinnick et al., 2011; Motola et al., 2013; Weaver, 2015).

Debriefing in simulation is commonly carried out at the end of the simulation exercise, as a small group activity. Learning occurs during debriefing as students are required to reflect on the simulation experience, self-reflect on their actions as well as analyse and synthesise the individuals and groups responses to changes in the patient's condition, discussing their actions and possible actions (Shinnick et al., 2011). Fanning and Gaba (2007) state that debriefing brings meaning to an experience for the students as they make sense of the simulation practice. There is evidence to its effectiveness even when administered during the exercise, as it helps guide the students and facilitate the achievement of learning objectives (Motola et al., 2013).

Debriefing is a critical element of clinical simulation, however, studies that demonstrate the outcomes of debriefing on students' clinical judgement are limited (Mariani & Doolen, 2016). Empirical studies have demonstrated that in the absence of debriefing, minimal or no learning occurs in simulation-based education (Shinnick et al., 2011; National League for Nursing, 2015). Additionally, poorly conducted debriefing results in persistent poor clinical judgement and the quality of debriefing was positively correlated with improved learning outcomes (Durham, Cato & Lasater, 2014). Levett-Jones and Lapkin (2014) in a systematic review of the effectiveness of simulation debriefing in health professional education found that there was a significant improvement in student nurses' performance post-simulation debriefing, irrespective of the debriefing method used. It was recommended in the study that debriefing should be considered as an important part of simulation-based learning.

During the debriefing session, the emphasis is directed by the facilitator on the learning objectives of the simulation and directed to the attainment of optimal learning (Chronister & Brown, 2012). The debriefing facilitator therefore emphasises the learning objectives and allows the students to evaluate their performance in an objective, non-judgemental atmosphere for learning, through the process of guided discussions by the facilitator, and the encouragement of self-reflection. Shinnick et al. (2011) conducted a study titled

‘debriefing: The most important component in simulation?’ that is aimed at determining in which aspect of the simulation experience, has the greater knowledge gains. They explored two different types of simulation; the hands-on alone (with no debriefing) and hands-on plus debriefing. A two-group, repeated measures, experimental design was used. The findings of the study indicated that based on the scenarios, there was evidence of more knowledge gain for the participants that were exposed to the hands-on simulation with debriefing as compared to those who had simulation without debriefing.

There are several different methods of debriefing available, such as verbal feedback or video-assisted verbal debriefing (Chronister & Brown, 2012). Different techniques for debriefing include Debriefing for Meaningful Learning (DML), Debriefing Assessment for Simulation in Healthcare (DASH), Promoting Excellence and Reflective Learning in Simulation (PEARLS), Debriefing with good judgement, Structured and Supported (GAS) debriefing, Plus Delta, etc. (Reed, 2012; Dreifuerst, 2015; Cheng et al., 2016). Whatever debriefing method the facilitator is using requires the debriefing to be planned and structured, for it to be effective. There are several important elements to be taken into consideration when planning a debriefing session: timing, environment, the facilitator and the content (Neill & Wotton, 2011; Reed, 2012; Mariani et al., 2013; Dufrene & Young, 2014; Levett-Jones & Lapkin, 2014).

There are different schools of thought about the amount of time needed for a debriefing session to be effective. Cantrell, (2008) recommends ten minutes, Decker et al. (2013) suggested twenty to thirty minutes and Waxman and Telles (2009) concluded that a debriefing session should be double the amount of time spent on the simulation scenario. Although there is no specific time stipulated for debriefing, the facilitator should ensure that learners are allocated enough time for reflection and to be able to engage in a dialogue with their simulation team in order for learning to take place (Reed, 2015). The lack of time to run effective debriefing sessions has been cited by educators as one of the challenges in debriefing after simulation (Kim & Kim, 2017).

2.4 REFLECTIVE THINKING

Reflection should be a day to day activity of every student. Often a healthcare student in higher education is required to reflect on a patient case or personal experiences during or after school hours (Koshy et al., 2017). Reflection is a phenomenon in which an individual comprehensively considers past events, encounters, and experiences outside him or herself in order to learn from them (Husebø, O'Regan & Nestel, 2015). Students who engage in reflective thinking are aware of their knowledge gaps and can work towards bridging those gaps (Afshar & Rahimi, 2016). Reflective thinking also helps students to think professionally about their actions and behaviours (Afshar & Rahimi, 2016).

Reflective thinking is, therefore, a careful continuous consideration of an event, belief, encounter or an assumption with regards to the evidence supporting it and the conclusion thereof (Kember et al., 2000; Husebø, O'Regan & Nestel, 2015). Moon (2013) cited in Husebø, O'Regan & Nestel (2015) stated that there is no definite definition of reflective practice, neither is there any behaviour that fully defines reflective practice, but is essential for health science education and practice, and is characterised by the following:

- Use of cognitive processes
- Having a well-developed critical component
- Review and synthesis of new ideas to improve practice
- Self-development
- Involvement of emotions

Reflective thinking is defined in two dimensions, reflection "*in*- action and "*on*- action". Reflection in-action is engaging in reflective thinking while performing an action whereas reflection on an action involves considering the action carefully after it is completed (Afshar & Rahimi, 2016). Reflective thinking is closely related to critical thinking, and considered a component of critical thinking (Afshar & Rahimi, 2016). The difference in the two processes is that reflective thinking involves considering what has happened to make a judgement whereas critical thinking involves using a variety of thinking skills including reflective thinking to reach a logical conclusion on a phenomenon.

Chelliah and Arumugam (2012); Kember et al. (2000) described reflective thinking as a process that has four progressive levels. These are habitual action, understanding, reflection and critical reflection. Habitual action refers to the performance of a procedure while understanding means thinking about the procedure based on the reflector's knowledge.

Reflection is the phase that deals with analysing available information in order to arrive at the best possible solution whereas critical reflection produces a cardinal change in the reflector's way of thinking (Afshar & Rahimi, 2016).

As seen in Figure 2.1, Gibbs (1988) described reflective thinking six-phases cycle including: description, feelings, evaluation, analysis, conclusion and action plan (Husebø, O'Regan & Nestel, 2015) this forms a theoretical framework used to guide structured debriefing in health science education (Husebø, O'Regan & Nestel, 2015).

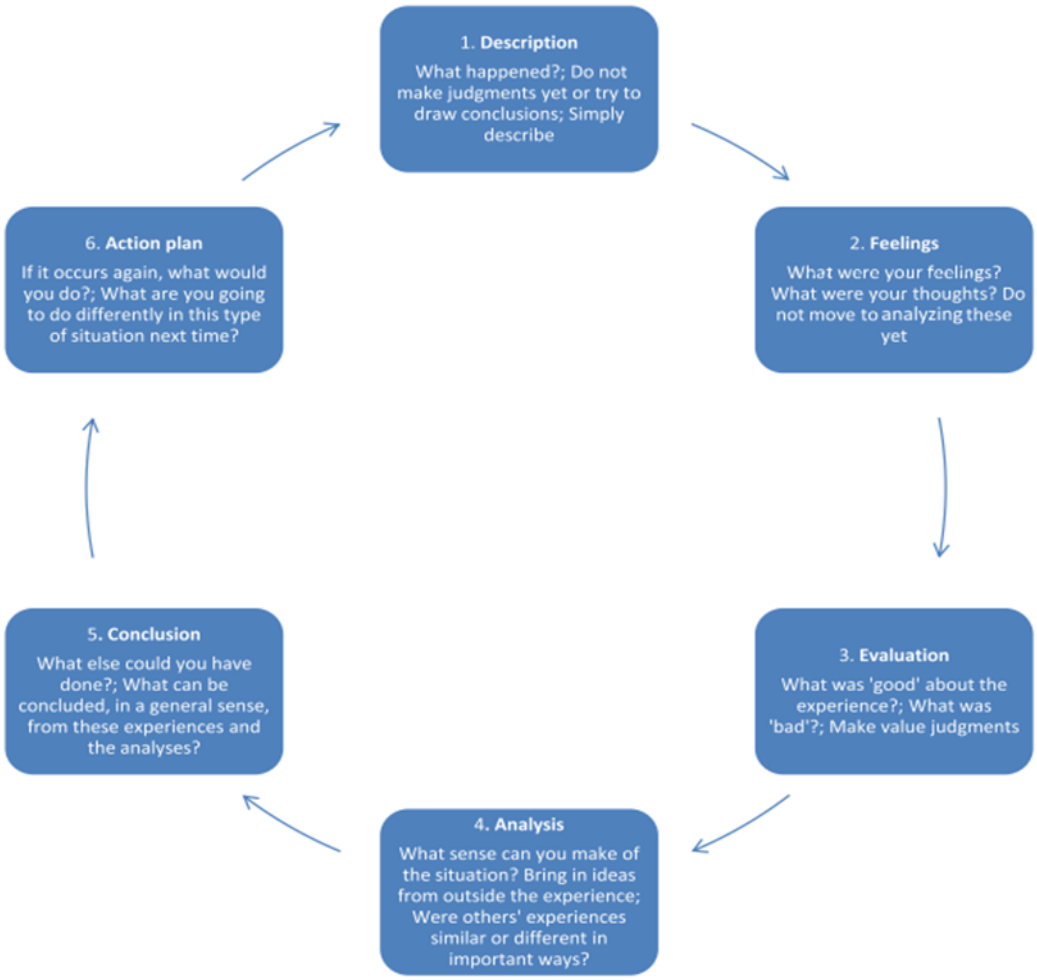


Figure 2.1:Gibbs (1988) Reflective Cycle (Husebø, O'Regan & Nestel, 2015)

In the description phase, the reflector explains the event, phenomenon, assumption, belief or scenario which he or she is reflecting on to the facilitator and other people involved in the reflective process, by giving a succinct description without giving unnecessary details. In the feelings phase the reflector's experiences, thoughts, and the associated emotions are discussed. In the evaluation phase, the reflector reflects on what was good, what was bad and what could be done differently about the event or scenario. It is in the analysis phase that the reflector comes up with what sense he or she could make out of the scenario or the event using their prior knowledge.

The conclusion phase synthesises the information from the analysis phase to conclude on what else he or she could have done differently and better using general knowledge of

the experiences. In the last phase the action plan, the reflector plans for future actions to implement when the scenario reoccurs, it is also in this phase that any training or learning that the reflector needs to undertake in order to put the future actions into work for better outcomes is addressed (Husebø, O'Regan & Nestel, 2015).

2.5 CLINICAL JUDGEMENT

Clinical judgement is described as a complex process that requires a nurse to have the pre-existing knowledge to make sense of the current situation (Phaneuf, 2008). Clinical judgement is often used interchangeably with critical thinking, decision making, problem-solving and clinical reasoning (Victor-Chmil, 2013). These terms are similar to the nursing process as they all include the process whereby nursing practitioners collect information (objective or subjective assessment), interpret the data, think through the findings, and reach a conclusion about the patient's problem or situation (diagnosis). These steps are then followed by the planning, and implementation of the planned nursing interventions and finally evaluating the outcome (van Graan, Williams & Koen, 2016a). However the nursing process is more procedural in nature than clinical reasoning, clinical judgement, critical thinking, problem-solving and decision making that rely heavily on the nurse practitioner's previous experiences, intuition and existing knowledge on the diagnosis (Victor-Chmil 2013; van Graan, Williams & Koen 2016b).

Clinical reasoning and critical thinking are essential in the development of clinical judgement (Victor-Chmil, 2013; van Graan & Williams, 2017), and it is these attributes that the nursing professional relies on to make informed decisions, determine the correct form of action and to take accountability for the actions of herself and her team. Clinical judgement can be viewed as engaging critical thinking in practice and it incorporates cognitive, psychomotor and affective skills. Clinical judgement is not generic as it is specific to an individual's capability of noticing, interpreting, responding and reflecting in a complex clinical situation (Victor-Chmil, 2013).

Tanner's model for clinical judgement provides a comprehensive conceptual framework for defining clinical judgement based on the four above mentioned aspects (Lasater, 2007; Victor-Chmil, 2013; Lavoie, Pepin & Cossette, 2015; Letcher, Roth & Varenhorst, 2017).

According to Tanner (2006), there are five important conclusions drawn from various integrative review studies on clinical judgement. These are:

- Clinical judgement is affected by what nurses bring to the situation more so than the objective information.
- Clinical judgement also depends on the students' knowledge engagement with the patient's condition and patient's distinctive patterns.
- It is also influenced by the background in which the condition occurs and the culture of the nursing care unit;
- A diverse pattern of reasoning is used by nurses in their decision-making process either in isolation or in combination;
- Reflection on action is often prompted by an individual's failure to make a sound clinical judgement. This implies that nurses learn and develop their clinical knowledge from their previous failures through reflection on action.

The above-mentioned facts confirm that the development of sound clinical judgement is an on-going process that is influenced by several factors and therefore not always possible to accurately evaluate it from a single episode (Lasater, 2007; Adamson et al., 2012)

Tanner's model of clinical judgement highlights the way nurses notice their patients' condition throughout their patient assessment, the interpretation of the findings, and how the nurse responds to changes in the patients 'condition and reflection on their own action that affected the patient's change in condition. These observations are directly linked to their background knowledge and experience, the uniqueness and complexity of the situation, and their relationship with their patients (Tanner, 2006).

Every healthcare professional should possess clinical judgement skills because they deal with a wide range of patient conditions including deteriorating patients. Sound clinical judgement is the heart of patient care provision (Phaneuf, 2008).

2.6 CONCLUSION

This chapter explored the literature surrounding simulation, debriefing and how they affect the development of clinical judgement. The research methodology will be discussed in the next chapter.

CHAPTER 3 : RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research methodology is a systemic approach taken by the researcher to answer a research question and to come up with a solution to the problem identified. The aim of research methodology is to explain the steps to be taken by the researcher and the reasons for choosing the specific method or technique (Polit & Beck, 2010).
The research design, setting, population and sampling, data collection, data analysis, validity and reliability and ethical considerations will be discussed in this chapter.

3.2 RESEARCH DESIGN

A quantitative, quasi-experimental pre-test/ post-test research design was used in this study. The research design is the researcher's inclusive strategy for answering the research question. Designing a study assists the researcher in planning and implementing the study such that intended results, which are as accurate as possible are obtained. The research method is a technique that a researcher uses to organise a study, collect and analyse pertinent data to answer the research question or test the hypotheses (Polit and Beck 2010:565).

3.2.1 Quantitative method

According to Polit and Beck (2010:565) quantitative research is "the investigation of phenomena that lend themselves to precise measurement and quantification, often involving a rigorous and controlled design". It is a research technique employed to define variables, scrutinise associations and determine cause and effect connections between these variables.

The quantitative research technique was deemed most appropriate for this study as the study's aim was to compare the relationship between simulation debriefing and the development of clinical judgement.

3.2.2 Quasi-experimental

A quasi-experimental design is the type of design whereby there is an intervention but lacks a control group and randomisation. The intervention in the study was the post-

simulation debriefing. All participants in the study were exposed to debriefing, thus there was no control group (Polit & Beck, 2010).

3.2.3 One group pre-test/post- test design

According to Polit and Beck (2010) a pre-test/post-test design is an experimental design whereby data are collected from participants before and after exposing them to an intervention. In this study, participants were exposed to a simulation experience and thereafter completing a self-evaluation tool before and after debriefing. The pre-test/post design was suitable for this study as the researcher desired to test the effects of the intervention (debriefing) on the students' clinical judgement. This is illustrated below in figure 3.1

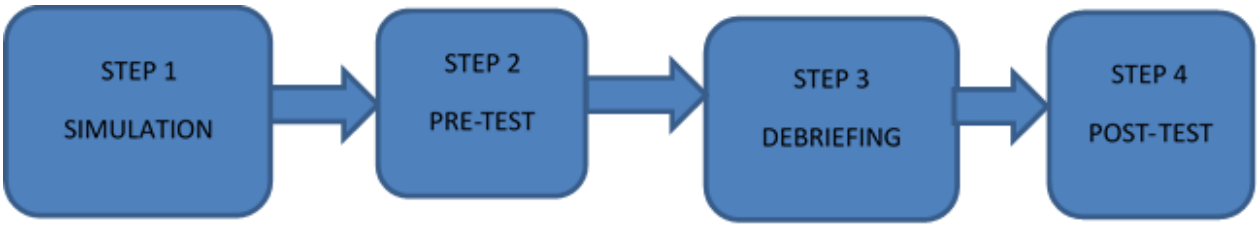


Figure 3.1: Steps of data collection

3.3 RESEARCH SETTING

The research setting refers to the location used for data collection. The setting for this study was the simulation laboratory at the School of Therapeutic Sciences at the University of the Witwatersrand. This setting was purposively selected as it was in the process of introducing HFS as a teaching and learning strategy. Although simulation was part of the curriculum, the emphasis on simulation debriefing was not yet fully established. The setting was also chosen as the researcher is a post graduate student at this institution and has a keen interest in simulation-based learning.

3.4 POPULATION AND SAMPLE

3.4.1 Population

Population in a study refers to all subjects with mutual, defining characteristics that are of interest to the researcher (Polit & Beck 2010).The study population was student nurses registered in the second, third and fourth year of study at the University of the

Witwatersrand following the Bachelor of Nursing course in 2017. First year nursing students were excluded from the population as they had little clinical exposure at the time of data collection, and therefore would have a limited concept of clinical judgement. Second year students; (N=42), Third year; (N=36) and Fourth year (N=22). Total population (N= 100). Although the original population was (N=100). The accessible population which was only second and fourth-year students was (N=64). This was due to delays in obtaining relevant university clearances which resulted in the third year students having the simulation experience before the time of data collection.

3.4.1.1 Inclusion Criteria

- Are second and fourth-year student nurses who were registered for the Bachelor of Nursing course in 2017.
- Students involved in High Fidelity Simulation (HFS) as part of their learning objective.

3.4.1.2 Exclusion Criteria

Second and fourth-year student nurses who did not consent to the study.

3.4.2 Sampling

Sampling is the process the researcher follows to select the participants from the study's identified population of interest (Brink, van der Walt & van Rensburg, 2012). The sampling technique used in this study was a convenience sampling which is a non-probability sampling.

3.4.2.1 Convenience sampling

This is a sampling method whereby participants are chosen according to their availability (Brink, van der Walt, & van Rensburg 2012:140). The participants in the study were selected because they were involved in HFS as part of their learning objectives at the time of data collection and all the students who met the inclusion criteria were included.

3.4.2.2 Sample Size

The sample included the total population. The realized sample size was (N=60) as the third years were no longer accessible at the time of data collection and four students in the second year chose not to participate in the study.

3.5 DATA COLLECTION

3.5.1 Data Collection Method

The data collection instrument/tool was a structured self-administered questionnaire (SAQ) – Lasater Clinical Judgement Rubric (LCJR) (Annexure A and B)

3.5.1.1 Lasater Clinical Judgement Rubric

The researcher adapted a validated self-administered questionnaire developed by Lasater (2007). It was suitable for the study as it was developed to assess nurses' clinical judgement and was piloted in a simulation laboratory. The tool is based on Tanner's framework for Clinical judgement which has four main dimensions: noticing, interpreting, responding and reflecting that are appropriate in the management of a complex patient that changes condition (Lasater, 2007). Permission to use the tool for the study was obtained from the original author (Annexure C)

The LCJR was modified by the researcher after consultation with the university's ethics committee, her supervisor, and an independent educator, to remove perceived bias from the study, in the following manner;

- The dimensions (Beginning, Developing, Accomplished and Exemplary) were removed from the LCJR as it was used as a self-assessment tool. The presence of these dimensions on the tool could lead to a response bias from the students.
- For data analysis, the dimensions were allocated numbers in the following manner: Beginning=1, Developing =2, Accomplished=3, and Exemplary=4. The numbers were used to represent scores, which would be added and statistically analysed.
- The LCJR was duplicated and one was named pre-test (Annexure A) and the other post-test (Annexure B).

The LCJR reflects four dimensions namely; effective noticing, effective interpreting, Effective responding and effective reflecting which are the major dimensions of clinical judgement. Each dimension is further divided into sub-themes. Each sub-theme has four descriptions which the participants used to measure their own perceptions of their clinical judgement. The four major dimensions and sub-themes are listed below:

Effective noticing involves:

- Focused observation
- Recognizing deviations from expected patterns
- Information seeking

Effective interpreting involves:

- Prioritizing data
- Making sense of data

Effective responding involves:

- Calm, confident manner
- Clear communication
- Well-planned intervention/flexibility
- Being skillful

Effective reflecting involves:

- Evaluation/self-analysis
- Commitment to improvement

3.5.1.2 Data collection process

The researcher introduced herself to the participant's course coordinator, explaining the study and asking for permission to approach their student nurses.

A date and time for the high fidelity simulation experiences was decided on. The information letter (Annexure D) was given to participants. It explained the participant's role and any potential consequences for taking part in the study or not. An opportunity to ask questions regarding the study was afforded to the students. Consent forms (Annexure E) were given to all the students to sign. Consent to participate in the study was obtained from 38 second year students and 22 fourth year students.

The students were then divided into groups of three. A timetable for the day was given to them by their course coordinator. Each group was allocated 15 minutes for the simulation and approximately 20 minutes debriefing session. An additional 10 minutes was allocated for completing the questionnaire, 5 minutes for pre-test and 5 minutes for post-test. However, timeframes varied for each group. Some students took less time in the simulation; other debriefing sessions were longer than 20 minutes. The participants took 7-10 minutes to fill in the questionnaire.

The patient scenario was given to the students in the different year groups by their course coordinator prior to the day of the simulation activity. A pre-briefing session was conducted by the lecturer, explaining the simulation learning activity. The simulation activities were designed for learning purposes and therefore not graded. The facilitators also met to discuss the debriefing method and possible questions to ask.

The process is described below:

Step 1: Simulation

A team of three students came into the simulation laboratory according to the allocation. The programme facilitator and two of her colleagues were assisting with the simulation. One of them was the manikin operator. AL Sabei & Lasater (2016) states that if the objective of the simulation is to develop the learner's clinical judgement skills, then the scenario should be planned in such a way that it offers them the opportunity to demonstrate their clinical judgement skills.

In this study, a scenario of a deteriorating patient was used whereby the participants were expected to assess the patient, notice that the patient's condition is changing, interpret the findings, respond appropriately and finally reflect on their actions during the debriefing session. The simulated scenario was of a 40 year old female patient who presented at a casualty department with the following symptoms: shortness of breath following her morning run, no allergies were known and no past medical history was established.

Step 2: Pre-Test

After the simulation experience, those who were taking part in the study went to a station set up for the completion of the pre-test questionnaire. Those not participating waited in the debriefing room. The researcher explained the instructions on how to complete the LCJR to the participants. The participants were asked to select the column on the LCJR that best described their perception of their own clinical judgement during the simulation experience.

The participants were requested by the researcher to be frank and truthful in their responses. The researcher explained to the participants that they should focus more on the effects of debriefing rather than the simulation when they respond to the questionnaire because in the post-test they were rating themselves retrospectively, based on what they think they might do differently or how they would like to improve in future.

Step 3: Debriefing

The students then moved to the debriefing room where the lecturer who observed them during the simulation facilitated a debriefing session.

The facilitators discussed the debriefing technique, which was used for this study, during the preparation phase for the simulation, in order to ensure that the process was standardised. Possible questions or statements to open and to be used during the debriefing session were prepared and used. All students who participated in this study were exposed to the same debriefing processes.

According to Cheng et al. (2016) there are several methods of debriefing which are learner centred and all have the potential to promote reflective thinking . In this study one of the evidence based debriefing techniques which is Debriefing for Meaningful Learning (DML) was used. This method was chosen because it is one of the methods known to facilitate reflective thinking, which is one of the most important elements in the development of clinical judgement (Dreifuerst, 2015).

The debriefing took place in a separate room from the simulation. Students were made comfortable. The debriefing facilitators had the prompting question and the students discussed their experiences instead of recording them on a worksheet as can be done in DML. Each debriefing session lasted between 15 and 20 minutes.

DML has the following important principles: There should be a detailed patient scenario and the debriefing facilitator should possess extensive clinical knowledge about the particular patient's condition (Dreifuerst 2015). In this study, both the above mentioned principles were met. *Engage, Explore, Explain, Elaborate, Evaluate, and Extend* are the six main phases of DML from a model established by Bybee et al. (1989) as cited in Dreifuerst (2015).

The opening question by the debriefing facilitator in the *engage phase* was "What is the first thing that comes to mind about the simulation experience?" The students began to reflect on the experience and shared their feelings about what they were doing, what they think went wrong or right. Some students mentioned that they did not remember to position the patient in a semi-fowlers position or administer Oxygen although they were aware that she has difficulty in breathing with decreasing oxygen saturations.

In the *exploration phase*, the students were prompted by the facilitator to explore their performance as part of a team. Some students admitted that they did not plan their actions appropriately by not allocating each other duties, which caused some confusion and poor management of the patient whereas other students stated the opposite. The facilitator prompted the students into the *explanation phase* by asking a question such as "I noticed you immediately positioned the patient in semi-fowlers, what was your rationale for doing so?" Students responded in a manner that provoked them to think about the reasons behind their actions and *explain*. In order to facilitate DML, the *elaborating phase* in this study was prompted by the following question; "What were your findings during auscultation?" To this some students responded by saying they had difficulty hearing the lung sounds and others were able to identify the wheezing sound. At this phase the facilitator reinforced knowledge on for example the position of the stethoscope when listening to lung sounds.

In the *evaluating phase*, the whole scenario was prompted by the following question/s; "What went well and what would you do differently and why?" This allowed the students to identify their strengths and weaknesses.

Finally the debriefing session was concluded with the *extend phase* by this question; "What is the one thing that you can say you have learnt from this simulation experience?" Some students mentioned that they learnt how important it is to assess the patient, others said they learnt that it is important to remain calm even when a patient's condition is deteriorating.

Step 4: Post-Test

After the debriefing session, the participants went to a station set up for completing the post-test LCJR. The instructions were explained by the researcher. The participants completed the LCJR.

3.6 DATA ANALYSIS

This is the stage where the researcher aims to make sense of the data collected. It includes the following phases; data preparation for analysis, description of the sample; testing the reliability of instruments; and exploratory analysis of the data guided by the objectives of the research (Brink, van der Walt & van Rensburg, 2012).

3.6.1 Data preparation for analysis

This is the pre-analysis phase whereby the researcher checks the data for completeness. Pre-test and post-test LCJR were paired for each participant for comparison (Brink, van der Walt & van Rensburg, 2012). Four of the questionnaires were incomplete and therefore not included in the study. Participants 'student numbers were removed and replaced with codes, e.g.1Yr2, 2Yr2, 3Yr2, etc.

The four dimensions which were used to measure the level of clinical judgement were assigned scores as follows; Beginning=1, Developing=2, Accomplished=3, and Exemplary=4. The scores were used to measure how the participants rated their own perception of clinical judgement.

3.6.2 Data Analysis Process

The data were captured on an excel spreadsheet, exported to R software version 3.4.2 and then analysed. The variables were recorded to simplify the importation into software by means of a codebook. Both descriptive and inferential statistics were used to analyse and interpret data. Descriptive statistics were used to describe features of the four main dimensions of the LCJR while inferential statistics were used to make a judgement based on the sample data collected.

The descriptive statistics were used to describe the distribution of the data using mean, minimum and maximum for the numerical variables while graphs and frequency tables were used to report categorical variables. The independent-samples t-test (or independent t-test) was used to compare the mean scores for each clinical judgement dimension between two unrelated groups on the same continuous, dependent variable and the paired sample T-test was used to test for paired samples.

The mean scores between male and female participants were compared using each of the clinical judgement dimensions to determine if there were differences between males and females scores. The level of clinical judgement was also compared between second and fourth-year students. In order to use the independent sample T-test, the following assumptions must be met:

- The dependent variable must be measured on a continuous scale
- The independent variable must consist of two independent groups
- The observations should be independent meaning that there should not be any relationship between the observations in each group or between the groups themselves.
- The dependent variable should be approximately normally distributed for each group of the independent variable.
- There should be homogeneity of variances (Kim, 2015)

- The dependent sample T-test also known as paired samples T-test is used to compare the means between two related groups on the same continuous dependent variable. In this study, the Lasater clinical judgement dimensions; effective noticing, effective interpreting, effective responding, effective reflecting of the participants was measured before and after a debriefing exercise which was intended to improve their clinical judgement. By comparing the measurements on the same participant before and after the treatment, each participant serves as his or her control.

3.6.2.1 The p-value/ probability value

"The probability that a statistical inference is caused by pure chance is called the p-value. The p-value is compared with the level of significance. The significance level is the maximum level of risk the test is willing to take that our inference is incorrect. For most statistical analysis and in this analysis, the significance level is set to be 0.05.

3.6.2.2 Degrees of freedom (df)

The degree of freedom (df) is the number of values that can vary freely in any calculation of a statistic. The df for this analysis is n-1. That is 56-1=55

3.6.2.3 Confidence interval

According to Polit and Beck (2010) "Population parameters are estimated either using a point estimate or an interval estimate. A point estimate is a single value sample statistic whilst confidence interval estimate is a range of numbers which is constructed around the point estimate. The confidence interval is constructed such that the probability that the population parameter is located within the interval is known." Usually, the 95% confidence interval is constructed and was used in this study.

3.7 VALIDITY AND RELIABILITY

3.7.1 Validity

This indicates the ability of an instrument to measure what it is proposed to measure (Brink, van der Walt & van Rensburg, 2012).

The researcher used a validated tool for measuring clinical judgement in a simulation setting. The study by Adamson et al. (2012) measured the reliability and validity of the LCJR using three approaches. The inter-rater reliability and validity were found to be acceptable and further psychometric testing was undertaken in 2013 (Victor-Chmil, 2013).

3.8 ETHICAL CONSIDERATIONS

The researcher is responsible for ensuring the research was conducted in an ethical manner (Brink, 2012:32). In this study, careful attention was paid to the protection of the participants' human rights.

3.8.1 Permission to conduct the study

Permission to conduct this study was sought and granted from the following:

- The Postgraduate Research Committee, on the 10th May 2017 (Annexure F).
- The University of the Witwatersrand Human Research Ethics Committee (Medical), on the 30th May 2017, Protocol Number: M170430 (Annexure G).
- The Assistant Dean of Teaching, Learning and Undergraduate Affairs on the 27th June 2017 (Annexure H).

3.8.2 Informed Consent

Burns and Grove, (2001) define informed consent (Annexure E) as the passing on of accurate information by the researcher to the potential participant and consent is when the participants decide to take part in the study. The potential participants were given the information letter (Annexure D), which clearly detailed the purpose of the study. They were allowed five minutes to read it and ask questions.

The right to withdraw from the study at any stage was explained to them to ensure they did not feel forced into participating. A written consent form was handed to all potential participants to read and sign. Sixty out of sixty-four potential participants gave consent to participate in the study.

3.8.3 Confidentiality and Anonymity

Confidentiality refers to the handling of information in a confidential manner and it can also be viewed as a continuation of privacy and anonymity refers to the protection of the participants' identity (De Vos et al., 2011). In this study the participants 'student numbers were used on the questionnaires to ensure that the pre-test and post-test questionnaires are paired correctly for each participant. During data sorting, the student numbers were removed and replaced with codes, e.g.1Yr2. The completed questionnaires were locked away after data capturing and access to the raw data is only limited to the researcher and the supervisor.

3.8.4 Beneficence and non-maleficence

There was no risk of harm to the participants in this study. The participants were protected from discomfort and harm at all times by ensuring that the study does not interfere with the students 'academic performance. Although the study may not directly benefit the participants, the outcome may in future influence the use of debriefing in simulation based teaching and learning.

3.8.5 Fairness

The simulation which the students participated in was part of their normal learning programme. The students were required to give informed consent (Annexure E) after an information sheet (Annexure D) was provided for them to read and understand. The selection of the participants in the study was fair in that all the 2nd and 4th year nursing students had an equal chance to participate in the study.

Neither the researcher nor her supervisors are directly involved with the students who participated in this study, therefore no coercion for students' participation occurred.

3.9 CONCLUSION

The research design and methods followed during data collection was explained in this chapter. In the next chapter, the research results will be presented.

CHAPTER 4 : RESULTS

4.1 INTRODUCTION

This chapter presents results from Pre-test and Post-test scores obtained from the Lasater Clinical Judgement Rubric (LCJR) self-administered questionnaire (SAQ). The participants completed questionnaires pre and post debriefing. The total anticipated sample size was 64 participants, 60 (93, 75%) participants confirmed their interest in taking part in the study by signing the consent form. Out of the 60 questionnaires handed out, four of the questionnaires were incomplete and were excluded, thus the realised sample was 56 (n=56), accounting for 93, 33%.

4.2 DEMOGRAPHIC DATA

4.2.1 Participants according to gender

The nursing profession is predominantly female; hence a high number of female participants were envisaged. The South African Nursing Council (2016) statistics showed that a total of 287 897 nurses across all categories were registered in 2016, with 260 926 being females representing approximately 90%, males accounting for 9.36% corroborating the long-held assertion. Similar trends were observed in this study's participants' demographics. Out of the realised sample of 56 participants, 48 were females, accounting for 85.7% and eight were males (14.3%) as shown in Figure 4.1.

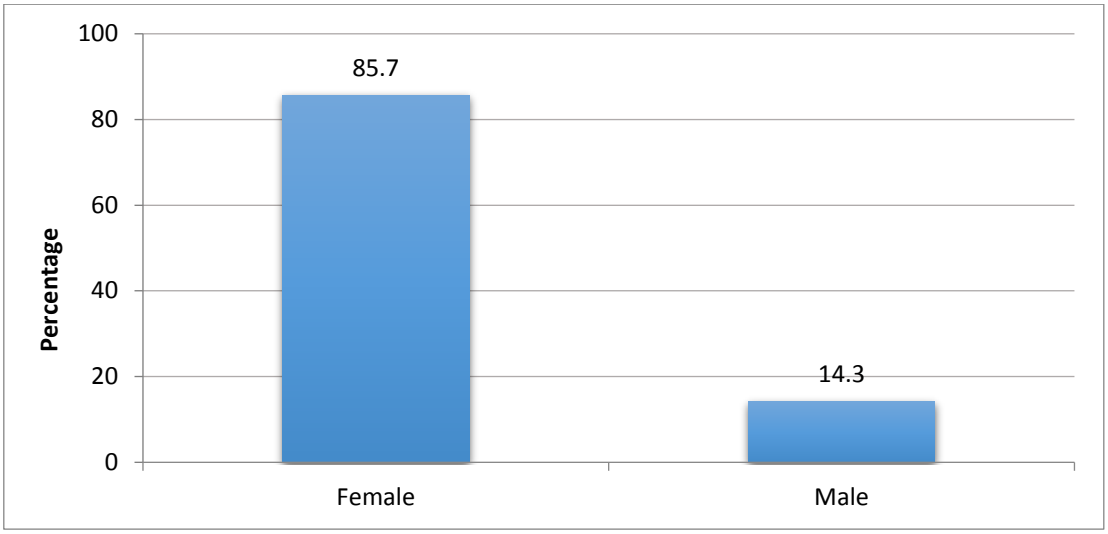


Figure 4.1: Distribution by gender

4.2.2 Participants according to age

The minimum age of the participants was 18 years; the maximum age was 26 years, with the average age of the participants in the study being 21 years. The minimum age for the females in the study is 18, the maximum age was 26 years and the average age of the female participants was 21 years. The minimum age of males in the study was 19 years, the maximum age was 24 and the average age of the male participants in the study was 22 years.

The minimum age for the second year participants in the study was 18 years; the maximum age was 26 while their average age was 21 years. The minimum age for the fourth year participants was 21 years; the maximum age was 25 years. The average age of the fourth year participants was 23 years.

4.3 PRE- AND POST-TEST SCORES FOR ALL PARTICIPANTS

Table 4.1: **Overall pre- and post-test scores**

	Minimum	Mean	Maximum
Pre test	19	34.75	44
Post test	26	38.02	44

Table 4.1 represents the overall pre- and post-test scores for all participants of the study. The minimum scores of the participants in the pre-test were 19 and 26 for the post-test. The maximum score obtained for both pre-and post-test was 44. The mean scores obtained by the participants was 34.75 for the pre-test and 38.02 for the post-test, respectively. It is evident, from the pre and post-test scores that there was a significant change in the post-test scores obtained by the participants following debriefing. The mean post-test scores are higher than the mean pre-test scores.

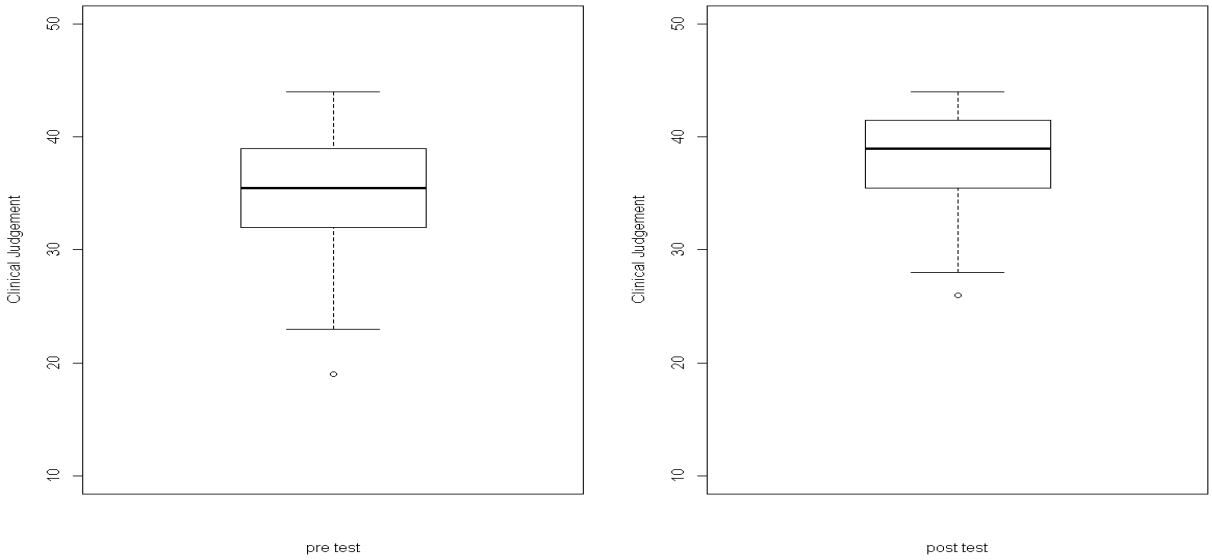


Figure 4.2: Boxplot for overall pre- and post-test scores

Figure 4.2 demonstrates a box plot of the pre-and post-test scores obtained by all participants. The upper whisker for the pre-and post-test represents a maximum score (44). The lower whisker in the pre-test box plot represents the minimum pre-test score (19). The lower whisker in the post-test box plot represents the minimum post-test score (26). The pre-test median is 35.5 and the post-test median is 39. The first quartile score for the pre-test is 32, the third quartile is 39. From the diagram, the median score is more central between the first and third quartile. The first and third quartile score for the post-test are 35.75 and 41.25, respectively. It is evident from the diagram that the median score is much closer to the third quartile for the post-test compared to the pre-test. This can be an indication of improvement in the clinical judgement rating. There were outliers (abnormally low score) for the pre-test and post-test scores as indicated in the diagram.

Table 4.2: Paired samples T-Test for overall pre- and post-test scores

	Mean difference	95% Confidence Interval of the difference		t	Degrees of freedom (df)	p-value
		lower	upper			
Post-test-pre-test	3.267857	1.955414	4.580300	4.9899	55	0.000006421

Table 4.2 represents the paired sample t-test, which displayed the difference between the average scores for the pre- and post-test with a p-value of 0.000006421, demonstrating that the differences are statistically significant. There is therefore strong evidence (t=4.9899, p-value=0.000006421) that debriefing improved the scores obtained by the participants. On average, debriefing improved the scores by 3.267857. This was also confirmed by the confidence interval of 95%, showing that confidence interval for the mean difference does not include zero. The 95% confidence interval for the mean difference in this study is (1.955414, 4.580300). This can be interpreted to mean that one is 95% confident that the mean difference between the post- and pre-tests is between 1.955414 and 4.580300. There is a 5% probability that the mean difference is below 1.955414 or above 4.580300.

4.4 PRE-AND POST-TEST SCORES FOR EACH CLINICAL JUDGEMENT DIMENSIONS

The LCJR, based on Tanner's (2006) guide, includes four dimensions: effective noticing, effective interpreting, effective responding, and effective reflecting. These dimensions were each scored in the pre- and post-test, and scores for each were compared and interpreted. The findings for each dimension are presented in the following sections:

4.4.1 Pre- and post-test scores on effective noticing

Table 4.3: Effective noticing pre-and post-test scores

	Minimum	Mean	Maximum
Pre-test	5	9.589	12
Post-test	7	10.61	12

The dimension for effective noticing involved: focused observation, recognizing deviations from expected patterns and information seeking. The participants measured their own perceptions in all three aspects and scores were allocated out of a total of 12 for pre-test and the same measurement was used for the post-test. Table 4.3 above shows the minimum, mean and maximum pre-test and post-test scores obtained by the participants. Table 4.4 below explains the significance of the scores.

The minimum score obtained by the participants for the pre-test in effective noticing is 5 while the maximum score is 12. On average the participants scored 9.589 for the pre-test and 10.61 for the post-test in effective noticing. The minimum score obtained for the post-test in effective noticing is 7 and the maximum score is 12.

Table 4.4: **Paired samples T-Test (pre- and post-test scores for effective noticing)**

	Mean difference	95% Confidence Interval of the difference		t	df	p-value
		lower	upper			
Post-test-pre-test	1.017857	0.5983202	1.4373941	4.8621	55	0.0000101

Table 4.4 shows that the p-value is significant as it is less than 0.05. This implies that there is evidence (t=4.8621, p-value=0.0001) that debriefing improved the scores for effective noticing, on average by 1.0179 (Confidence Interval 95%: 0.59 - 1.44). This implies that there is a substantial difference between pre and post-test scores for the dimension of effective noticing.

4.4.2 Pre- and post-test on effective interpreting

Table 4.5: Descriptive statistics showing pre- and post-test scores for effective interpreting

	Minimum	Mean	Maximum
Pre-test	4	6.339	8
Post-test	4	6.821	8

The dimension for effective interpreting involves arranging patient data and making sense of the data. The participants scored themselves for pre-and post-test on the two elements out of a total of eight. Table 4.5 above represents the results and Table 4.6 below explains the significance scores obtained by participants.

The minimum pre-test and post-test scores are 4 and 4, respectively; the maximum pre-test and post-test scores are 8 and 8 respectively. The average pre-test and post-test scores are 6.339 and 6.821 respectively.

Table 4.6: Paired samples T-Test (pre- and post-test scores for effective interpreting)

	Mean difference	95% Confidence Interval of the difference		t	df	p-value
		lower	upper			
Post-test-pre-test	0.4821429	0.1320730	0.8322127	2.7601	55	0.007834

Table 4.6 displays the paired sample t-test results for effective interpreting. From the results, it can be concluded that there was a statistically significant (p-value=0.0078) improvement in the post-test scores. There is therefore strong evidence that debriefing improved the scores for effective interpreting, on average by 0.482.

From the confidence interval value, the mean difference in the scores obtained by the participants before and after the debriefing exercise was between 0.5983 and 1.4374. Based on the 95% confidence interval, it can be concluded that there is a statistically significant difference between the pre-and post-test scores.

4.2.3 Pre- and post-test scores on effective responding

Table 4.7: Descriptive statistics showing pre- and post-test scores for effective responding

	Minimum	Mean	Maximum
Pre test	5	12.38	16
Post test	4	13.62	16

The dimension for effective responding has four elements namely; calm, confident manner, clear communication, well-planned intervention/flexibility and being skillful. The total score for effective responding was 16. The results are tabulated in Table 4.7.

The minimum pre-test and post-test scores are 5 and 4, respectively; the maximum pre-test and post-test scores are 16 and 16, respectively. The average pre-test and post-test scores are 12.38 and 13.62, respectively.

Table 4.8: Paired samples T-Test (pre- and post-test scores for effective responding)

	Mean difference	95% Confidence Interval of the difference		t	df	p-value
		lower	upper			
Post-test-pre-test	1.25	0.5327748	1.9672252	3.4927	55	0.0009514

Table 4.8 indications that there was a statistically significant (p-value=0.0010) improvement in the post-test scores. There is therefore strong evidence that debriefing improved the post-test scores for effective responding, on average by 1.25.

From the confidence interval value, the mean difference in the pre-and post-test scores is between 0.5328 and 1.9672. Based on this 95% confidence interval, it can be concluded that there is a statistically significant difference in the pre-and post-test scores for effective responding.

4.2.4 Pre- and post-test scores of effective reflecting

Table 4.9: Descriptive statistics showing pre- and post-test scores for effective reflecting

	Minimum	Mean	Maximum
Pre-test	4	6.446	8
Post test	5	6.964	8

The dimension for effective reflecting involves the following aspects; evaluation/self-analysis and commitment to improvement. The minimum pre-test score was 4 and the post-test score was 5. The maximum pre-test and post-test scores were 8 and 8, respectively (eight being the maximum possible score). The average pre-test and post-test scores were 6.446 and 6.964, respectively. Table 4.9 shows the scores obtained

Table 4.10: Paired samples T-Test (pre- and post-test scores for effective reflecting)

	Mean difference	95% Confidence Interval of the difference		t	df	p-value
		lower	upper			
Post-test-pre-test	0.5178571	0.2030911	0.8326232	3.2971	55	0.001716

Table 4.10 indicates that there was a statistically significant (p-value=0.001716) improvement in the post-test scores. There is, therefore, evidence that debriefing improved the post-test scores for effective reflecting, on average by 0.5179.

From the confidence interval value, the mean difference in the pre-and post-test scores is between 0.2031 and 0.83262. The 95% confidence interval implies that there is a statistically significant difference in the pre- and post-test scores for this dimension.

4.4.5 Average Pre-test and Post-test scores for each of the clinical judgement dimensions

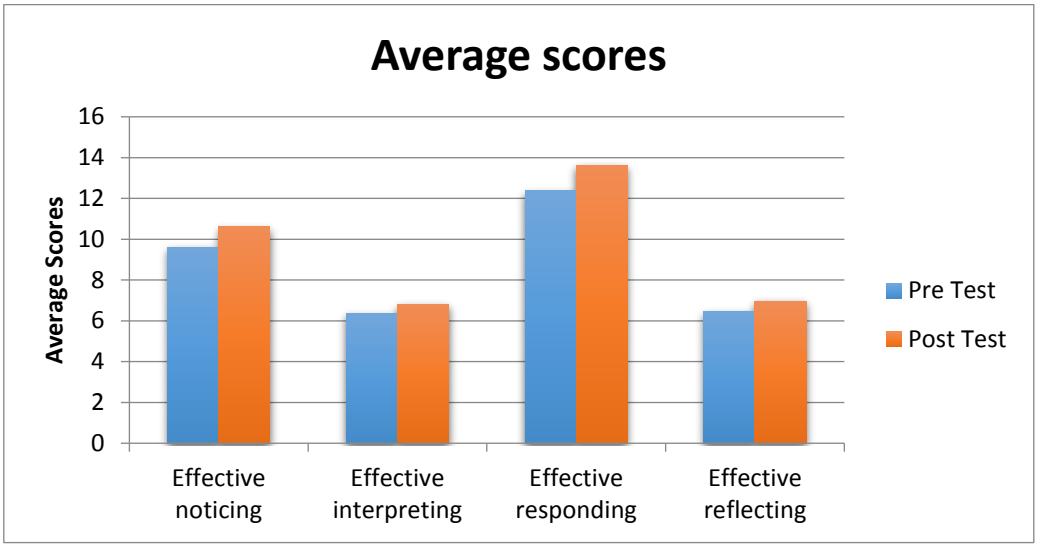


Figure 4.3: Average pre- and post-test scores for each clinical judgement dimension

Figure 4.3 displays the average scores obtained by the participants for pre-test and post-test in each of the four main dimensions of clinical judgement. It is evident from the graph that there is an increase in the average scores obtained by the participants for each of the four dimensions after debriefing. Effective responding has the highest pre-and post-test average scores whereas effective interpreting has the lowest pre-and post-test average scores.

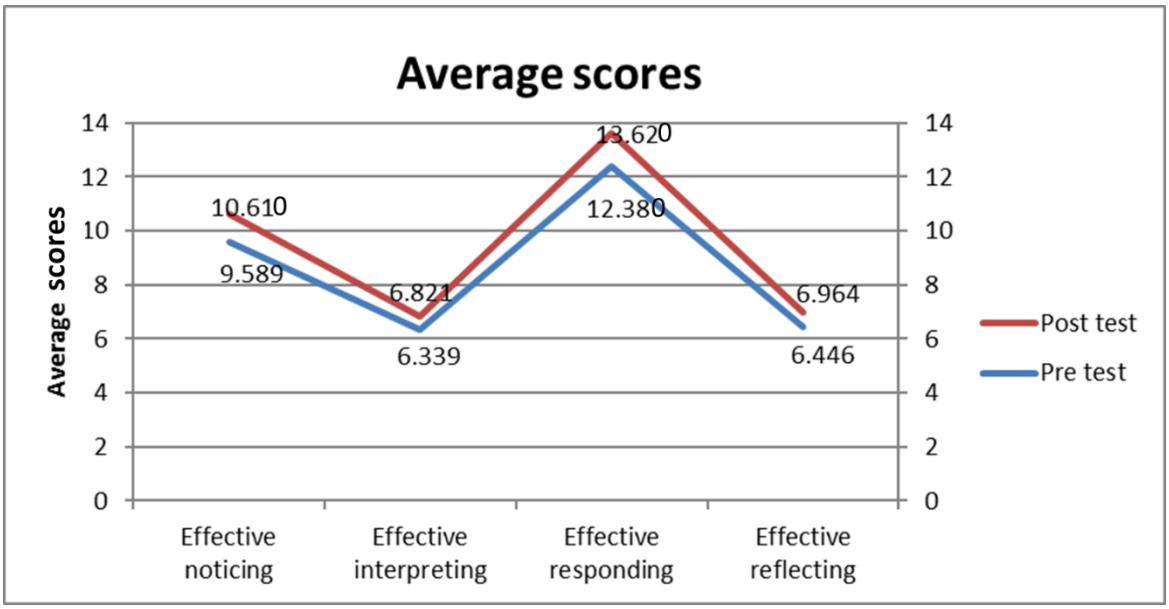


Figure 4.4: Average pre- and post-test scores for each clinical judgement dimension

Figure 4.4 showing the average scores obtained by the participants for each of the four main dimensions of clinical judgement. The average scores in the pre-test and post-test for effective noticing were 9.589 and 10.610 respectively indicating an average increase of 0.11% after debriefing session. The pre-test and post-test average scores for effective interpreting were 6.339 and 6.821 respectively indicating 0.08% increase after debriefing. The pre- and post-test average scores for effective responding were 12.380 and 13.620 respectively indicating 0.10% increase after debriefing. The pre-test and post-test average scores for effective reflecting were 6.446 and 6.964 respectively indicating 0.08% increase after debriefing.

4.5 COMPARISON OF OVERALL SCORES BETWEEN SECOND AND FOURTH YEAR PARTICIPANTS

Table 4.11: Descriptive statistics showing pre- and post-test scores for second and fourth-year participants

	Mean (second year)	Mean (fourth year)	p-value
Pre-test	35.02941	34.31818	0.6006
Post-test	37.91176	38.18182	0.8125

Table 4.11 displays the average overall pre-and post-test scores for the second year and fourth-year participants. The average pre-test score for second-year participants is 35.02941 and 34.31818 for fourth-year participants. Although the average pre-test scores for the second years appear to be higher than the scores for the fourth years, the difference is not statistically significant. (p-value =0.6006).

The average post-test scores for the second year participants were 37.9117 and 38.1818 for the fourth year participants, there is no statistically significant difference between the second and fourth year participants (p-value=0.8125).

4.5.1 Comparison between Pre-and post-test average scores for second and fourth-year participants.

Table 4.12: Paired samples T-Test (Pre- and post-test scores for second and fourth-year participants)

	Mean difference	95% Confidence Interval of the difference		t	df	p-value
		lower	upper			
Post-test-pre-test (second year)	2.882353	1.048562	4.716144	3.1979	33	0.0031
Post-test-pre-test(fourth year)	3.863636	1.936852	5.790421	4.1701	21	0.0004

Table 4.12 displays that there is a statistically significant difference (p-value=0.0031) between the pre-test and post-test scores attained by *second-year students*, with the average improvement in the second year's clinical judgement scores after debriefing being 2.882353. The minimum and maximum improvement in the clinical judgement scores for second-year participants is 1.048562 and 4.716144, respectively.

There is a statistically significant difference (p-value=0.0004) between pre-test and post-test scores *for the fourth year participants*. The average mean difference recorded between the post-test and pre-test scores is 3.8636, indicating an improvement. The minimum and maximum improvement in the clinical judgement scores for fourth year participants is 1.9369 and 5.7904, respectively. It is evident from the results that, the average improvement in clinical judgement for fourth year participants is higher than that of second-year participants indicating that fourth year participants benefitted more from debriefing than second-year participants.

4.5.2 Average scores for pre- and post-test comparison between second and fourth-year students for each dimension

Table 4.13: Descriptive statistics showing pre- and post-test scores for second and fourth-year participants for each clinical judgement

	Mean (second year)	Mean (fourth year)	p-value
Effective noticing (pre-test)	9.794118	9.272727	0.2221
Effective noticing (post-test)	10.52941	10.72727	0.5597
Effective interpreting (pre-test)	6.470588	6.136364	0.3159
Effective interpreting (post-test)	6.882353	6.727273	0.6019
Effective responding (pre-test)	12.32353	12.45455	0.8417
Effective responding (post-test)	13.58824	13.68182	0.8781
Effective reflecting (pre-test)	6.441176	6.45445	0.96
Effective reflecting (post-test)	6.911765	7.045455	0.614

Table 4.13 shows the comparison between mean scores for second and fourth-year participants and their associated p-values.

Effective noticing

The average scores for second year and fourth year participants in effective noticing are 9.794118 and 9.272727, respectively. The study found out that there is no statistically significance difference between second and fourth year participants for effective noticing (p-value=0.2221). From the study, the average scores for second year participants are

not statistically significantly different from the average scores obtained by fourth year participants.

The average scores for second year and fourth year participants in effective noticing are 9.794118 and 9.272727 respectively. The study found out that there is no statistically significant difference between second year participants in effective noticing (post-test) at the end of the debriefing exercise compared to fourth year participants (p-value=0.2221). From the study, the average scores for second year participants are not statistically significantly different from the average scores obtained by fourth year participants.

Effective interpreting

The study found that second year participants had no statistically significant effective interpreting (pre-test) scores compared to fourth year participants (t-value=1.0152, p-value=0.3159). The average scores for second year and fourth year participants in effective interpreting are 6.470588 and 6.136364, respectively. This indicates that the average scores for the second year participants are not statistically significantly different from the average scores of fourth year participants.

The average scores for second year and fourth year participants in effective interpreting are 6.882353 and 6.727273, respectively. The study found out that there is no statistically significance difference between second and fourth year participants for effective interpreting (p-value=0.6019). From the study, the average scores for second year participants are not statistically significantly different from the average scores obtained by fourth year participants.

Effective responding

The average scores for second year and fourth year participants in effective responding (pre-test) are 12.32353 and 12.45455, respectively. The study found out that there is no statistically significance difference between second and fourth year participants for effective responding (p-value=0.8417). From the study, the average scores for second

year participants are not statistically significantly different from the average scores obtained by fourth year participants.

The average scores for second year and fourth year participants in effective responding (post-test) are 13.58824 and 13.68182, respectively. The study found out that there is no statistically significance difference between second and fourth year participants for effective responding (p-value=0.8781). From the study, the average scores for second year participants are not statistically significantly different from the average scores obtained by fourth year participants.

Effective reflecting

The average scores for second year and fourth year participants in effective reflecting (pre-test) are 6.441176 and 6.454545, respectively. The study found out that there is no statistically significance difference between second and fourth year participants for effective responding (p-value=0.96). From the study, the average scores for second year participants are not statistically significantly different from the average scores obtained by fourth year participants.

The average scores for second year and fourth year participants in effective reflecting (post-test) are 6.911765 and 7.045455, respectively. The study found out that there is no statistically significance difference between second and fourth year participants for effective responding (p-value=0.614). The average scores for second year participants are not statistically significantly different from the average scores obtained by fourth year participants.

4.6 COMPARISON OF PRE-TEST AND POST TEST SCORES ACCORDING TO GENDER

Table 4.14: Comparison of gender differences for each dimension for clinical judgement

	Effective noticing		Effective interpreting		Effective responding		Effective reflecting	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Female	9.646	10.583	6.396	6.771	12.435	13.521	6.396	6.917
Male	9.25	10.75	6.000	7.125	12.000	14.250	6.750	7.250
p-value	0.4263	0.6043	0.363	0.3796	0.6439	0.2744	0.3287	0.3526

Table 4.14 represents the average pre-and post-test scores for both males and females in the four clinical judgement dimensions. Males obtained higher average scores in the post-test compared to females for all four dimensions.

4.7 CONCLUSION

The results show evidence of improvement in clinical judgement post debriefing. There is no substantial difference in the level of clinical judgement between the second and fourth-year students. The results also show a slight increase in the males' post-test scores as compared to the females 'post-test scores. In the next chapter, the results will be discussed in extensive details.

CHAPTER 5: DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter, the summary of the research and a discussion of the findings and the conclusions drawn from the findings are presented. The limitations of the study and recommendations for nursing education and practice from the study are also discussed.

5.2 SUMMARY OF FINDINGS

The purpose of the study was to answer the following research question: “Does simulation debriefing assist in the development of student nurses’ clinical judgement?” The intention was to use the results to increase the knowledge on the benefits of debriefing as part of simulation practice specifically in the development of clinical judgement. Second and fourth-year students participated in the study completing the Lasater Clinical Judgement Rubric (LCJR) pre- and post-debriefing following a high-fidelity simulation.

AL Sabei and Lasater (2016) states that clinical judgement in newly qualified nurses and undergraduate student nurses is often poorly developed, but it is a skill that can be learned. The study confirmed that learning does take place during debriefing in simulation-based education (SBE). The participants in this study rated their level of clinical judgement higher post debriefing than pre debriefing.

5.2.1 Pre-test vs post-test scores for the four dimensions of clinical judgement.

The four dimensions that are used to measure clinical judgement are; effective noticing, interpreting, responding and reflecting. These were scored independently pre- and post-debriefing. The post-test scores were higher than the pre-test scores for all four dimensions when analyzed in all participants. This was also the result when comparing second to fourth-year participants and when comparing males to females.

5.2.2 Comparison between Effective Interpreting and Effective Responding scores.

The post-test average scores for all participants, second-year participants, fourth-year participants, males, and females had the highest scores for Effective Responding.

The post-test scores in effective responding were the highest for all participants and the lowest scores were in effective interpreting for all participant categories except second years who obtained the lowest scores in effective reflecting.

The finding that second-year participants obtained lower scores in effective reflecting is not surprising because reflective thinking is influenced by previous related experiences, the second year student nurses have less clinical exposure and therefore less clinical experience hence their reflective skills are less developed than those of fourth-year nursing students (Joyce-McCoach & Smith, 2016).

It is, however, perplexing that the participants rated themselves low on effective interpreting which involves the ability to prioritize and make sense of data, and higher on responding, when to effectively respond to a patient condition requires a nurse to be able to effectively interpret the patient's presenting signs and symptoms. Moreover, according to (Lasater, 2011; Shin, Gi Park & Shim, 2015) the dimensions assessed using the LCJR are presented in a logical progression whereby each of the dimensions guide the students to relate what they "Notice to what they know from their theoretical knowledge or background (Interpreting) before they intervene (Responding), and then Reflect on the effectiveness of their judgements" (Lasater, 2011).

It is not clear why in this study, the participants perceived themselves being able to effectively respond to patients deteriorating condition without being able to effectively interpret data. This may result in interventions that are not based on the patient's relevant information. Although there is no literature found to support the unexpected findings in this study, the researcher concluded that the participants' failure to demonstrate the logical progression between the two aspects may be due the participants hastily reading the LCRJ and responding without comprehending some of the aspects .

Massey, Aitken, and Chaboyer (2008) made a comment that clinical judgement is linked to the nurse knowing the patient, and being able to notice the very subtle changes in the patient's condition, this could possibly be regarded as a limitation to simulation. In the same literature review (Massey, Aitken & Chaboyer, 2008) the observation was also made

that nurses rely on their peers for support and consulting with each other, and more senior nurses for decision making. It is an important finding in this study, as simulation and debriefing learning experiences should include opportunities for nurses to discuss results and their interpretation of the results, as well as their course of action.

5.2.3 Effective Reflecting

The second lowest post-test mean scores for all participants was obtained in the dimension of Effective Reflecting. This was unexpected, considering that literature has shown that reflective practice helps nurses use their clinical experiences to bridge the gap between theory and practice (Mc Carthy, Cassidy & Tuohy, 2013). Measuring the participants' ability to reflect effectively based on only one simulation experience could be responsible for the low scores as reflective practice is a progressive process of learning. Debriefing and reflection are the core elements responsible for learning in the simulation process (Waxman & Telles, 2009), and therefore the student's ability to self-reflect should be developed further to ensure maximum learning occurs.

5.2.4 Comparison of Second and Fourth Year Students' Clinical Judgement

Kelly et al. (2014) conducted a descriptive pre/post-test design study to measure the effect of a deteriorating patient simulation with senior students. Findings from the study indicated that senior nursing students displayed clinical judgement during the simulation experience, which resulted in them seeking assistance for urgent patient review.

Based on the above-mentioned findings, fourth-year participants were therefore expected to have a higher level of clinical judgement when compared to the second year students, however, the results revealed that the pre-test scores for second-year participants were higher, although the difference was not statistically significant. Post-test scores for the fourth year students were higher than second year students which indicates that the debriefing session concerning their clinical judgement and clinical thinking abilities was more beneficial to the fourth years.

Liaw et al. (2014) agree with this finding in their study of undergraduate nursing students in China, they found that the fourth year clinical thinking skills were significantly higher

than that of the second year student nurses. Their study differed slightly in that the cohort of second-year students had not experienced significant clinical practice and were reliant more on classroom teaching. In this study, the second year students did have clinical exposure but not as many hours as the fourth year students, who would have completed most of their general training at the time of the study, and were now concentrating on midwifery and psychosocial nursing.

It is expected that the fourth-year students at this stage of their training, should be able to integrate their theory and clinical practice better than the second year students, due to their extended patient interactions. The fourth year cohort of students in this study were taught using a modified Problem Based Learning (PBL) module which encourages debate and an enquiry into patient's diagnoses and management. The debriefing process of reflection and analysis, therefore, should have enhanced their own evaluation skills and reflection of themselves and their own clinical judgement.

A comparison was made between the second-year pre- and post-test scores with the fourth year pre and post-test scores. The findings confirmed the belief that students at a higher level of their nursing training have more developed clinical judgement than their junior counterparts, the average improvement in clinical judgement for fourth-year participants was higher than that of second-year participants indicating that fourth-year participants benefitted more from debriefing than second-year participants.
The minimum and maximum improvement in the clinical judgement mean scores for second-year participants is 1.048562 and 4.716144, respectively

5.2.5 Comparison of Male and Female Participants' Pre-Test and Post Test Scores

The male participants in the study obtained higher post-test scores than females in all four of the clinical judgement dimensions. There is no literature found to back up this finding. However, since participants were evaluating themselves, it is possible that males perceive themselves to have more developed clinical judgement skills than females. Clinical judgement is influenced by an individual's background and other factors such as nurses' knowledge of the patient. South Africa being a patriarchal society could have an influence on how males perceive their own abilities when compared to females.

5.3 RECOMMENDATIONS

5.3.1 Nursing Education

The findings from this study support the inclusion of debriefing in all simulation learning experiences. Simulation at present in South Africa is a relatively new teaching and learning methodology and therefore the researcher makes the recommendations that NEIs invest in further training of the faculty members. This can be achieved by sending interested educators on training courses and workshops that are held at Universities that have embedded simulation in their curricula.

By making contact with simulation specialists the NEIs will be able to ask for assistance and guidance as to how to begin a simulation programme for their students, that includes debriefing.

Debriefing can be introduced in all learning activities offered by NEIs and does not have to be simulation dependent. Debriefing can be done post a clinical placement of student nurses, where the student is asked to reflect on a patient and their diagnosis and treatment. Therefore, it is recommended that NEIs develop manuals on debriefing technique recommended to enhance the teaching of clinical judgement, which can be transferred into simulation based learning.

Nursing Education Institutions should develop and validate specific simulation scenarios for the development of clinical judgement and ensure that all simulation exercises include debriefing.

5.3.2 Recommendations for clinical

The researcher recommends that debriefing be part of the students' experiential learning process especially after being exposed to complex clinical situations in order to develop their clinical judgement.

It is also recommended that students be encouraged to keep a reflective account of their clinical experiences, as the practice of reflection improves clinical judgement skills.

5.3.3 Nursing Research.

Clinical judgement is a complex nursing action, it would be beneficial to conduct further studies using other means to assess the development of clinical judgement through self-reflection such as a combination of simulation, debriefing and the use of reflective journals across all levels of nursing.

- A longitudinal study including both quantitative and qualitative data on the development of clinical judgement across the student nurses' undergraduate years would be beneficial in determining the influences of the students training on clinical judgement.
- Further studies comparing students' self-evaluation and faculty evaluation of students' clinical judgement using the LCJR, would also prove valuable to determine the students' self-reflective ability to influence practice.

5.4 LIMITATIONS

- Generalizability of this study is limited as the study sample was 56 students. There is a possibility that increasing the study sample may affect the findings of the study.
- The study included only second and fourth-year nursing students. There is a possibility that findings could have been different if the 3rd year students were included.

- Student self-evaluation does lend itself to inflation and could have affected the findings.

- The instrument might have yielded more definitive results if the simulation had been repeated after the debriefing session, before the post test.

5.5 CONCLUSION

Clinical judgement is essential to nursing practice as it guides the decision-making process of all nurses in deciding what course of action is required in patient management. Clinical judgement is a complex concept that is difficult to quantify. This study used the Lasater Clinical Judgement Rubric to explore whether simulation debriefing assists in the development of clinical judgement in student nurses enrolled for a Bachelor of Nursing degree at a university in Gauteng. The study was a single assessment of the development of clinical judgement post-simulation debriefing but shows that debriefing post-simulation significantly improves the clinical judgement of students. Clinical judgement increases as the year of study increases and males have higher scores than their female counterparts. In South Africa at present simulation is an emerging teaching and learning methodology, and debriefing is not routinely included in simulation practices. This study confirms that debriefing is an essential component of simulation-based learning in modern-day nursing education as it significantly improves students' clinical judgement. Further research on context specific debriefing methods should be conducted to ensure that the full benefits are realised by the students.

REFERENCES

Adamson, K.A., Gubrud, P., Sideras, S. & Lasater, K. 2012. Assessing the Reliability, Validity, and Use of the Lasater Clinical Judgment Rubric: Three Approaches. *Journal of Nursing Education*. 51(2):66–73. DOI: 10.3928/01484834-20111130-03.

Afshar, H.S. & Rahimi, M. 2016. Reflective thinking, emotional intelligence, and speaking ability of EFL learners: Is there a relation? *Thinking Skills and Creativity*. 19:97–111. Available: https://ac.els-cdn.com/S1871187115300316/1-s2.0-S1871187115300316-main.pdf?_tid=b3abc536-08e4-11e8-900c-00000aacb360&acdnat=1517664088_735fc2201593639d354359fb91463bb1 [2018, February 03].

Anderson, M. & Leflore, J. 2008. Playing It Safe: Simulated Team Training in the OR. *AORN Journal*. 87(4):778–779. DOI: 10.1016/j.aorn.2007.12.027.

Benner, P., Stannard, D. & Hooper, P.L. 1996. A “thinking-in-action” approach to teaching clinical judgment: a classroom innovation for acute care advanced practice nurses. *Advanced practice nursing quarterly*. 1(4):70–77.

Brink, H., van der Walt, C. & van Rensburg, gisela. 2012. *Fundamentals of Research Methodology for Health Care Professionals - Juta*. 3rd Edition ed. Cape Town: JUTA.

Buckley, T. & Gordon, C. 2011. The effectiveness of high fidelity simulation on medical-surgical registered nurses’ ability to recognise and respond to clinical emergencies. *Nurse Education Today*. 31(7):716–721. DOI: 10.1016/j.nedt.2010.04.004.

Cant, R.P. & Cooper, S.J. 2010. Simulation-based learning in nurse education: Systematic review. *Journal of Advanced Nursing*. 66(1):3–15. DOI: 10.1111/j.1365-2648.2009.05240.x.

Cantrell, M.A. 2008. The Importance of Debriefing in Clinical Simulations. *Clinical Simulation in Nursing*. 4(2):e19–e23. DOI: 10.1016/J.ECNS.2008.06.006.

Chelliah, K.K. & Arumugam, Z. 2012. Does Reflective Practice Enhance Clinical

Competency in Medical Imaging Undergraduates? *Procedia - Social and Behavioral Sciences*. 60:73–77. DOI: 10.1016/J.SBSPRO.2012.09.349.

Cheng, A., Morse, K.J., Rudolph, J., Arab, A.A., Runnacles, J. & Eppich, W. 2016. DOI: 10.1097/SIH.0000000000000136.

Chronister, C. & Brown, D. 2012. Comparison of Simulation Debriefing Methods. *Clinical Simulation in Nursing*. 8(7):e281–e288. DOI: 10.1016/j.ecns.2010.12.005.

Coles, C. 2002. Developing professional judgment. *The Journal of continuing education in the health professions*. 22(1):3–10. DOI: 10.1002/chp.1340220102.

D'Souza, M., Venkatesaperumal, R., Chavez, F., Parahoo, K. & Jacob, D. 2017. Effectiveness of Simulation among Undergraduate Students in the Critical Care Nursing. *International Archives of Nursing and Health Care*. 3(4):1–8. DOI: 10.23937/2469-5823/1510084.

Decker, S., Fey, M., Sideras, S., Caballero, S., Rockstraw, L. (Rocky), Boese, T., Franklin, A.E., Gloe, D., et al. 2013. Standards of Best Practice: Simulation Standard VI: The Debriefing Process. *Clinical Simulation in Nursing*. 9(6):e26–e29. DOI: 10.1016/j.ecns.2013.04.008.

Dreifuerst, K.T. 2015. Getting started with debriefing for meaningful learning. *Clinical Simulation in Nursing*. 11(5):268–275. DOI: 10.1016/j.ecns.2015.01.005.

Dufrene, C. & Young, A. 2014. Successful debriefing - Best methods to achieve positive learning outcomes: A literature review. *Nurse Education Today*. 34(3):372–376. DOI: 10.1016/j.nedt.2013.06.026.

Durham, C.F., Cato, M.L. & Lasater, K. 2014. DOI: 10.1016/j.ecns.2014.04.002.

Fanning, R.M. & Gaba, D.M. 2007. The Role of Debriefing in Simulation-Based Learning. *Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare*. 2(2):115–125. DOI: 10.1097/SIH.0b013e3180315539.

Fawaz, M.A. & Hamdan-Mansour, A.M. 2016. Impact of high-fidelity simulation on the

development of clinical judgment and motivation among Lebanese nursing students. *Nurse Education Today*. 46:36–42. DOI: 10.1016/j.nedt.2016.08.026.

Gibbs, G. 1988. *Learning by doing. A guide to teaching and learning methods*. London: Further Education Unit at Oxford Polytechnic.

van Graan, A.C. & Williams, M.J.S. 2017. A conceptual framework to facilitate clinical judgement in nursing: A methodological perspective. *Health SA Gesondheid*. 22:275–290. DOI: 10.1016/j.hsag.2017.01.004.

van Graan, A.C., Williams, M.J.S. & Koen, M.P. 2016a. Clinical judgement within the South African clinical nursing environment: A concept analysis. *Health SA Gesondheid*. 21:33–45. DOI: 10.1016/j.hsag.2015.05.003.

van Graan, A.C., Williams, M.J.S. & Koen, M.P. 2016b. Professional nurses' understanding of clinical judgement: A contextual inquiry. *Health SA Gesondheid*. 21:280–293. DOI: 10.1016/j.hsag.2016.04.001.

Husebø, S.E., O'Regan, S. & Nestel, D. 2015. Reflective Practice and Its Role in Simulation. *Clinical Simulation in Nursing*. 11(8):368–375. DOI: 10.1016/j.ecns.2015.04.005.

Hyland, D., Weeks, B.H., Ficorelli, C.T. & Vanderbeek-Warren, M. 2012. Bringing simulation to life. *Teaching and Learning in Nursing*. 7(3):108–112. DOI: 10.1016/j.teln.2012.01.002.

Joyce-McCoach, J. & Smith, K. 2016. A Teaching Model for Health Professionals Learning Reflective Practice. *Procedia - Social and Behavioral Sciences*. 228:265–271. DOI: 10.1016/J.SBSPRO.2016.07.039.

Kelly, M.A., Forber, J., Conlon, L., Roche, M. & Stasa, H. 2014. Empowering the registered nurses of tomorrow: Students' perspectives of a simulation experience for recognising and managing a deteriorating patient. *Nurse Education Today*. 34(5):724–729. DOI: 10.1016/J.NEDT.2013.08.014.

Kember, D., Leung, D.Y.P., Jones, A., Loke, A.Y., Mckay, J., Sinclair, K., Tse, H., Webb, C., et al. 2000. Assessment & Evaluation in Higher Education Development of a Questionnaire to Measure the Level of Reflective Thinking Development of a Questionnaire to Measure the Level of Re ective Thinking. *Assessment & Evaluation in Higher Education*. 25(4). DOI: 10.1080/713611442.

Kim, T.K. 2015. T test as a parametric statistic. *Korean Journal of Anesthesiology*. 68(6):540–546. DOI: 10.4097/kjae.2015.68.6.540.

Kim, M. & Kim, S. 2017. Debriefing Practices in Simulation-Based Nursing Education in South Korea. *Clinical Simulation in Nursing*. 13(5):201–209. DOI: 10.1016/j.ecns.2017.01.008.

Koshy, K., Limb, C., Gundogan, B., Whitehurst, K. & Jafree, D.J. 2017. Reflective practice in health care and how to reflect effectively. *International journal of surgery. Oncology*. 2(6):e20. DOI: 10.1097/IJ9.0000000000000020.

Lasater, K. 2007. Clinical judgment development : Using simulation to create an assessment rubric. *Journal of Nursing Education*. 46(11):496–503. Available: http://ehis.ebscohost.com/ehost/detail?vid=8&hid=117&%2338;sid=c0fe8d83-8812-44f2-84f1-1fd4b5ad925a@sessionmgr12&%2338;bdata=JnNpdGU9ZWhvc3QtbGl2ZQ==%23db=mnh&%2338;AN=18019107%23db=mnh&%2338;AN=18019107.

Lasater, K. 2011. Clinical judgment: The last frontier for evaluation. *Nurse Education in Practice*. 11(2):86–92. DOI: 10.1016/j.nepr.2010.11.013.

Lavoie, P., Pepin, J. & Cossette, S. 2015. Development of a post-simulation debriefing intervention to prepare nurses and nursing students to care for deteriorating patients. *Nurse Education in Practice*. 15(3):181–191. DOI: 10.1016/j.nepr.2015.01.006.

Letcher, D.C., Roth, S.J. & Varenhorst, L.J. 2017. Simulation-Based Learning: Improving Knowledge and Clinical Judgment Within the NICU. *Clinical Simulation in Nursing*. 13(6):284–290. DOI: 10.1016/j.ecns.2017.03.001.

Levett-Jones, T. & Lapkin, S. 2014. A systematic review of the effectiveness of simulation debriefing in health professional education. *Nurse Education Today*. 34(6):e58–e63. DOI: 10.1016/j.nedt.2013.09.020.

Liaw, S.Y., Zhou, W.T., Lau, T.C., Siau, C. & Chan, S.W. chi. 2014. An interprofessional communication training using simulation to enhance safe care for a deteriorating patient. *Nurse Education Today*. 34(2):259–264. DOI: 10.1016/j.nedt.2013.02.019.

Mariani, B. & Doolen, J. 2016. Nursing Simulation Research: What Are the Perceived Gaps? *Clinical Simulation in Nursing*. 12(1):30–36. DOI: 10.1016/j.ecns.2015.11.004.

Mariani, B., Cantrell, M.A., Meakim, C., Prieto, P. & Dreifuerst, K.T. 2013. Structured Debriefing and Students' Clinical Judgment Abilities in Simulation. *Clinical Simulation in Nursing*. 9(5):e147–e155. DOI: 10.1016/j.ecns.2011.11.009.

Massey, D., Aitken, L.M. & Chaboyer, W. 2008. What factors influence suboptimal ward care in the acutely ill ward patient? *Intensive and Critical Care Nursing*. 25(4):169–180. DOI: 10.1016/j.iccn.2009.03.005.

Mayville, M.L. 2011. Debriefing: The Essential Step in Simulation. *Newborn and Infant Nursing Reviews*. 11(1):35–39. DOI: 10.1053/j.nainr.2010.12.012.

Mc Carthy, J., Cassidy, I. & Tuohy, D. 2013. Lecturers' experiences of facilitating guided group reflection with pre-registration BSc Nursing students. *Nurse Education Today*. 33(1):36–40. DOI: 10.1016/J.NEDT.2011.10.020.

Moon, jennifer A. 2013. *Reflection in Learning and Professional Development: Theory and Practice*. London & New York: RouteledgeFalmer: Taylor & Francis. Available: https://books.google.co.za/books?hl=en&lr=&id=8y0LwQxZUf4C&oi=fnd&pg=PR2&dq=Moon+(2013)+in-reflective+practice&ots=1sXCyvMNfS&sig=LHuWcAxtizqWBNR-ec_lz0FtSgI#v=onepage&q=Moon (2013) in-reflective practice&f=false [2018, February 03].

Motola, I., Devine, L.A., Chung, H.S., Sullivan, J.E. & Issenberg, S.B. 2013. Simulation in

healthcare education: A best evidence practical guide. AMEE Guide No. 82. *Medical Teacher*. 35(10):142–159. DOI: 10.3109/0142159X.2013.818632.

Munshi, F., Lababidi, H. & Alyousef, S. 2015. Low- versus high-fidelity simulations in teaching and assessing clinical skills. *Journal of Taibah University Medical Sciences*. 10(1):12–15. DOI: 10.1016/j.jtumed.2015.01.008.

National League for Nursing. 2015. *Debriefing across the curriculum: A living document for the National League for Nursing*. Available: http://www.nln.org/docs/default-source/about/nln-vision-series-(position-statements)/nln-vision-debriefing-across-the-curriculum.pdf?sfvrsn=0.

Neill, M.A. & Wotton, K. 2011. High-Fidelity Simulation Debriefing in Nursing Education: A Literature Review. *Clinical Simulation in Nursing*. 7(5):e161–e168. DOI: 10.1016/j.ecns.2011.02.001.

Phaneuf, M. 2008. Clinical Judgement – An Essential Tool in the Nursing Profession. *Diagnostic infirmier*. 16–17.

Polit, D.F. & Beck, C.T. 2010. *Essentials of Nursing Research Appraising Evidence for Nursing Practice*. Seventh ed. Philadelphia: Wolters Kluwer:Lippincott Williams & Wilkins.

Reed, S.J. 2012. Debriefing Experience Scale: Development of a Tool to Evaluate the Student Learning Experience in Debriefing. *Clinical Simulation in Nursing*. 8(6):e211–e217. DOI: 10.1016/j.ecns.2011.11.002.

Reed, S.J. 2015. Written debriefing: Evaluating the impact of the addition of a written component when debriefing simulations. *Nurse Education in Practice*. 15(6):543–548. DOI: 10.1016/j.nepr.2015.07.011.

AL Sabei, S.D. & Lasater, K. 2016. Simulation debriefing for clinical judgment development: A concept analysis. *Nurse Education Today*. 45:42–47. DOI: 10.1016/j.nedt.2016.06.008.

Seidi, J., Alhani, F. & Salsali, M. 2015. Nurses' Clinical Judgment Development: A Qualitative Research in Iran. *Iranian Red Crescent Medical Journal*. 17(9). DOI: 10.5812/ircmj.20596.

Shea, K. 2015. The effect of clinical simulation with debriefing for meaningful learning in courses of nursing theory and practicum on student knowledge and perception of instruction. *ProQuest Dissertations and Theses*. 149. Available: https://search.proquest.com/docview/1766586286?accountid=10673%0Ahttp://openurl.ac.uk/redirect/athens:edu/?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&genre=dissertations+%26+theses&sid=ProQ:ProQuest+Dissertations+%26+Theses+Global&a.

Shin, H., Gi Park, C. & Shim, K. 2015. The Korean version of the Lasater Clinical Judgment Rubric: A validation study. *Nurse Education Today*. 35(1):68–72. DOI: 10.1016/j.nedt.2014.06.009.

Shin, S., Park, J.H. & Kim, J.H. 2015. Effectiveness of patient simulation in nursing education: Meta-analysis. *Nurse Education Today*. 35(1):176–182. DOI: 10.1016/j.nedt.2014.09.009.

Shinnick, M.A., Woo, M., Horwich, T.B. & Steadman, R. 2011. Debriefing: The Most Important Component in Simulation? *Clinical Simulation in Nursing*. 7(3):105–111. DOI: 10.1016/j.ecns.2010.11.005.

Swenty, C.F. & Eggleston, B.M. 2011. The Evaluation of Simulation in a Baccalaureate Nursing Program. *Clinical Simulation in Nursing*. 7(5):e181–e187. DOI: 10.1016/J.ECNS.2010.02.006.

Tanner, C.A. 2006. Thinking Like a Nurse: A Research-Based Model of Clinical Judgment in Nursing. *Journal of Nursing Education*. 45(6):204–211. DOI: 10.1046/j.1365-2648.2003.02921.x.

The INACSL Standards Committee. 2017. INACSL Standards of Best Practice: Simulations Operations. *Clinical Simulation in Nursing*. 13(12):681–687. DOI: 10.1016/J.ECNS.2017.10.005.

Ullom, C.N., Hayes, A.S., Fluharty, L.K. & Hacker, L.L. 2014. Keeping students engaged during simulated clinical experiences. *Clinical Simulation in Nursing*. 10(11):589–592. DOI: 10.1016/j.ecns.2014.05.008.

Victor-Chmil, J. 2013. Critical Thinking Versus Clinical Reasoning Versus Clinical Judgment. *Nurse Educator*. 38(1):34–36. DOI: 10.1097/NNE.0b013e318276dfbe.

De Vos, A.S., Strydom, H., Fouché, C.B. & Delport, C.S.L. 2011. *Research at grass roots : for the social sciences and human service professions*. Van Schaik Publishers.

Waxman, K.T.T. & Telles, C.L. 2009. *The Use of Benner's Framework in High-fidelity Simulation Faculty Development The Bay Area Simulation Collaborative Model*. V. 5. Elsevier. Available: https://www.sciencedirect.com/science/article/pii/S1876139909004940 [2018, February 03].

Weaver, A. 2015. The Effect of a model demonstration during debriefing on students' clinical judgment, self-confidence, and satisfaction during a simulated learning experience. *Clinical Simulation in Nursing*. 11(1):20–26. DOI: 10.1016/j.ecns.2014.10.009.

Wickers, M.P. 2010. Establishing the Climate for a Successful Debriefing. *Clinical Simulation in Nursing*. 6(3):e83–e86. DOI: 10.1016/j.ecns.2009.06.003.

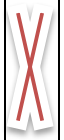
Yeun, E.J., Bang, H.Y., Ryoo, E.N. & Ha, E.H. 2014. Attitudes toward simulation-based learning in nursing students: An application of Q methodology. *Nurse Education Today*. 34(7):1062–1068. DOI: 10.1016/j.nedt.2014.02.008.

ANNEXURE A: LASATER CLINICAL JUDGEMENT RUBRIC (PRE- TEST)

Student number:

Age:
Gender:
Year of study:
INSTRUCTIONS:

- **Select the column that best describes your perception of your own clinical judgement during the simulation experience**
- **Mark with a cross inside the specific block**
- **Choose only one description for each construct.**
- **See Example below**

Effective noticing involves:								
Focused Observation	Focuses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any useful information		Regularly observes and monitors a variety of data, including both subjective and objective; most useful information		Attempts to monitor a variety of subjective and objective data but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information		Confused by the clinical situation and the amount and kind of data; observation is not organized and important data are missed, and/or assessment errors are made	

			is noticed; may miss the most subtle signs					

Effective noticing involves:								
Focused observation	Focuses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any useful information		Regularly observes and monitors a variety of data, including both subjective and objective; most useful information is noticed; may miss the most subtle signs		Attempts to monitor a variety of subjective and objective data but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information		Confused by the clinical situation and the amount and kind of data; observation is not organized and important data are missed, and/or assessment errors are made	
Recognizing deviations from expected patterns	Recognizes subtle patterns and deviations from expected patterns in data and uses these to guide the assessment		Recognizes most obvious patterns and deviations in data and uses these to continually assess		Identifies obvious patterns and deviations, missing some important		Focuses on one thing at a time and misses most patterns and deviations from expectations;	

					information; unsure how to continue the assessment		misses opportunities to refine the assessment	
Information seeking	Assertively seeks information to plan intervention: carefully collects useful subjective data from observing and interacting with the patient and family		Actively seeks subjective information about the patient's situation from the patient and family to support planning interventions; occasionally does not pursue important leads		Makes limited efforts to seek additional information from the patient and family; often seems not to know what information to seek and/or pursues unrelated information		Is ineffective in seeking information; relies mostly on objective data; has difficulty interacting with the patient and family and fails to collect important subjective data	
Effective interpreting involves:								
Prioritizing data	Focuses on the most relevant and important data useful for explaining the patient's condition		Generally focuses on the most important data and seeks further relevant information but also may try to attend to less pertinent data		Makes an effort to prioritize data and focus on the most important, but also attends to less relevant or useful data		Has difficulty focusing and appears not to know which data are most important to the diagnosis; attempts to attend to all available data	

Making sense of data	Even when facing complex, conflicting, or confusing data, is able to (a) note and make sense of patterns in the patient's data, (b) compare these with known patterns (from the nursing knowledge base, research, personal experience, and intuition), and (c) develop plans for interventions that can be justified in terms of their likelihood of success		In most situations, interprets the patient's data patterns and compares with known patterns to develop an intervention plan and accompanying rationale; the exceptions are rare or in complicated cases where it is appropriate to seek the guidance of a specialist or a more experienced nurse		In simple, common, or familiar situations is able to compare the patient's data patterns with those known and to develop or explain intervention plans; has difficulty, however, with even moderately difficult data or situations that are within the expectations of students; inappropriately requires advice or assistance		Even in simple, common, or familiar situations, has difficulty interpreting or making sense of data; has trouble distinguishing among competing explanations and appropriate interventions, requiring assistance both in diagnosing the problem and developing an intervention	
Effective responding involves:								

Calm, confident manner	Assumes responsibility; delegates team assignments; assesses patients and reassures them and their families		Generally displays leadership and confidence and is able to control or calm most situations; may show stress in particularly difficult or complex situations		Is tentative in the leader role; reassures patients and families in routine and relatively simple situations, but becomes stressed and disorganized easily		Except in simple and routine situations, is stressed and disorganized, lacks control, makes patients and families anxious or less able to cooperate	
Clear communication	Communicates effectively; explains interventions; calms and reassures patients and families; directs and involves team members, explaining and giving directions; checks for understanding		Generally communicates well; explains carefully to patients; gives clear directions to team; could be more effective in establishing rapport		Shows some communication ability (e.g., giving directions); communication with patients, families, and team members is only partly successful; displays caring but not competence		Has difficulty communicating; explanations are confusing; directions are unclear or contradictory; patients and families are made confused or anxious and are not reassured	

Well-planned intervention/flexibility	Interventions are tailored for the individual patient; monitors patient progress closely and is able to adjust treatment as indicated by patient response		Develops interventions on the basis of relevant patient data; monitors progress regularly but does not expect to have to change treatments		Develops interventions on the basis of the most obvious data; monitors progress but is unable to make adjustments as indicated by the patient's response		Focuses on developing a single intervention, addressing a likely solution, but it may be vague, confusing, and/or incomplete; some monitoring may occur	
Being skillful	Shows mastery of necessary nursing skills		Displays proficiency in the use of most nursing skills; could improve speed or accuracy		Is hesitant or ineffective in using nursing skills		Is unable to select and/ or perform nursing skills	
Effective reflecting involves:								
Evaluation/self-analysis	Independently evaluates and analyzes personal clinical performance, noting decision points, elaborating alternatives, and		Evaluates and analyzes personal clinical performance with minimal prompting, primarily about major events or decisions; key decision points are identified, and alternatives are considered		Even when prompted, briefly verbalizes the most obvious evaluations; has difficulty imagining alternative choices; is self-protective		Even prompted evaluations are brief, cursory, and not used to improve performance; justifies personal decisions and choices without evaluating them	

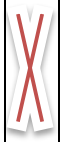
	accurately evaluating choices against alternatives				in evaluating personal choices			
Commitment to improvement	Demonstrates commitment to ongoing improvement; reflects on and critically evaluates nursing experiences; accurately identifies strengths and weaknesses and develops specific plans to eliminate weaknesses		Demonstrates a desire to improve nursing performance; reflects on and evaluates experiences; identifies strengths and weaknesses; could be more systematic in evaluating weaknesses		Demonstrates awareness of the need for ongoing improvement and makes some effort to learn from experience and improve performance but tends to state the obvious and needs external evaluation		Appears uninterested in improving performance or is unable to do so; rarely reflects; is uncritical of himself or herself or overly critical (given level of development); is unable to see flaws or need for improvement	

ANNEXURE B: LASATER CLINICAL JUDGEMENT RUBRIC (POST- TEST)

Student number:

Age:
Gender:
Year of study:
INSTRUCTIONS:

- **Select the column that best describes your perception of your own clinical judgement after the debriefing experience**
- **Mark with a cross inside the specific block**
- **Choose only one description for each construct.**
- **See Example below**

Effective noticing involves:								
Focused Observation	Focuses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any useful information		Regularly observes and monitors a variety of data, including both subjective and objective; most useful information		Attempts to monitor a variety of subjective and objective data but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information		Confused by the clinical situation and the amount and kind of data; observation is not organized and important data are missed, and/or assessment errors are made	

			is noticed; may miss the most subtle signs					

Effective noticing involves:								
Focused observation	Focuses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any useful information		Regularly observes and monitors a variety of data, including both subjective and objective; most useful information is noticed; may miss the most subtle signs		Attempts to monitor a variety of subjective and objective data but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information		Confused by the clinical situation and the amount and kind of data; observation is not organized and important data are missed, and/or assessment errors are made	
Recognizing deviations from expected patterns	Recognizes subtle patterns and deviations from expected patterns in data and uses these to guide the assessment		Recognizes most obvious patterns and deviations in data and uses these to continually assess		Identifies obvious patterns and deviations, missing some important		Focuses on one thing at a time and misses most patterns and deviations from expectations;	

					information; unsure how to continue the assessment		misses opportunities to refine the assessment	
Information seeking	Assertively seeks information to plan intervention: carefully collects useful subjective data from observing and interacting with the patient and family		Actively seeks subjective information about the patient's situation from the patient and family to support planning interventions; occasionally does not pursue important leads		Makes limited efforts to seek additional information from the patient and family; often seems not to know what information to seek and/or pursues unrelated information		Is ineffective in seeking information; relies mostly on objective data; has difficulty interacting with the patient and family and fails to collect important subjective data	
Effective interpreting involves:								
Prioritizing data	Focuses on the most relevant and important data useful for explaining the patient's condition		Generally focuses on the most important data and seeks further relevant information but also may try to attend to less pertinent data		Makes an effort to prioritize data and focus on the most important, but also attends to less relevant or useful data		Has difficulty focusing and appears not to know which data are most important to the diagnosis; attempts to attend to all available data	

Making sense of data	Even when facing complex, conflicting, or confusing data, is able to (a) note and make sense of patterns in the patient's data, (b) compare these with known patterns (from the nursing knowledge base, research, personal experience, and intuition), and (c) develop plans for interventions that can be justified in terms of their likelihood of success		In most situations, interprets the patient's data patterns and compares with known patterns to develop an intervention plan and accompanying rationale; the exceptions are rare or in complicated cases where it is appropriate to seek the guidance of a specialist or a more experienced nurse		In simple, common, or familiar situations, is able to compare the patient's data patterns with those known and to develop or explain intervention plans; has difficulty, however, with even moderately difficult data or situations that are within the expectations of students; inappropriately requires advice or assistance		Even in simple, common, or familiar situations, has difficulty interpreting or making sense of data; has trouble distinguishing among competing explanations and appropriate interventions, requiring assistance both in diagnosing the problem and developing an intervention	
Effective responding involves:								

Calm, confident manner	Assumes responsibility; delegates team assignments; assesses patients and reassures them and their families		Generally displays leadership and confidence and is able to control or calm most situations; may show stress in particularly difficult or complex situations		Is tentative in the leader role; reassures patients and families in routine and relatively simple situations, but becomes stressed and disorganized easily		Except in simple and routine situations, is stressed and disorganized, lacks control, makes patients and families anxious or less able to cooperate	
Clear communication	Communicates effectively; explains interventions; calms and reassures patients and families; directs and involves team members, explaining and giving directions; checks for understanding		Generally communicates well; explains carefully to patients; gives clear directions to team; could be more effective in establishing rapport		Shows some communication ability (e.g., giving directions); communication with patients, families, and team members is only partly successful; displays caring but not competence		Has difficulty communicating; explanations are confusing; directions are unclear or contradictory; patients and families are made confused or anxious and are not reassured	

Well-planned intervention/flexibility	Interventions are tailored for the individual patient; monitors patient progress closely and is able to adjust treatment as indicated by patient response		Develops interventions on the basis of relevant patient data; monitors progress regularly but does not expect to have to change treatments		Develops interventions on the basis of the most obvious data; monitors progress but is unable to make adjustments as indicated by the patient's response		Focuses on developing a single intervention, addressing a likely solution, but it may be vague, confusing, and/or incomplete; some monitoring may occur	
Being skillful	Shows mastery of necessary nursing skills		Displays proficiency in the use of most nursing skills; could improve speed or accuracy		Is hesitant or ineffective in using nursing skills		Is unable to select and/ or perform nursing skills	
Effective reflecting involves:								
Evaluation/self-analysis	Independently evaluates and analyzes personal clinical performance, noting decision points, elaborating alternatives, and		Evaluates and analyzes personal clinical performance with minimal prompting, primarily about major events or decisions; key decision points are identified, and alternatives are considered		Even when prompted, briefly verbalizes the most obvious evaluations; has difficulty imagining alternative choices; is self-protective		Even prompted evaluations are brief, cursory, and not used to improve performance; justifies personal decisions and choices without evaluating them	

	accurately evaluating choices against alternatives				in evaluating personal choices			
Commitment to improvement	Demonstrates commitment to ongoing improvement; reflects on and critically evaluates nursing experiences; accurately identifies strengths and weaknesses and develops specific plans to eliminate weaknesses		Demonstrates a desire to improve nursing performance; reflects on and evaluates experiences; identifies strengths and weaknesses; could be more systematic in evaluating weaknesses		Demonstrates awareness of the need for ongoing improvement and makes some effort to learn from experience and improve performance but tends to state the obvious and needs external evaluation		Appears uninterested in improving performance or is unable to do so; rarely reflects; is uncritical of himself or herself or overly critical (given level of development); is unable to see flaws or need for improvement	

ANNEXURE C: PERMISSION TO USE LASATER CLINICAL JUDGEMENT RUBRIC



Kathie Lasater <lasaterk@ohsu.edu> 05/05/2017

to me

Dear Mrs. Dubula,

I'm sorry for the delay—I did not see your first email message in my in-box earlier in the week.

Thank you for your interest in the Lasater Clinical Judgment Rubric (LCJR). You have my permission to use the tool for your project. I ask that you (1) cite it correctly, and (2) send me a paragraph or two to let me know a bit about your project when you've completed it, including how you used the LCJR. In this way, I can help guide others who may wish to use it. Please let me know if it would be helpful to have an electronic copy.

You should also be aware that the LCJR describes four aspects of the Tanner Model of Clinical Judgment—Noticing, Interpreting, Responding, and Reflecting—and as such, does not measure clinical judgment because clinical judgment involves much of what the individual student/nurse brings to the unique patient situation (see Tanner, 2006 article). We know there are many other factors that impact clinical judgment in the moment, many of which are impacted by the context of care and the needs of the particular patient.

The LCJR was designed as an instrument to describe the trajectory of students' clinical judgment development over the length of their program. The purposes were to offer a common language between students, faculty, and preceptors in order to talk about students' thinking and to serve as a help for offering formative guidance and feedback (See Lasater, 2007; Lasater, 2011—I'm attaching this one). For measurement purposes, the rubric appears to be most useful with multiple opportunities for clinical judgment vs. one point/patient in time.

Given your topic, I'm also attaching a copy of a concept analysis one of our grad students published last year that is related.

Please let me know if I can be of further help—best wishes with your project,
Kathie

Kathie Lasater, EdD, RN, ANEF, FAAN

Professor
OHSU School of Nursing
3455 SW Veterans' Hospital Rd., 4-S
Portland, OR 97239

Kathie Lasater is also Assistant Editor for *Nurse Education Today*
www.nurseeducationtoday.com

ANNEXURE D: INFORMATION SHEET

SIMULATION DEBRIEFING AND THE DEVELOPMENT OF CLINICAL JUDGEMENT OF STUDENT NURSES AT A UNIVERSITY IN GAUTENG

Dear Participant,

My name is Mapule Pamella Dubula. I am an MSc Nursing student in the Department of Nursing Education. I am undertaking a research study entitled, “Simulation debriefing and the development of clinical judgement of student nurses at a university in Gauteng”. I would like to invite you to participate in the research study. Before agreeing to participate, it is important that you read and understand the following information about the purpose of the study, the study procedures and your right to withdraw from the study at any time. This information sheet is to help you decide if you would like to participate. You need to understand everything before you agree to take part in this study.

The purpose of the study is to determine whether simulation debriefing assists in development of clinical judgement in student nurses enrolled for a Bachelor of Nursing degree at a university in Gauteng. The intention is to create awareness about the benefits of debriefing as part of simulation based learning, and to embed the practice in simulation based learning

The researcher will request you to participate in a simulation based learning activity and complete a clinical judgement self-evaluation rubric. The next step will be a simulation debriefing process after which you will be required to complete the same rubric to establish if your perception of clinical judgement has improved following debriefing. The researcher will explain the rubric in detail before you start. The process is expected to take about three hours.

Data collected will be stored securely in the Department of Nursing Education at the University of the Witwatersrand for a minimum of two years after publication, or six years in the absence of publication. The results of the research will be confidential. No names will be used during data collection, and each pre/post test results will be assigned a code to ensure anonymity. Participation will not be of any direct benefit to you personally but may benefit nurses in the future. You may withdraw your participation from the study at any time without any prejudice or negative consequences to yourself.

Should you have any questions about your rights as a study participant, or questions or concerns about any aspects of this study, please contact the Ethics Department of the University of the Witwatersrand on +27 11 717 1234

My supervisors are Mrs. Hilary Thurling and Dr Sue Armstrong

Department of Nursing Education,
School of Therapeutic Sciences
Faculty of Health Sciences
University of the Witwatersrand
7 York Road, Parktown, 2050
Johannesburg, South Africa
hilary.thurling@wits.ac.za
Tel: +27117172548

Professor P. Cleaton-Jones
(Chairperson, HREC Medical)
Tel: +27117171252
Zanele.ndlovu@wits.ac.za
Mapule Pamella Dubula
0733416684

ANNEXURE E: INFORMED CONSENT FORM

I hereby confirm that I have been informed by the researcher,

(Name of researcher)_____, about the nature of her study entitled

“Simulation debriefing and the development of clinical judgement of student nurses at a university in Gauteng”

I have received, read and understood the written information sheet regarding the study.

I am aware that the results of the study will be anonymously processed into a study report, and all information will remain confidential.

I may, at any stage, without prejudice, withdraw consent and participation in the study.

I have had sufficient opportunity to ask questions and of my free will, declare myself prepared to participate in the study.

Signature of participant: _____ Date: _____

ANNEXURE F: FACULTY POSTGRADUATE RESEARCH COMMITTEE APPROVAL

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Private Bag 3 Wits, 2050
Fax: 027117172119
Tel: 02711 7172076

Reference: Mrs Sandra Benn
E-mail: sandra.benn@wits.ac.za

21 July 2017
Person No: 598824
PAG

Mrs MP Dubula
48 Waterval Road
Selcourt
Springs
1559
South Africa

Dear Mrs Dubula

Master of Science in Nursing: Approval of Title

We have pleasure in advising that your proposal entitled *Simulation debriefing and the development of clinical judgement of student nurses at a University in Gauteng* has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences

ANNEXURE G: ETHICS CLEARANCE CERTIFICATE

R14/49 Ms Mapule Pamella Dubula

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M170430

NAME: (Principal Investigator)	Ms Mapule Pamella Dubula
DEPARTMENT:	Nursing Education
PROJECT TITLE:	Simulation Debriefing and the Development of Clinical Judgement of Student Nurses at a University in Gauteng
DATE CONSIDERED:	05/05/2017
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Mrs Hilary Thurling and Dr Sue Armstrong
APPROVED BY:	Prof P Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	28/06/2017

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary in Room 301, Third floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in April and will therefore be due in the month of April each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature _____ Date _____

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

ANNEXURE H: PERMISSION FROM FACULTY OF HEALTH SCIENCES

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HEALTH SCIENCES

27 June 2017

TO: Ms Pamella Dubula
MSc 1 in Nursing Education

Protocol No: M170430

Dear Ms Dubula

RE: **RESEARCH PROJECT ENTITLED** – *Simulation debriefing and the development of clinical judgement of the student nurses at a University in Gauteng*

I have reviewed your research protocol & questionnaire and permission is hereby granted for you to proceed with the research.

PLEASE NOTE: that permission has been granted subject to the following conditions:

1. Anonymity of participants secured and participants to take part in the study on a purely voluntary basis.
2. Consideration and approval of the proposal by the Ethics Committee.

Yours sincerely

Adjunct Professor Lionel Green-Thompson
MBBCh (Wits), MMed(Anaesthesiology, Wits) FCA(SA) PhD(Health Sciences Education)

Office of the Assistant Dean: Teaching, Learning and Undergraduate Affairs
Phillip V Tobias Health Sciences Building, 29 Princess of Wales Terrace (cnr York Road), Parktown, 2193, Johannesburg, South Africa
T +27 11 717 2764 E lionel.green-thompson@wits.ac.za