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RESEARCH DISSERTATION

For the fulfilment of the degree in
MASTER OF NURSING SCIENCE

In the field of
NURSING SCIENCE

With the title:

**EXPERIENCES OF CLINICAL INSTRUCTORS IN USING HIGH FIDELITY
MANIKINS TO TEACH STUDENT NURSES AT THE
SELECTED HIGHER EDUCATION INSTITUTIONS IN KWAZULU-NATAL**

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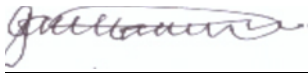
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DECLARATION

This is to certify that the work is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources). The work has not previously been submitted in any form to the University of Zululand or to any other institution for assessment or for any other purpose.



03/01/2022

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ABSTRACT

Introduction

In the past, student training during clinical practice has been conducted on live humans with minimum use of manikins to equip students with clinical skills required in the education of a nurse. The advancement of medical technology has brought major changes in the clinical training of student nurses through the introduction of high fidelity manikins (HFM). This transition has brought various challenges to clinical instructors.

Aim of the study

The aim of the study was to explore and describe the experiences of clinical instructors' use of HFMs to teach the student nurses at higher education institutions (HEIs) in KwaZulu-Natal.

Methodology

A qualitative research methodology was used for the study. The research study was guided by the National League of Nurses/Jeffries Simulation Framework (NLN/JSF). Data was collected from 10 participants using unstructured individual face-to-face interviews which were purposefully selected. Data collection was determined by data saturation and analysed thematically.

Findings

The study revealed four major themes: use of HFMs, staff in-service and training, environmental factors, and maintenance of resources. In addition, various sub-themes emerged. The study findings revealed that clinical instructors faced various challenges in using HFMs to teach clinical practice to student nurses at HEIs.

Conclusion and recommendations of the study

Clinical instructors are faced with various challenges in using HFMs to teach student nurses. These challenges range from human and material resources and technical knowledge, to infrastructural problems. Therefore, several recommendations are made with regard to nursing education institutions, nursing education administration, and policy development and implementation. Moreover, further research is recommended to be conducted about the phenomenon.

Key words: Manikin; High Fidelity; Simulation; Clinical Practice; Clinical Instructor.

DEDICATION

This dissertation is dedicated to my sisters Khumbu-Madie and Lulu Mbambo who have always encouraged me to do my best in everything I do. To my niece Luyanda who has challenged me academically to strive to achieve this dissertation. To God, my Father, who did it for me when I couldn't do it on my own.

“Now to Him who is able to do superabundantly more than we dare ask or think (infinitely beyond our greatest prayers, hopes, or dreams), according to His power that is at work in us”

(Ephesians 3:20).

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All the glory belongs to God our Father in Heaven.

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ACCRONYMS

DHET	Department of Higher Education and Training
DITM	Department of Information and Technology Management
DoH	Department of Health
DoHE	Department of Higher Education
DRC	Democratic Republic of Congo
HFPSM	High Fidelity Patient Simulator Manikin
HEI	Higher Education Institution
HFM	High Fidelity Manikins
INACSL	International Nursing Association for Clinical Simulation and Learning
JSF	Jeffries Simulation Framework
NEI	Nursing Education Institution
NLN	National League for Nursing
PSL	Patient Simulation Laboratory
SANC	South African Nursing Council
SSA	Sub-Saharan Africa
USA	United States of America
UZREC	University of Zululand Research Ethics Committee
WHO	World Health Organisation

GLOSSARY OF TERMS

Simulation:

This refers to an imitation of some aspect of reality. In the nursing education context, simulation refers to an event or situation that resembles, as closely as possible, the real clinical setting (Bruce, Klopper and Mellish, 2016:243). Therefore, in this study, simulation means the use of high fidelity manikins (HFMs) in the skills laboratory by the nursing students and the clinical instructors for the practice of various patient care activities.

Manikin:

This is a model of the human body or a part of it used in teaching anatomy and emergency medical and nursing procedures (Farlex Partner Medical Free Dictionary, 2010). Therefore, in this study manikin means a full body model that is a physical representation of a patient.

Fidelity:

This is the degree of exactness with which something is copied or reproduced (Oxford South African Concise Dictionary, 2010:431). Therefore, in this study fidelity means the degree to which the HFMs used for clinical teaching student nurses closely represent or imitate real live patients.

Clinical Instructor:

This refers to a professional nurse that the nursing school or clinical setting employs for the purpose of clinical teaching of skills to student nurses or nurse employees (Bruce, Klopper and Mellish, 2016:257). Therefore, in this study clinical instructor means the nurse educator that is employed by the nursing education institution to oversee all the activities of student nurses' clinical training.

Teaching:

This is defined as imparting knowledge to or instructing someone in how to do something, especially in a school or as part of a recognised programme. It is also

regarded as giving instruction in a subject or a skill (Oxford South African Concise Dictionary, 2010:1216). Therefore, in this study teaching means the process of instructing the student nurses in clinical practice.

Student Nurse:

A student is a person studying at a university or another place of higher education, hence a student nurse denotes someone who is studying to enter into the nursing profession (Oxford South African Concise Dictionary, 2010:1178). Therefore, in this study student nurse means a student who is registered to study at a nursing education institution for undergraduate or postgraduate nursing qualification.

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND OF THE STUDY

In the past, student nurse training during clinical practice has been practiced on live humans with minimum use of manikins. Such training equips students with the clinical skills required to qualify as nurses (Msosa, 2017:1). The advancement of medical technology has brought major changes in the clinical training of student nurses by developing and introducing high fidelity manikins (HFMs) for use in clinical skills laboratories (Clark, 2012:1). Clinical skills are aimed at equipping student nurses with the knowledge, skills and attitudes that can be utilised as a qualified nurse practitioner in the provision of high quality healthcare to patients. Meyer and Van Niekerk (2013:109) state that the manner in which student nurses practice in the future as registered nurses depends on the quality of the development acquired in the clinical setting.

Patient safety is the cornerstone of high quality care (Mitchell, 2008:7). The quality of patient care and safety is compromised by student nurses when practicing clinical skills under minimal or no supervision from the professional nurse and clinical instructors. These clinical skills involve invasive and non-invasive procedures that require a nurse to be competent in performing them on a real live human being, therefore such procedures could be detrimental to the lives of patients if performed by unskilled nurses without any supervision. A manikin is a patient simulator that provides student nurses with a professional and safe health setting to train their clinical, cognitive and behavioural communication skills which can then be transferred into real life situations (Clark, 2012:1). A high fidelity patient simulation manikin or high fidelity manikin (HFM) is a computer controlled manikin designed to mimic interaction with students and demonstrate behaviours similar to those of real patients (Amod, 2015:7). This allows student nurses to be engaged in critical events that challenge their thinking skills and response without the fear of posing risks to the lives of human beings.

Clinical practice is aimed at equipping student nurses with the knowledge, skills and attitudes that are required in clinical health care settings such as hospitals,

clinics and other clinical healthcare centres to render high quality patient care. Sufficient clinical teaching is one of the most important components of nursing education (Al-Ghareeb and Cooper, 2016:281). The increased numbers of student nurses pose a challenge for clinical instructors during clinical placement due to inadequate numbers of accredited hospitals and clinical healthcare facilities for their clinical practice. Therefore, the clinical instructors utilise the simulation laboratories equipped with HFPSMs for clinical teaching and learning of student nurses.

The use of HFMs for clinical teaching provides clinical instructors with an opportunity to formulate convenient, controlled and dynamic scenarios for students' teaching and assessment (Thurling, 2016:2). Simulation laboratories with HFMs provide a suitable alternative for clinical teaching, where student nurses can be well supervised and guided by the clinical instructors according to the curriculum plan without any limitations. This teaching strategy is being used by clinical instructors in South African nursing education institutions (NEIs) across the provinces including KwaZulu-Natal province. There are a number of challenges caused by the use of HFMs, including the lack of programmes designed for clinical instructors to capacitate them on effective use of HFMs. Therefore, this research study intends to explore and describe the experiences of clinical instructors in using HFMs for teaching of student nurses at the selected higher (HEIs) in KwaZulu-Natal.

1.2 PROBLEM STATEMENT

Considerable numbers of South African NEIs have adopted the use of HFMs based on the findings of the international studies despite the reported challenges regarding their use. These challenges range from lack of technological knowledge on how to operate the manikins, insufficient resources, and lack of time and funds for the full integration (Thurling, 2016:2). Although clinical instructors realise the value of using the HFMs in clinical teaching of student nurses, their experiences regarding the use of the HFMs as a clinical teaching approach remain unknown (Powel, Scrooby and van Graan, 2020:215). This could hinder the development and advancement of the implementation of HFMs for clinical teaching of student nurses at the NEIs. Thurling (2016:2) observes that limited research has been

undertaken on the experiences of clinical instructors' use of HFMs at the NEIs to unveil their potential as a teaching and learning strategy. There is a gap existing in the body of knowledge regarding the use of HFMs by clinical instructors at NEIs in developing countries (Welman, 2015:6). Most NEIs have clinical laboratories that are equipped with HFMs but little is known about the knowledge, experiences and the optimal use of these manikins by clinical instructors in teaching and learning of student nurses. Hence the study seeks to explore and describe the experiences of clinical instructors regarding the use of HFMs in clinical teaching and learning of student nurses.

1.3 AIM OF THE STUDY

The study aimed at exploring and describing the experiences of clinical instructors in using HFMs in teaching student nurses at selected higher education institutions (HEIs) in KwaZulu-Natal.

1.4 OBJECTIVES OF THE STUDY

The objectives of the study were to:

- Explore the experiences of the clinical instructors' use of HFMs in teaching clinical practice to student nurses.
- Describe the factors contributing to the use of HFMs in teaching clinical practice to student nurses.
- Make recommendations to be implemented by HEIs in assisting clinical instructors' effective use of HFMs in teaching clinical practice to student nurses.

1.5 SIGNIFICANCE OF THE STUDY

Investigating the use of simulation laboratories equipped with HFMs by clinical instructors contributes to the development of the knowledge, skills and the attitudes in this field. This approach also assists with the advancement of the practical skills and continuous professional development of the undergraduate and postgraduate nurse practitioners. The experiences shared by clinical instructors regarding the use of HFMs in clinical teaching and learning of student nurses will contribute to the knowledge and understanding of this strategy at different levels of nurse

training. Brink, Van Der Walt and Van Rensburg (2018:2) support this by stating that the skills in a profession come from a clearly defined and well developed knowledge base generated largely by the members of the discipline.

The value of the use of HFMs for clinical practice, whether in formal clinical training of student nurses in the clinical laboratories or informal continual clinical practice for professional development of nurse practitioners, is realised through the knowledge and understanding of this strategy. This serves as the motivation for clinical instructors in the NEIs, accredited training hospitals and healthcare facilities throughout South Africa to use this approach with undergraduate student nurses and postgraduate nurse practitioners. Hence the efficient use of the HFMs based on its knowledge and understanding contributes to the successful transformation of nursing education.

The study recommendations arising from the findings are aimed at contributing to nursing practice through ensuring that student nurses are efficiently trained to be safe healthcare practitioners. In particular, the recommendations are aimed at improving the clinical training of student nurses by clinical instructors using HFMs as a teaching strategy for teaching nursing skills. This study sought to increase knowledge in the discipline of clinical nursing research by encouraging other scholars and/or researchers to use the methods and outcomes of this study to conduct more research on the use of HFMs.

1.6 STRUCTURE OF DISSERTATION

Table 1.1: Structure of the dissertation

Chapter	Title	Chapter outline
Chapter 1	Introduction and background.	Introduction, background, problem statement, aim, objectives, significance of the study and the structure of the dissertation
Chapter 2	Literature review.	Reviews on the global use of HFMs use in sub-Saharan countries and use in South Africa including KwaZulu-Natal, and theoretical framework.
Chapter 3	Research methodology.	Research paradigm, design and methodology, population, sampling, data collection, data analysis, pilot

		study, trustworthiness and ethical considerations.
Chapter 4	Presentation of the study findings.	Presentation of the study findings based on the data analysis.
Chapter 5	Discussion, conclusions, and recommendations.	Discussion of the study findings about the experiences of the clinical instructors in using HFMs in teaching clinical practice at the selected nursing education institutions in KwaZulu-Natal.

1.7 CONCLUSION

This chapter looked at the background pertaining to the use of HFMs in NEIs, and presented the problem statement, aim and objectives of the study and the significance of the study. Chapter 2 discusses the existing literature on the research topic and the theoretical framework that guided the study is explained and illustrated.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 1 presented an overview of the study. Chapter 2 reviews the literature regarding the phenomenon. A literature review is an organised written presentation of the literature findings; it summarises what has been published on a research topic by scholars and presents relevant research findings (Grove, Burns and Gray, 2013:97). A literature review covers most written resources relevant to the topic selected and provides an overview of current, and not so current yet still sufficiently relevant, research, appropriate to the research topic and salient facets of the phenomenon (Grove *et al.*, 2013:97). Therefore, in this study various search engines such as EBSCO Host, Google Scholar, the internet, and books, were used to search for information regarding the experiences of the clinical instructors in using HFMs. Key words used to search the literature included but were not limited to manikin, high fidelity, simulation, clinical practice, and clinical instructor. Literature sources published within ten years with relevant information were included in the search criteria and sources older than ten years of publication were excluded from the search criteria.

2.2 THE ROLES OF HFMs IN NURSING EDUCATION

Nurse training has been undergoing rapid change due to the demand for healthcare workers across the world and the advancement of technology in healthcare systems (Bruce, Klopper and Mellish, 2016:69). This has led to an increased number of student intakes in training institutions with limited clinical placement areas to accommodate the demand. In 2009, The World Health Organisation (WHO) formulated global standards for the initial education of professional nurses and midwives, with the identification of key areas such as the programme curriculum, the teaching approaches and integration of theory and practice (WHO, 2009:24).

According to the WHO (2009:24) the curriculum design of the nursing and midwifery school must provide classroom and clinical learning that will ensure that the students possess the knowledge and the skills that will enable them to meet the healthcare needs of their specific population. Nurse training requires that

students continuously and repeatedly practice to achieve the knowledge, critical thinking and psychomotor skills required to qualify as nurses. Clinical knowledge and skills are critical competencies required to make clinical judgement regarding patient care and the management of complicated clinical conditions (Al-Ghareeb and Cooper, 2015:281). Student nurses need to gain the necessary clinical exposure, however the opportunities for clinical learning depend on the nurse educator and the clinical instructors in the training institutions. Hence it is imperative to ensure that the curriculum design of nursing and midwifery incorporates the use of HFMs.

Sufficient clinical teaching is one of the most important components of nursing education (Al-Ghareeb and Cooper, 2016:281). Clinical instructors are accountable for assuring that the strategies of instruction applied in nurse training are effective in developing the students' psychomotor skills, critical thinking and problem solving. Tosterud (2015:12) suggests that the basis for nursing education is not only on what to do and why it is to be done, but also on the ability and the skill to perform the act. Nursing education ensures that student nurse receive the necessary assistance to apply the knowledge acquired in classroom to clinical practice. This has influenced rapid development in simulation teaching and learning in nursing education. According to O'Leary, Nash and Lewis (2015:11) HFMs are an effective teaching strategy to achieve various learning outcomes such as promotion of nurses' confidence, critical thinking and knowledge acquisition. Cant and Cooper (2017:59) state that other learning outcomes targeted with the use of HFMs include skill performance and promoting students' satisfaction as well as their confidence level. Thus, utilising HFMs as a teaching strategy enhances nursing students' learning outcomes.

When teaching student nurses, clinical instructors are required to use various teaching approaches in their didactic programmes, including but not limited to clinical simulation amongst other methods (Alinier and Platt, 2014:55). According to Al-Ghareeb and Cooper (2016:281), clinical simulation is an activity designed to mirror a situation in which participants engage with complex stimuli and in turn react overtly with that stimuli. This mode of teaching and learning varies in levels of complexity from simple case studies to more intricate computerised HFMs

(Sundler, Pettersson and Berglund, 2015:1257). The HFMs are able to replicate precise real life situations. Hence it is imperative that the clinical instructors should have adequate knowledge and skills on how to operate and use the HFMs in effective teaching of student nurses.

The nurse training curriculum is designed to ensure correlation of theory and practice. This design ensures that student nurses are effectively equipped with knowledge and skills required to care for patients with various conditions affecting them. Clinical instructors have been compelled by the NEIs to shift their focus from traditional teaching approaches such as the lecture method to more learner centred approaches to ensure effective teaching and learning of student nurses. These transitions demand that experiential learning becomes the main focus of student learning, which means offering more hands on experience, which can be achieved by the use of HFMs. This is supported by Jeffries (2005:98) who is of the view that active physical participation results in effective learning. This approach focuses on the performance of clinical skills which requires incorporation of theory to perform the act which enables the student nurses to develop deep learning. Innovations such as the use of HFMs afford student nurses an arena to apply theory to practice because different scenarios and situations that are encountered in the clinical areas can be presented and acted upon by the student nurses (Alinier and Platt, 2014:37).

2.3 GLOBAL CONTEXT AND THE USE OF HFMs AT NURSING EDUCATION INSTITUTIONS

Worldwide, NEIs are gradually incorporating the simulation teaching strategy using HFMs as a mode of clinical teaching and learning secondary to the clinical placement of student nurses in hospitals for their practice. In Australia, the University of South Austria has structured its curriculum in such a way that student nurses in their first year of training are exposed to extensive simulated procedures to practice basic nursing skills such as bathing, positioning and other nursing care procedures (Warland, 2010:2). The clinical instructors ensure that student nurses at this level master basic nursing skills in a simulated laboratory using HFMs before they are placed in real live patient situations at hospitals (Warland, 2010:2). This

gives the student nurses opportunities to gain knowledge, skills, confidence and self-esteem so as to performing clinical skills safely on live patients.

The use of sophisticated low and high-fidelity patient simulator manikins is employed for student nurses in their training to assist them with advanced clinical skills such as cardio-pulmonary resuscitation, administering of drugs and taking of vital signs in various states in the United States of America (USA) (Warland, 2010:2). Nurse training institutions in the USA have had good experience with the use of patient simulators in training of student nurses with such training yielding exceptionally good results (Flo, Flaathen and Fagerstrom, 2013:139).

The clinical instructors at the University College of Buskerund in Norway have been using Nursing Anne manikins for the training of student nurses since 2010, yielding positive results with both practical and theoretical learning (Flo *et al.*, 2012:138). Bermuda College introduced a patient simulator laboratory (PSL) which is used by clinical instructors to demonstrate and assess clinical skills in nursing students (Faulcon, 2015:48).

Although the use of HFMs for the clinical training of student nurses is steadily growing globally, there are various challenges to its use such as lack of technological knowledge, shortage of clinical instructors to operate the HFMs, lack of funds and negativity towards the use of HFMs for the training of clinical skills in student nurses (Faulcon, 2015:48).

2.4 THE USE OF HFMs AT NURSING EDUCATION INSTITUTIONS IN THE SUB-SAHARAN COUNTRIES

The quality and the progress of the provision of the nursing education in sub-Saharan African (SSA) countries raises concerns about the relevance of the nursing education provided. Younis and Al-Metyazidy (2016:1) point out that the nursing education in these countries can be challenging compared to the well-developed countries. This notion is based on the lack of financial stability in the NEIs in the developing countries to equip their laboratories with HFMs. Kpodo (2015:6) agrees with this point by stating that the nursing programmes in countries such as Malawi, Lesotho, Zambia, Democratic Republic of Congo (DRC) and Ethiopia have been affected by slow progression in clinical education over the past

century. Insufficient investment in nursing education and HFMs has negatively affected the production of a competent nursing workforce with the appropriate skills needed to cater for the needs of the SSA population.

Welman (2015:1) states that innovative teaching strategies such as the use of HFMs as an alternative to the traditional clinical teaching methods can yield positive results in nursing students' learning in the SSA countries. The University of Tanta has adopted the use of HFMs as a didactic form of instruction which has yielded positive results in clinical teaching and learning of the student nurses (Younis and Al-Metyazidy, 2016:1). However, the implementation of this didactic form of teaching is influenced by the chronic shortage of nurse educators and clinical facilitators across the SSA with inadequate skills, knowledge and correct attitudes to supervise the large number of student nurses in the required range of clinical areas (Younis and Al-Metyazidy, 2016:1).

The quality of the healthcare rendered by the healthcare system is dependent upon the nursing workforce, hence the provision of well trained professional nurses is essential in the SSA. Therefore, the use of HFMs in the training of student nurses to learn clinical skills can play a crucial role in the whole healthcare system achieving its goals and deal with the shortages in the healthcare workforce.

2.5 USE OF HFMs AT NURSING EDUCATION INSTITUTIONS IN SOUTH AFRICA

South African nursing education is undergoing the transformation of phasing out the legacy qualifications in preparation for the new nursing qualifications which is currently ongoing. This transformation is important in improving the nursing workforce that is needed by the country to face some of its healthcare challenges such as the shortage of nurses, population increase, the disease burden and political instability among others (Bruce, Klopper and Mellish, 2016:62). The quality and the standard of the nursing education in the country is the concern of the government and the departments involved in nurse training such as the Department of Higher Education (DoHE) and the Department of Health (DoH) (Meyer and van Niekerk, 2013:2). Therefore, it is important that the NEIs should include the use of innovative teaching strategies such as the use of HFMs in their curriculum.

The NEIs are required to have fully functional clinical skills laboratories equipped with HFMs to be used in the training of student nurses. The NEIs and the clinical instructors are responsible and accountable in ensuring that the nurse practitioners are well educated and highly competent in the provision of high quality healthcare to the complex population of South Africa. Adib-Hajbaghery and Sharifi (2017:18) state that in order to achieve high quality of healthcare, nurse educators and clinical instructors are responsible to ensure that nursing students are trained to be creative, self-directed and critical thinkers who are able to make sound decisions and solve clinical problems as they are encountered.

Traditionally, clinical teaching and learning of healthcare professionals has been focused on real patient learning in hospitals and healthcare centres. With the decline in the number of clinical placement facilities, decreased length of inpatient stay, and high patient intake and outpatient care, clinical instructors need to explore alternative methods of teaching nursing students (Al-Ghareeb and Cooper, 2015:28; Msosa, 2017:1; Shepherd and Burton 2019:14). These alternative methods of teaching clinical practice include the use of HFMs in clinical skills laboratories.

According to Thurling (2016:2), in South Africa the use of HFMs has become an important aspect in the teaching of clinical practice of the student nurses' in the NEIs. This strategy of teaching using HFMs requires that the clinical instructors should communicate knowledge to students, diagnose the students' educational needs, and formulate strategies to facilitate and evaluate those (Bruce *et al.*, 2012:108). The use of HFMs can simultaneously provide student nurses with the opportunities for training and promoting critical thinking (Adib-Hajbaghery and Sharifi, 2017:18). This strategy of teaching and learning requires that clinical instructors create a non-threatening learning environment for the student nurses. Lesander, Lehto and Engstrom (2016:219) support this by stating that a safe, realistic environment makes it possible to use learning methods that improve cognitive, affective and psychomotor abilities.

The use of HFMs is beneficial to clinical instructors because the current nursing education system demands an increase in the clinical placement of the nursing students despite limited number of clinical instructors and facilities for clinical

placements (Adib-Hajbaghery and Sharifi, 2017:18; Al-Ghareeb and Cooper, 2015:28). The use of HFMs in clinical teaching provides clinical instructors with an opportunity to formulate convenient, controlled and dynamic scenarios for students' teaching and assessment (Thurling, 2016:2). Furthermore, the use of simulation laboratories with HFMs provides an alternative for clinical teaching where the student nurses are well supervised and guided by the clinical instructors according to the curriculum plan without any limitations.

The main focus of hospitals and clinical healthcare centres is patient care. Therefore, teaching and learning of students is less of a concern, resulting in limited consideration of their educational needs (Welman, 2015:5). Student nurses are often treated as part of the workforce when they are placed in the clinical area and their learning needs become neglected. Hence the use of HFMs in clinical simulation laboratories by clinical instructors is an alternative method of clinical teaching of student nurses. Although this approach cannot substitute the impact that the real patient-student encounter can contribute towards clinical teaching and learning, this approach has a major effect in the preparation of the students' patient care prior to real hospital or healthcare practice (Alinier and Platt, 2014:37).

The HFMs and the highly sophisticated devices approach to teaching and learning is used for the development of various skills such as communication and technological skills for the nursing students (Amod, 2015:1). Several NEIs in South Africa have incorporated HFMs into the teaching and learning practice of the healthcare professionals which has contributed to the transformation of nursing education in South Africa (Welman, 2015:1). Although the HFM teaching strategy is gradually being used by clinical instructors in South African, including KwaZulu-Natal, there are a number of challenges such as the lack of programmes specifically designed to capacitate clinical instructors on the effective use of HFMs. This has resulted in missed opportunities for improving nursing education, hindering the progress and the development of this didactic mode of clinical teaching in South African NEIs.

2.6 FACTORS CONTRIBUTING TO THE LACK OF USE OF HFMS AT NURSING EDUCATION INSTITUTIONS

The benefits of using HFMs and the highly sophisticated devices approach to teach the student nurses various skills such as development of leadership, teamwork, communication and technological skills, are well documented (Amod, 2015:1). This form of instruction is also a convenient way of providing a suitable environment to teach clinical practice and engage in student assessment. This strategy is beneficial to both the clinical instructors and the student nurses, but some of the clinical instructors are not utilising this approach to teach student nurses clinical practice due to a number of factors. Some of the factors contributing to the lack of use of HFMs at the NEIs include the fear of technology, shortage of human resources, lack of time, and financial support (Thurling, 2016:3).

2.6.1 Fear of technology

A HFM is composed of highly sophisticated and complex equipment that requires knowledgeable clinical instruction on how to use the technology. The process of incorporating advanced technology into the nursing curriculum and programs can be complex, requiring considerable time, commitment, competence and past experience (Adamson, 2010:18). Some clinical instructors are interested in using the HFMs for clinical teaching while others may be intimidated due to the lack of experience. Irwin (2011:155) states that most NEIs purchase HFMs without involving the clinical instructors or preparing them for the use of HFMs as a new strategy of clinical teaching. Hence the clinical instructors become hesitant to use this teaching strategy because of fear of the unknown (Irwin, 2011:155).

High fidelity manikin based simulation is a new technology in most of the NEIs. Comfort with the technological aspects of operating HFMs may be a barrier in South Africa where not all NEIs have access to fully functional information communication technology (ICT) facilities consisting of desktop computers with programs such as the internet and intranet but even those that do are not adequately prepared to use such sophisticated and complex clinical simulation technology (Ray, 2017:22). Hence the use of HFMs for clinical teaching can be intimidating for some clinical instructors, and the introduction of the new teaching

technology may be received as a threat and a challenge by clinical instructors (Miller and Bull, 2013:241). This may be related to the lack of use of HFMs at NEIs.

Some NEIs' clinical laboratories provide ICT facilities for both student nurses and the clinical instructors with sophisticated ICT programs and digital assistants, but they are not used in conjunction with simulation activities due to their complex operational requirements and the lack of personnel support which should include competent laboratory technicians whose only role is to set up, operate, repair or programme the simulation equipment (Sole, Guimond and Amidei, 2013:261). Hence most HFMs available in some NEIs are left unused.

2.6.2 Shortage of human resources

The delivery of quality clinical teaching and learning using HFMs requires adequate human resources. The shortage of clinical instructors and other clinical technical support personnel poses a challenge for effective use of HFMs in teaching clinical practice (Arthur, Kable and Levett-Jones, 2011:223). The need for sufficient personnel to run the programme within the nursing courses and supervise the student nurses during the clinical sessions is an essential factor. Arthur *et al.* (2017:223) further state that the academic personnel are responsible for integrating the HFMs into the nursing curriculum. This involves developing scenarios, thinking them through, writing them and actually applying these to the clinical simulation teaching (Jansen, Johnson, Larson, Berry and Brenner, 2009:12).

The availability of adequate personnel such as laboratory technicians and the laboratory co-ordinators to prepare laboratory and maintain the software, hardware and all the supporting equipment reduces the time required by clinical instructors to prepare for the use of HFMs. Howard, Englert, Kameg and Perozzi (2011:8) support this point by stating that the co-ordinators could also be responsible for teaching new clinical instructors how to use the technology and how to incorporate HFMs strategies into their courses. The shortage of human resources interrelates to the lack of time as the factors contributing to the lack of use of HFMs in NEIs.

2.6.3 Lack of time

Time is one of the factors that is necessary in the use of the HFMs. This refers to the amount of time that needs to be devoted to incorporating HFMs into the curriculum (Ray, 2017:27). Time is needed by clinical instructors to carefully plan how to effectively use the HFMs and to determine how to achieve the objectives of the nursing course. It also relates to the time in needed in a day to create scenarios and carry them out. The adoption of HFMs into the nursing curriculum requires dedication from the clinical instructors considering the workload, time and the responsibilities which often is a high ranking obstacle (Ray, 2017:27; Arthur *et al.*, 2017:223

Most NEIs have implemented HFMs into the nursing programs with limited planning and without reducing the clinical instructors' workload. Furthermore, Howell (2017:13) describes the importance of time as consisting of assignments and work distribution amongst the curriculum for the purposes of determining responsibility. The responsibilities within the workload includes course and curricular revision, conducting research, providing service to the institution and community and maintaining knowledge of the current practice (Howell, 2017:13). This adds more workload and time requirements to already overburdened NEIs regarding the clinical training and placement of student nurses in limited clinical areas.

2.6.4 Lack of financial resources

The lack of financial stability in developing countries such as South Africa leads to insufficient investment in nursing education. These results in limited budget for the purchase and supply of HFM for the skills laboratories (Faulcon, 2015:48). High fidelity manikin based simulation requires financial support for the purchase, maintenance and upgrading of the equipment (Adamson, 2010:79). Most of the NEIs such as colleges lack funding from the government to be able to equip their clinical skills laboratories with HFMs. The high cost of teaching with HFMs is considered as one of the barriers in the use of this clinical teaching approach (Adamson, 2010:75).

Most of the NEIs have started to invest in the purchase of HFMs in preparation of the new nursing curriculum R174 as proposed by the South African Nursing Council

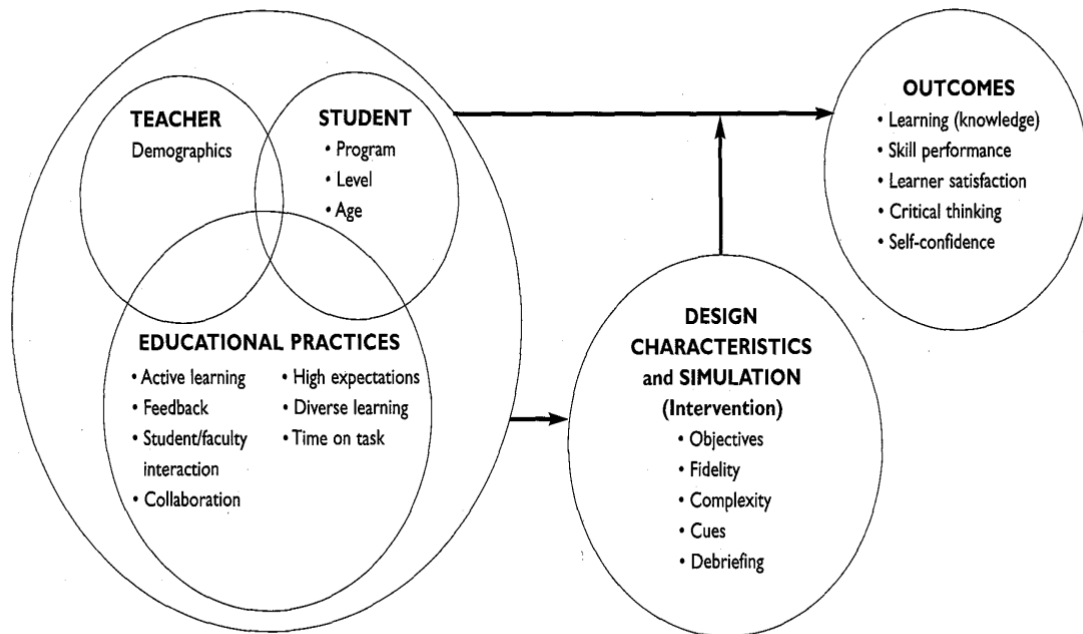
(SANC). The problem is the lack of additional monetary resources for education and training of clinical instructors for the effective use of the equipment or to network with other NEIs in order to optimise the use of this teaching strategy. Howell (2017:63) points out that the lack of ICT departments within some NEIs to assist when issues with programming of the HFMs arise results in malfunction and therefore abandonment from utilisation.

2.7 THEORETICAL FRAMEWORK

A theoretical framework is based on propositional statements resulting from an existing theory (Brink, van Der Walt and van Rensburg, 2018:21). A research framework summarises and integrates what we know about the phenomenon more succinctly and clearly than a literary explanation and allows us to grasp the bigger picture of a phenomenon (Grove, Burns and Gray, 2013:117). This research study was guided by the National League of Nurses/Jeffries Simulation Framework (NLN/JSF) (Jeffries 2005:98). This framework was applied to inform discussion of the study findings. The framework focuses on effective use of simulation as one of the teaching strategies in nursing and it has been used as the basis for other research studies on high fidelity manikins use (Amod, 2015:9).

The five major components of this framework include teacher factors, student factors, educational practices, simulation design and outcomes. Each of these components is important in clinical teaching and learning of student nurses using HFMs. They have an influence regarding the clinical instructors' use of HFMs during the teaching of nursing students. Figure 2.1 shows the NLN/JSF (Jeffries, 2005:98).

Figure 1. Simulation Model



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Figure 2.1: Jeffries Simulation Framework (NLN/JSF)

Source: Jeffries (2005).

Table 2.1 explains the applications of the theoretical concepts that guided the study.

Table 2.1: The theoretical concepts that guided the study

CONCEPT	EXPLANATION	APPLICATION TO THE STUDY
The teacher factors	The demographics are the teacher factors that have an impact in the effective use of the simulation activities (NLN/Jeffries Framework [Jeffries, 2005:98]). Some of the teacher demographics that can affect effective teaching include qualifications, teaching experience, professional development, and job satisfaction. These have an influence on the teacher's knowledge of the subject, the selection of the teaching methodologies as well as confidence and the level of	These factors have an influence as well on the clinical instructor's use of HFMs. The clinical instructors' knowledge, qualifications, working environment, teaching experience in using HFMs was explored and described during data collection and analysed during data analysis.

	motivation (Waseka, Simatwa and Okwach,2016:153).	
The student factors	The framework considers the student factors as also contributing to the effective use of the simulation. According to Jeffries (2005:98) the students are responsible for their learning with simulation experiences in clinical practice, therefore they are expected to be motivated and self-directed in order for effective learning to occur. The student factors which the framework regards as important in effective use of the simulation include age, academic or learning programme, and the level of the programme.	These factors have an influence in teaching and learning of the student nurses using HFMs, based on factors presented by students such as age, knowledge of the use of technology, behaviours, expectations and attitudes towards their clinical instructors. These factors were explored and described during data collection and analysis.
Simulation design	When high fidelity patient simulators are used to support more complex active learning strategies it will result in an interactive learning environment which encourages the students to make a connection among concepts (Jeffries, 2005:101). Some of the simulation design characteristics include objectives, fidelity, complexity, cues and debriefing. These consist of the use of simple and complex simulation activities with clearly written objectives to guide the students.	Some characteristics of the simulation design such as objectives, fidelity and complexity are directly related to the experiences of the clinical instructors in using HFMs and exploring these informed data collection as well as data analysis
The outcomes	Knowledge, skills performance, learner satisfaction, self-confidence and critical thinking are some of the factors that the framework focuses on with the outcomes. According to Jeffries (2005:102)	The outcomes of the use of HFMs in teaching clinical practice to student nurses is the objective that needs to be achieved by clinical instructors. Asking the clinical instructors questions related to the achievement of

	<p>simulation can positively influence students' critical thinking resulting in effective learning. It can also develop the students' psychomotor skills with repetitive practice which leads to satisfaction and increase in self-confidence. The achievement of these outcomes relates to the clinical instructors' use of HFMs.</p>	<p>these outcomes resulted in better understanding of the topic at hand.</p>
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2.8 CONCLUSION

Chapter 2 focused on the existing literature on the use of HFMs globally as well as in South Africa. Factors contributing to lack of use of HFMs at NEIs, and the theoretical framework that guided the study were discussed and explained. Chapter 3 explains the research paradigm, design and research methodology that was used to conduct the study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This explains the research paradigm and research methodology of the study consisting of sampling technique, sample size, inclusion and exclusion criteria, data collection, data analysis processes and ethical considerations.

3.2 RESEARCH PARADIGM

A research paradigm is a way of looking at a natural phenomenon that encompasses a set of philosophical assumptions and that guides the researcher's approach to enquiry (Brink *et al.*, 2018:20). This research study was based on the constructivist paradigm assumption. Qualitative research is associated with constructivist enquiry. Polit and Beck (2016:10) state that the constructivist paradigm is often called the naturalistic paradigm and is characterised by the following features:

- It seeks in-depth understanding.
- Reality is multiple and subjective.
- Information is narrative and unstructured.
- The researcher is an intrinsic part of the research process and the knowledge is obtained from within.
- The inquirer interacts with those being researched.
- The sample is small but rich with information.
- Subjectivity and values are inevitable.
- Research design is flexible and emergent.
- Qualitative analysis.
- Emerging insight is grounded in participants' experiences.
- The findings are created from the interactive process and are grounded on the real-life experiences of people with first-hand knowledge of the phenomena
- Human beings are used directly as the instrument through which data is gathered.

The researcher seek to understand a phenomenon under study from the experiences of the participants using different data collecting methods such as unstructured face to face, individual interviews. Therefore, based on the nature of the study a constructivist paradigm assumption was deemed suitable.

3.3 STUDY AREA

The research study was conducted at selected NEIs accredited by the SANC for the training of student nurse in three districts namely: eThekwini, uMgungundlovu and Zululand Districts in KwaZulu-Natal province. This province is located in the South East of South Africa. It is divided into 11 Districts namely: Amajuba, eThekwini, Harry Gwala, iLembe, King Cetshwayo, uGu, uMgungundlovu, uMkhanyakude, uMzinyathi, uThukela and Zululand (Figure 1.1). The accredited public NEIs in KwaZulu-Natal province include three Universities located in eThekwini, uMgungundlovu and King Cetshwayo districts. These NEIs are accredited by SANC to offer the following nursing programmes in the province: Diploma in Midwifery (R. 254), Education and Training of a Nurse (General, Psychiatric and Community) and Midwifery (R. 425), Diploma in Clinical Nursing Science (R. 212), Diploma in Nursing Science, Health Assessment, Treatment and Care (R. 48), Bridging Course (R. 683) and Bachelor of Nursing (R. 174).

3.3.1 Inclusion criteria

- All the public Higher Education Institutions (HEIs) in KwaZulu-Natal using HFMs in teaching clinical practice to student nurses.

3.3.2 Exclusion criteria

- All the public HEIs in KwaZulu-Natal not using HFMs to teach clinical practice to student nurses.

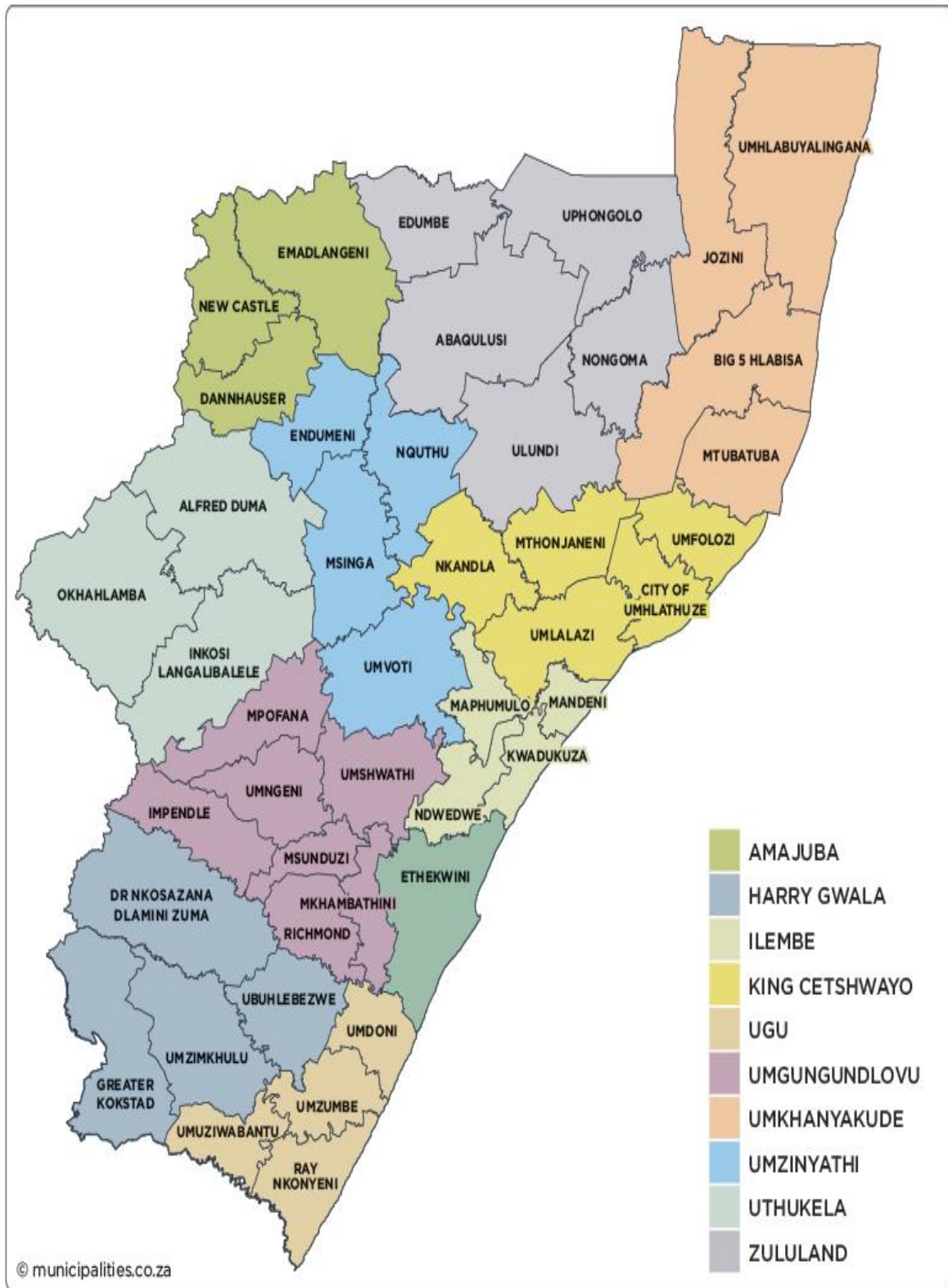


Figure 3.1: KwaZulu-Natal District map

Source: @municipalities.co.za

3.4 RESEARCH METHODOLOGY

Research methodology is the technique that a researcher uses to structure a study and to gather and analyse information relevant to the research question (Polit and Beck, 2016:11). A qualitative research methodology was used to conduct this study. Qualitative research, according to Brink *et al.* (2018:103), is a research methodology that is used when little is known about a phenomenon and is characterised by the following features:

- The research is conducted in a real-life situation.
- The focus is more on the process, and less on the product.
- Its purpose is in-depth description and understanding of people's beliefs, actions and events in all their complexity.
- The researcher is seen as the main instrument with this research and is subjectively involved in the research process.
- The research is often inductive in nature and as much as such generates more questions and hypotheses.
- The rationale of the research is not to generalise the findings but to understand them in context.

3.4.1 RESEARCH DESIGN

A research design is an overall plan for obtaining answers to the research question (Polit and Beck, 2016:15). It moves from the underlying philosophical assumptions to specifying the selection of participants, the data gathering methods, and the data analysis to be done (Creswell, Ebersohn, Ellof, Ivankova, Jansen, Nieuwenhuis, Pieterse and Plano Clark, 2017:72). Therefore, in this study, a qualitative explorative research design was employed.

3.4.1.1 A qualitative explorative research

A qualitative explorative research design was used to conduct the study. This is a study that was intended for observing, describing and documenting aspects of a situation as it naturally occurs (Polit and Beck, 2016:250). It examined the meaning and provided an in-depth understanding of human experiences (Brink *et al.*, 2018:103). An explorative research begins with a phenomenon of interest and it

investigates the full nature of the phenomenon including the manner in which it is manifested (Polit and Beck (2016:15). This research study explored the experiences of clinical instructors' use of HFMs in teaching student nurses clinical practice, and described the factors contributing to use of the manikins in clinical practice. Hence a qualitative explorative research design was appropriate for this study.

3.5 STUDY POPULATION

This is defined as a particular group of individuals or elements who are the focus of the research (Grove *et al.*, 2013:250). This research study was focused on all the clinical instructors that are teaching clinical practice at the accredited NEIs in KwaZulu-Natal province.

3.6 SAMPLING PROCESS

This is the process of selecting cases that will represent the entire population (Polit and Beck, 2016:251). Brink *et al.* (2018:115) state that this process involves selecting the sample from the population in order to obtain information regarding the phenomenon in a way that represents the population of interest. A sample is a group of selected elements or units of analysis from a defined population (Brink *et al.*, 2018:117).

3.6.1 Sampling technique

The researcher studied the experiences of clinical instructors with regards to the use of HFMs in teaching clinical practice to student nurses using a qualitative explorative research design. The participants were selected using a non-probability sampling approach. This concept is supported by Polit and Beck (2016:492) by stating that in qualitative research, a random sample is not considered the best method of selecting people who are knowledgeable, articulate, reflective and willing to talk at length with researchers.

Thus, participants were selected based on their knowledge of teaching student nurses clinical practice. This technique is based on the researcher's judgement

regarding the participants' knowledge of the question at hand (Brink *et al.*, 2018:126).

3.6.2 Sample size

The researcher continuously sampled the participants until the data was saturated, therefore the number of participants was determined by the amount and the quality of data collected to satisfy the objectives of the study. Polit and Beck (2016:521) concur with this notion by stating that there are no fixed rules for sample size in qualitative research but the guiding principle is data saturation. Brink *et al.* (2018:126) indicates that data saturation is a point at which no new data emerges during data collection.

3.6.3 Inclusion criteria

- All the clinical instructors using HFMs to teach student nurses at the HEIs in KwaZulu-Natal.

3.6.4 Exclusion criteria

- All the clinical instructors not using HFMs to teach student nurses at the HEIs in KwaZulu-Natal.

3.7 Pilot study

A preliminary study was conducted prior to the main study. The participants were selected from the clinical instructors at the NEIs' who met the inclusion criteria. The data collected during this process was not included in the main study. The researcher conducted three interviews to identify the feasibility of the study. This was also aimed at establishing the researcher's ability to conduct the study and to identify possible flaws in the data collection tool such as the wording and to determine whether the participants understood what was required of them (Brink *et al.*, 2018:161). Data was analysed and, there was no need to change the data collection tool as the participants understood what was required from them. The findings from analysis of their data was not included in the main study.

3.8 DATA COLLECTION PROCESS

A data collection process involves the acquiring of the subjects and the collection of data for the study (Grove *et al.*, 2013:310). The main aim of this research study was to obtain in-depth information on the experiences of the clinical instructors teaching clinical practice using HFMs at HEIs by using unstructured face-to-face individual interviews with the participants. Brink *et al.* (2018:144) state that unstructured interviews produce more in-depth information on participants' beliefs and attitudes than can be obtained through any other data-gathering procedure. The researcher started with a broad question then followed up with probing questions to encourage the respondents to elaborate for clarity and to explicate meaning (Brink *et al.*, 2018:144). The interviews were conducted in the English language, as it is the language that all the participants understood, and it is an official medium of communication at the institutions where the participants were teaching clinical practice.

The researcher conducted the interviews at a location preferred by, accessible to, and convenient for the participants. It is important that participants feel safe and free to talk (Grove *et al.*, 2013:271). The researcher arranged a private room with adequate lighting, a cool temperature and without distractions to ensure that privacy, confidentiality and comfort was maintained. All the participants were asked to wear cloth face masks, they were sanitised, and the chairs and tables in the room were arranged in such a way that a 1.5 m distance apart from each other was maintained to adhere to COVID 19 alert level 1 regulations.

Polit and Beck (2016:533) also point out that collecting high quality data can be an emotional strain as it requires deep concentration and energy, therefore the process must be conducted at a pace that minimises stress. The interviews lasted for a maximum of thirty minutes to an hour with each participant.

The researcher issued an information letter (Annexure: A) to the participants to read and ask any questions regarding the study before giving them a consent form (Annexure: B) to sign voluntarily to participate in the study. There was no coercion (Brink *et al.*, 2018:34, Polit and Beck, 2016:159). Permission to use an audio recorder and take field notes was also requested from the study participants to ensure that their right to privacy was respected (Brink *et al.*, 2018:30). The

interviews were recorded to provide the researcher an opportunity to focus on the interactions with the participants including observing participants' reactions such as non-verbal responses, and this is also essential in ensuring that the researcher was in possession of a source of data which allowed for repeated listening to compare with the field notes for data analysis (Grove *et al.*, 2013:272).

The researcher asked the participants the same open-ended questions ranging from general to specific that allowed for collection of in-depth high quality data. This was followed by probing questions based on the participants' responses to get more information regarding the phenomenon based on their experiences. Polit and Beck (2016:537) concur with this by stating that questions should provide the participants an opportunity to provide rich and detailed information about the phenomenon under study. The data from field notes and the audio tapes was kept in an office in a safe place under lock and key. The computer notes were filed safely and secured with passwords which are only known by the researcher. These will be kept for the period of five years in case verification is required (Brink *et al.*, 2018:14)

3.9 DATA ANALYSIS

The purpose of qualitative data analysis is to organise, provide structure to and elicit meaning from data. This begins with organisation of data by classifying and indexing it (Polit and Beck, 2016:558). This is a rigorous process as the researcher spends considerable time reading and reflecting on the data (Grove *et al.*, 2013:89). The researcher started the data analysis process concurrently with data collection. The data was in the form of the researchers' written field notes and audio recordings. The text was examined, broken down and then organised to make meaning and for better understanding.

3.9.1 Organising and managing data

A good principle for organising data is keeping different data sets such as field notes and interview data separate, and to mark each clearly in terms of their characteristics such as when and why it was collected (Creswell *et al.*, 2017:104). The researcher gave each participant an identification code to mark all data on that participant with that code (Creswell *et al.*, 2017:104).

The recorded interviews were transcribed verbatim (Polit and Beck, 2016:557). Verbatim transcript is essential for qualitative research process as it captures the participants' words as they are, their language and expressions enabling the researcher to decode behaviour processes and cultural meanings attached to peoples' perspectives (Grove *et al.*, 2013:88). Data analysis involved keeping written notes which occurred when the researcher listened to them several times and wrote the impressions the researcher had of the data and then the recorded interviews were transcribed (Brink *et al.*, 2018:193).

3.9.2 Coding

This is defined by Creswell *et al.* (2017:105) as the process of reading carefully through the transcribed data line by line, dividing it into meaningful and analytical segments and coding those units once located. It is searching for the meaning of what the participant said. A code is a symbol or an abbreviation used to classify words or phrases (Brink *et al.*, 2018:180). The researcher went through all the transcribed data and any meaningful segment identified was assigned a code to represent that particular segment. The codes enabled the researcher to identify patterns within the data as the coded units were compared for similarities and differences (Grove *et al.*, 2013:89). The process continued using inductive coding until all the data was segmented and coded.

The researcher gained expert assistance from the study supervisor regarding encoding to ensure the reliability of the codes. The main list of all the codes that were developed and used in the research study was kept safely by the researcher. This enabled the researcher to be able to retrieve the data as needed. The coding process enables the researcher to retrieve and collect all the text and other data they have associated with the same thematic idea so that the sorted bits can be examined together and different cases compared together (Creswell *et al.*, 2017:105).

3.9.3 Code book for the participants

A codebook is a list of codes with code definitions that may be defined by how the participants refer to the topic or may be derived from literature review, allowing the researcher to keep track of how codes are being used to make sense of data

(Mihás and Odum Institute, 2019:2). It is also a product of research illustrating what topics are relevant for a particular research question. Code definitions offer guidance on how the code is applied. Table 3.1 shows the code list of the participants

Table 3.1: Participant code list

HEI-A	AP1
	AP2
	AP3
	AP4
	AP5
HEI-B	BP1
	BP2
	BP3
	BP4
	BP5

3.9.4 Themes, sub-themes and categories

Once the initial coding was completed the data was summarised and organised, and the codes were refined and revised (Creswell *et al.*, 2017:107). The processes that were appropriate for summarising include categorising, searching for relations and patterns, and enumeration, which were helpful in clarifying the words that were used in the report such as some, many, few, and others. The researcher identified themes and sub-themes as these emerged as codes that were combined into more abstract phases or terms as the process progressed (Grove *et al.*, 2013:89).

Once the transcribed data was coded, the researcher read through the identified codes to find themes that recurred in the data which became categories and assigned identifying names to each theme (Creswell *et al.*, 2017:107). The researcher wrote a short description of each theme, gave examples to illustrate the meaning of the theme, and checked the sensibility of the description for the theme with the supervisor as suggested by Creswell *et al.* (2017:107). Once the themes were established and the identifying names allocated, the coded data was then grouped into their appropriate categories. This process progressed until all the data was allocated into categories and no new themes were emerging.

3.10 TRUSTWORTHINESS

According to Grove *et al.* (2013:394) trustworthiness in qualitative research is concerned with the components listed below.

3.10.1 Credibility

This is focused on confidence on the truth of the data and interpretation of the data (Polit and Beck, 2016:585). The researcher achieved this by presenting the written data, the interpretations of the clinical instructors' experiences regarding the use of HFMs and the recordings to colleagues and peers of similar status who are experts in the field for review. Furthermore, the researcher discussed the research process and the findings with the supervisor who was qualified and competent in the field and could give insight into factors about which the researcher may have been concerned. The researcher used an audio recorder to collect data, the data was transcribed, and the researcher made sure that the transcribed notes were a true reflection of the participants' experiences by using quotations from participants' verbatim.

3.10.2 Transferability

This is concerned with the potential of or the extent to which the findings from the study can be transferred or applied to the other settings or groups of people (Polit and Beck, 2016:585). The researcher achieved this through providing a detailed database and thick description for other researchers or people with an interest in the study to evaluate the applicability of the data to other contexts or to draw conclusions regarding whether the transfer can be contemplated as a possibility (Polit and Beck, 2016:585, Brink *et al.*, 2018:159).

3.10.3 Dependability

This is defined by Brink *et al.* (2018:159) as providing evidence such that if the research study was to be repeated with similar participants or in a similar context, it will produce the similar findings. This was demonstrated through peer debriefing, member checks and the researcher requesting the participants to evaluate, confirm

and justify the interpretations and conclusions for a true representation (Brink *et al.*, 2018:159).

3.10.4 Confirmability

This is concerned with establishing that the data is a true representation of the information that was provided by the participants (Brink *et al.*, 2018:159). The researcher ensured thick descriptions through proper and thorough collection of data, detailed description of the research setting and of the study participants and the whole process of the study (Brink *et al.*, 2018:159). The researcher also safeguarded the audio recordings from the interviews as these could serve as evidence in case of verifying this study (Brink *et al.*, 2018:172).

3.10.5 Authenticity

This is focused on conveying the true experiences and feelings of the participants where the readers will be able to understand the feelings, experiences and emotions of the participants as portrayed by the researcher in the report (Polit and Beck, 2016:585). The researcher ensured this through recording of interview data accurately and preparing thoughtful field notes that were rich with descriptions of what transpired in the field. This included the participants' demeanour and behaviours during the interactions and the interview context (Polit and Beck, 2016:591).

3.10.6 Reflexivity

This is defined by Polit and Beck (2016:534) as the process of reflecting critically on the self and analysing and making note of personal values that could affect data collection and interpretation. This is about the researcher's self-awareness as part of the research and the data they are collecting. The researcher conducted introspection and explored their own biases, preferences, stakes in and fears about the research, made notes of reflexive thoughts in personal journals. and the researcher was reflexive about every decision chosen during the inquiry as this enhanced the quality of the study (Polit and Beck, 2016:534).

3.11 ETHICAL CONSIDERATIONS

Conducting research ethically requires protection of the human rights of subjects (Grove *et al.*, 2013:191). It is the responsibility of the researcher to ensure that the rights of the participants are protected. Protecting the rights of the research subjects in this study included the following:

3.11.1 Submitting the research proposal for institutional review

The researcher sent the proposal to the University of Zululand Research Institutional Ethics Committee (UZREC) for ethical clearance before the commencement of the study (Annexure: D). Permission was also requested from the University of Zululand Department of Nursing and the Durban University of Technology Department of Nursing to conduct the study (Annexure: C).

3.11.2 Securing an informed consent

Informed consent is a concept that formalises the ethical principle of voluntary participation and protecting the participants from harm (Brink *et al.*, 2018:31). The clinical instructors were given clear and necessary information in writing about their participation in the research study before they were requested to sign the consent form. The researcher issued an information letter (Annexure: A) to the participants to read and they could ask any questions regarding the study. The information was written in English language that they would understand. This ensured that they had adequate information regarding the study. All the clinical instructors that were participating in the study were requested to sign an informed consent form (Annexure: B) voluntarily to participate in the study without any coercion (Brink *et al.*, 2018:34, Polit and Beck, 2016:159).

3.11.3 The right to self determination

This is based on the ethical principle of respect for persons where humans should be treated as autonomous agents (Brink *et al.*, 2018:29). The researcher treated all the prospective subjects as autonomous agents by informing all the potential participants about the proposed study. They were allowed to choose whether to participate or not. They were ensured by the researcher that their participation was

voluntary and that they were free to withdraw or refuse to give information at any point during the study without any consequences or threats imposed on them. They were never in any manner coerced to partake in the study.

3.11.4 The right to privacy

The researcher is responsible to ensure that the participants' right to privacy is maintained (Brink *et al.*, 2018:30). This was demonstrated by the researcher through informing the participants that the interviews were recorded and that field notes were being taken. Because the interviews were conducted individually, the researcher arranged for private rooms with no interferences.

3.11.5 The right to anonymity and confidentiality

It is the participants' right to expect that the information they share will remain anonymous (Brink *et al.*, 2018:30). The researcher gave each participant a code name that was used when discussing data. The list with the code names and the participants' real information and details were kept separate to ensure that the information could in any manner be traced back or linked to the participants. These lists were kept in a locked office where only authorised persons such as the researcher and a study supervisor could gain access to that data. The electronic data was secured with a password to ensure confidentiality. Grove *et al.* (2013:173) state that it is the responsibility of the researcher to ensure the anonymity of the subjects and to maintain the confidentiality of the data.

3.11.6 The right to protection from harm and discomfort

Ethical researchers have an obligation to use strategies to minimise all types of harm and discomfort to the participants such as debriefing sessions after data collection (Polit and Beck, 2016:153). This study was of very low risk and no foreseeable risk to the participants resulted from the study, but should any matter have aroused causing discomfort in the participants, the interviews would have been halted and the participants would have received necessary attention and debriefing.

3.12 CONCLUSION

This chapter explained the research paradigm and research methodology of the study. It defined the overall plan of the research study which included the research design, study population, sampling process consisting of sampling technique, sample size, inclusion and exclusion criteria, the data collection, data analysis processes and ethical considerations. The following chapter presents the study findings.

CHAPTER 4: PRESENTATION OF THE STUDY FINDINGS

4.1 INTRODUCTION

The previous chapter presented the research methodology adopted to conduct the study. This chapter outlines the findings of data obtained during data analysis. Data was gathered via unstructured face-to-face individual interviews conducted on participants from the two study areas during two weeks in October 2021 and the two weeks November 2021.

4.2 SAMPLE REALISATION

The study was conducted at two HEIs situated north and south of Durban in KwaZulu-Natal. Data was collected from 10 participants who met the inclusion criteria. Data saturated at the 8th interview but an additional two interviews were conducted to ensure that data saturation was reached. Table 4.1 shows the sample realisation based on the study area where participants were located.

Table 4.1: 4 Sample realisation for the entire study (n=10)

Study Area	Participants	Total
HEI-A	AP1	05
	AP2	
	AP3	
	AP4	
	AP5	
HEI-B	BP1	05
	BP2	
	BP3	
	BP4	
	BP5	

4.3 DEMOGRAPHIC DATA

Data was collected from 10 clinical instructors teaching clinical practice to student nurses at the selected study areas. Demographic information was obtained to determine any possible commonalities regarding their work experience, level of education, role in the department and the programmes they teach in. The participants were interviewed to achieve the aim and objectives of the research

study. The interviews were conducted over a period of four weeks. Table 4.2 presents the demographic data of the study participants.

Table 4.2: Demographic information of the participants (n=10)

Participant Code	Gender	Race	Qualification	Experience	Rank	Teaching Programme
AP1	F	A	Degree	5 years	Clinical Instructor	R425
AP2	M	A	Degree	4 years	Clinical Instructor	R425
AP3	F	A	Degree	8 years	Clinical Instructor	R425
AP4	F	A	Degree	5 years	Clinical Instructor	R425
AP5	M	I	Degree	6 years	Clinical Instructor	R425
BP1	M	I	Degree	14 years	Clinical Instructor	R425
BP2	F	A	Degree	8 years	Clinical Instructor	R425
BP3	F	I	Degree	10 years	Clinical Instructor	R425
BP4	F	C	Degree	10 years	Clinical Instructor	R425
BP5	F	I	Degree	15 years	Clinical Instructor	R425

4.4 THEMES AND SUB-THEMES THAT EMERGED DURING THE INTERVIEWS

There are four major themes that emerged from data collected during the interviews:

Theme 1: Use of FHMs

Theme 2: Staff in-service and training

Theme 3: Environmental factors

Theme 4: Maintenance of resources

Several sub-themes emerged from the major themes during data collection. Table 4.3 presents the themes and sub-themes.

Table 4.3: Themes and sub-themes

THEMES AND SUB-THEMES	
THEME 1	SUB-THEMES
Use of HFMs	1.1 Clinical instructors' competence
	1.2 Clinical laboratory support staff knowledge
	1.3 Orientation of new staff on use of HFMs
THEME 2	
Staff in-service and training	2.1 Staff training about the use of HFMs
	2.2 Development and use of scenarios
THEME 3	
Environmental factors	3.1 Layout of the skills laboratory
	3.2 Storage area of the HFMs
	3.3 Availability of a control room
THEME 4	
Maintenance of resources	4.1 Care and services of the HFMs
	4.2 Level of service agreement with the suppliers
	4.3 Life span of the HFMs

4.5 PRESENTATION OF THE STUDY FINDINGS

4.5.1 THEME 1: USE OF HIGH FIDELITY MANIKINS

Most of the participants were concerned with regards to the use of HFMs in the clinical skills laboratory in teaching clinical skills to student nurses. Most participants raised various challenges such as clinical instructors' competence, clinical support staff knowledge and the orientation of new staff on the use of HFMs.

4.5.1.1 Sub-theme 1.1: Clinical instructors' competence

Arising from the interviews with the participants, it was evident that most of them lacked competency regarding the use of HFMs. This was based on the fact that most HFMs available in the clinical skills laboratory require high technological skills which most of them do not have. This was captured in this verbatim:

Mam ... during my training as a nurse and a nurse educator I was not exposed to the use of high technology manikins. I am not confident with the setting the manikins require in order to become functional. AP3

Teaching using these high fidelity manikins is such a challenge for me because it is not only about being able to use the computer and any other computerised equipment but it requires you to have high technological skills knowledge to use them.” BP5

Yes ... even though we were orientated of the features and how the high fidelity manikins function, the truth is that ... this experience is new to some of us and you really need to be techno-savvy in order to be able to teach with these manikins because they are high technological level equipment.

AP4

4.5.1.2 Sub-theme 1.2: Clinical laboratory support staff knowledge

The participants were of the opinion that the presence of knowledgeable clinical laboratory support staff with high technological skills was essential for effective use of HFMs in clinical teaching of student nurses, as expressed in the following excerpts:

.... Our support staff does not have much knowledge about the settings and the technological skills required to set this equipment. Most of them they were not trained on the use of high fidelity manikins. If they know how to set them ... this will be very much of help because she/he can do what she/he knows best which is the technical part and I just worry about my teaching.

BP2

What I can say is that ... there is a lot to clinical teaching with high fidelity manikins than what you can think of hence it requires a lot of clinical support. You really need skilled and knowledgeable laboratory technical human resources to assist you which is not the case with our support staff as they too lack technological knowledge regarding these manikins. BP3

The shortage of clinical laboratory staff with knowledge and skills about the use of high fidelity manikins is one of the issues that are affecting clinical teaching in our institution. It is time consuming and stressful to have support staff at clinical skills laboratory with no knowledge on how to operate the high fidelity manikins. AP2

4.5.1.3 Sub-theme 1.3: Orientation of new staff on the use of HFMs

Most of the participants postulated that there is a need for vigorous orientation of newly appointed staff members on the use of HFMs in teaching clinical practice to student nurses. They commented on the positive benefits of the use of HFMs if new staff were well orientated in this regard. They shared the following perspectives:

I think orientation of new staff on the use of high fidelity manikins makes all the difference on how we use these for clinical teaching. ... Eh ... When I first came to teach here I was not well orientated on how to use high fidelity manikins, so I am still not using them effectively even now. AP1

Orientation of newly appointed staff about the use of high fidelity manikins is a problem here. Most of us we were not orientated on such ... If you are not sure on how to use and care for the high-fidelity manikins, it becomes daunting to think of using them even if you are familiar with how to operate them. As it is now, some of them are lying around the skills' laboratory, we are not using them because we are afraid that if we damage or break them then we will be in trouble, ... so, I think orientation on all aspects of high-fidelity manikins including how they are used and cared for is vital to new clinical staff. BP4

I was employed in this institution when they started to implement high fidelity manikins into their nursing curriculum. I was not well orientated so I was not familiar with the use of this equipment. I have learned that implementation of high fidelity manikins in clinical teaching requires a holistic approach as these do not operate in isolation, some additional resources are required including the preparation of the clinical instructors themselves. ...that is where good orientation comes handy. AP5

4.5.2 THEME 2: STAFF IN-SERVICE TRAINING

Staff in-service training emerged as another contributing factor that influence the use of HFMs by the clinical instructors. The participants expressed concerns regarding the lack of staff training on the use of HFMs and the development and use of scenarios which could assist them to teach clinical practice effectively.

4.5.2.1 Sub-theme 2.1: Staff training on the use HFMs

We need support through formal training on the use of these manikins because one or two sessions of training we had from the supplier is not enough ... Eh ... I think if we can be sent for training on how to use high fidelity manikins. This can improve our knowledge and skills of clinical teaching practice. BP2

Lack of formal training is one of the problems we have been facing with the use of high fidelity manikins. Hence this has incapacitated me from using them. I was not trained on the use of high fidelity manikins before except from self-training. BP1

We have never had a proper formal training on the use of these manikins. The only training we received was just a short 30 minutes' crash course from the supplier when a new manikin was delivered ... Mam this is inadequate as we struggle when we have to teach students clinical practice using these manikins. BP5

4.5.2.2 Sub-theme 2.2: Development and use of scenarios

The participants were of the opinion that lack of proper skills, knowledge and experience in the development and the use of scenarios was one of the aspects causing a concern with the effective use of the HFMs. This was expressed in these statement during the interviews:

Being able to effectively simulate rare scenarios and in order for those to have educational value you must be able to develop appropriate and well planned scenarios. This requires training, knowledge and experience to be an effective scenario developer which in our case is a serious shortfall.” AP5

Mh ... Mam ... Ideally the written scenarios must correspond with the needs and the outcomes of the students which are patient orientated. The manikins run realistic scenarios that are pre-programmed algorithms. This often require a specifically trained individual to develop these scenarios, which I am not. AP4

Developing an academically sound scenario to be used with high fidelity manikins is a challenge because none of us are trained on how to do this. An in-service training from the experts is a requirement in order for us to be able to develop sound scenarios to be used with high fidelity manikins. AP3

4.5.3 THEME 3: ENVIRONMENTAL FACTORS

There were certain aspects of the clinical learning environment that the participants considered as having an influence on teaching using HFMs. Some of the issues that were verbalised include the layout of the skills laboratory, the storage area as well as the availability of the control room.

4.5.3.1 Sub-theme 3.1: Layout of the skills laboratory

The layout of the skills laboratory was one of the factors which the participants verbalised their opinion and concern about. There were various elements of the layout of the skills laboratory that the participants viewed as needing attention, including the actual size of the skills laboratory and the division of the rooms. This was captured in these comments:

The clinical skills laboratory where the students will be able learn their clinical skills is supposed to look like the real clinical service facility. The physical space should be big enough to accommodate a large number of students. This is not the case here ... Eh ... the space is too small and divided with curtains which is not user friendly. AP1

The space of in this clinical skills laboratory is small compared to the number of students we have here. It becomes impossible to teach students using high fidelity manikins in this small space but one has to do what needs to be done [participant shrugging her shoulders]. BP3

The space and the set up that we use now for teaching using high fidelity manikins in the clinical skills laboratory is not user friendly due to the number of students we have here. There is a need for the space to be redesigned to accommodate the high fidelity manikin and larger group of students during clinical teaching. AP2

4.5.3.2 Sub-theme 3.2: Storage area of the HFMs

Most of the participants had opinions regarding the storage area for the HFMs and equipment. This was judged by the participants as influencing the functionality of the manikins. This was evident in their statements expressed as follows:

Mam ... there is no storage area for the high fidelity manikins as well as all other supportive equipment here. Some of the high fidelity manikins are still in their boxes because there is no space to unpack them for use during clinical teaching. AP2

We have some high fidelity manikins stored in the boxes against the walls because we do not have storage space to keep them. This also take space that should be used to accommodate more students. BP4

Teaching with the high fidelity manikins needs a lot of planning and preparation. I need to plan the schedule on how to allocate the students. I can't fit all the students for a session at once because there is no space. The manikins are occupying the space around where the students are supposed to practice because there is no storage area for them. So, I'm forced to take very less than the required number of students for one session at a time in order to be able to fit them and the manikins in the space available in the skill laboratory. AP1

4.5.3.3 Sub-theme 3.3: Availability of a control room

The availability of the control room within the skills laboratory was verbalised as another necessary and essential resource that is a contributing factor to the experiences of teaching and learning using HFMs by the participants. This was what the participants had to say:

We are using the high fidelity manikins and making them work for our students even though we don't have adequate and appropriate equipment. I am using the manikins for demonstrating procedures for the students to be simple and easy to understand, and the students to demonstrate back the learned procedure. There should be screens, monitors, visuals and recording system to assists with this but it is not so in our skills laboratory. It is difficult to show a student her performance during feedback sessions. AP5

Our high fidelity manikin is one of those that require that the operator and the clinical instructor who is the expert in the content be in a separate control room so that they view the progress of the scenario and make the changes to the manikin as the session progresses but unfortunately it is not like that because there is no control room. It will be very helpful to be able to do so. The control room is a need especially when one wants to show the student his performance during feedback sessions. BP4

4.5.4 THEME 4: MAINTENANCE OF RESOURCES

The maintenance of essential resources to support the use of HFMs in clinical teaching was highlighted as a major challenge by the participants. It was noted that there was a need for an intervention regarding the care and service of HFMs, level of service agreement with the suppliers as well as the life span of the HFMs which emerged as sub-themes.

4.5.4.1 Sub-theme 4.1: Care and service of the HFMs

Most of the participants reflected on the care and service of the HFMs as one of the issues that raised concerns for most of them. The study participants verbalised their concerns regarding the care and non-servicing of the manikins to maintain their functionality. This was captured as follows:

I am afraid to use the high fidelity manikins because I don't know how to care for them after use. They are there in the skills laboratory but I can't use them in case I damage them because at the end of the day the responsibility lies with you as the user to care for them. Moreover, I know they should be regularly serviced to keep them functional but here I have never seen them being serviced. AP4

It is very sad that we have such sophisticated and useful technology that we can use for our students but we are not sure of how should they be cared for. The other issue is that these high fidelity manikins are not being serviced, therefore sometimes their functionality becomes problematic. BP3

Most of these manikins are very delicate and some are written water free care, it is the problem on how we should take care of them without proper

knowledge. Some are malfunctioning because they were never being serviced as they should in order to keep them functional, this affects our clinical teaching using these high fidelity manikins. BP5

4.5.4.2 Sub-theme 4.2: Level of service agreement with the suppliers

During the progression of the discussion on one of the main themes, the participants mentioned another factor that they contemplated as crucial regarding maintenance of resources. They verbalised a concern regarding the unknown level of service agreement with the suppliers of HFMs. This was what they had to say:

I don't know how it works when it comes to service agreement with the companies that sold the institution these manikins but I think it will be very helpful if the purchaser can have some sort of a service plan and a service agreement with the manufacturer or the supplier. This would compel the seller to maintain these high fidelity manikins to be functional all the time. BP5

We know that these manikins are extremely expensive, they should be maintained on a regular basis by the seller to ensure that they are kept functional at all times based on the level of service agreement between the purchaser and the seller. But ... I am not sure if that exist with us here. BP3

4.5.4.3 Sub-theme 4.3: Life span of the HFMs

It was indicated by the participants that the life span of the HFMs can affect their functionality. They were of the opinion that this was important factor contributing to their functionality which may affect their use in clinical teaching of student nurses.

Eh ... Mam ... Every electronic equipment has a life span including these high fidelity manikins. I am not sure if our high-fidelity manikins have not reached their life span because some of them are non-functional. AP5

Our high fidelity manikins are stored in boxes and in a hot environment due to lack of functional ventilation. I am not sure if this has an impact on the life span as some of them are not functioning well. But I believe every equipment do reach its life span. BP1

4.6 CONCLUSION

This chapter presented the study findings of the data that was obtained during data analysis. It outlined the sample realisation and demographic data of the participants. The themes and sub-themes that emerged are explained and some extracts from verbatim transcripts of the interviews were included. Chapter 5 will discuss the study findings, conclusions, limitations and make recommendations.

CHAPTER 5: DISCUSSION OF THE STUDY FINDINGS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 4 focused on the findings of the study regarding experiences of clinical instructors on the use of HFMs to teach student nurses at the HEIs in KwaZulu-Natal. Chapter 5 discusses the study findings presented in Chapter 4. The discussion is based on the themes and the sub-themes that emerged during data analysis. The findings of the study are supported with literature and the application of the National League of Nurses/Jeffries Simulation Framework (NLN/JSF) (Jeffries, 2005:98).

5.2 OVERVIEW OF THE RESEARCH STUDY FINDINGS

The aim of this study was to explore and describe the experiences of the clinical instructors' use of HFMs to teach student nurses at HEIs in KwaZulu-Natal. A qualitative research design was employed to explore the experiences of the clinical instructors' use of HFMs in teaching student nurses clinical practice. Unstructured face-to-face interviews with the participants were used to collect data. The objectives of the study were the following:

- Explore the experiences of the clinical instructors' use of HFMs in teaching clinical practice to student nurses.
- Describe the factors contributing to the use of HFMs in teaching clinical practice to student nurses.
- Make recommendations to be implemented by HEIs in assisting clinical instructors' effective use of HFMs in teaching clinical practice to student nurses.

5.3 DEMOGRAPHIC INFORMATION OF THE STUDY PARTICIPANTS

The researcher interviewed 10 participants (n = 10). The demographic data of the participants in this study included gender, race, qualifications, experience, rank and the programme they teach. The majority of the participants were Black (n = 7), Indian (n = 3), females (n = 6) and males (n = 4). Their academic qualifications consisted of the Honours (n = 3) and Master's degrees (n = 7). The working

experience ranged from 0-5 years (n = 2), and 10-20 years (n = 8). All the participants were clinical instructors (n = 10) who were teaching clinical practice for the R425 programme. The NLN/Jeffries Framework (Jeffries, 2005:98) states that demographics have an impact on the effective use of the simulation activities hence demographic data assisted the researcher in determining the basic foundation for their experiences regarding the use of HFMs. Waseka *et al.* (2016:153) concurs with this by stating that teacher demographics such as the qualifications, teaching experience and professional development have an influence on the teacher's knowledge of the subject, the selection of the teaching methodologies as well as the confidence and the level of motivation. These are also included in the framework; in the current study they are believed to be associated with participants' role, comfort level and use of HFMs in simulation (Frotjold, 2015:125).

5.4 DISCUSSION OF THE FINDINGS

5.4.1 USE OF HIGH FIDELITY MANIKINS

The use of HFMs in teaching student nurses is gradually increasing at the NEIs in South Africa. The clinical instructors have incorporated this teaching and learning approach in the development of various clinical skills in preparation of student nurses for patient care prior to real healthcare practice although there are some challenges with this form of instruction (Munangatire and Naidoo, 2017:46). There were sub-themes that emanated from the study including clinical instructors' competence, clinical laboratory support staff knowledge and orientation of new staff on use of HFMs. The study revealed that some of the participants were not competent regarding the use of HFMs. These findings are in line with the findings of the study conducted by Powell, Scrooby and van Graan (2020:219) which revealed that nurse educators at the South African private HEIs have limited experience in using high fidelity simulation as a teaching strategy.

Simulation takes many forms including using HFMs; therefore, it is critical that the clinical instructors possess the required knowledge and skills to utilise this teaching strategy to their full potential (National League for Nursing, 2015:98). Most nurse educators enter clinical teaching positions with advanced qualifications in nursing and expertise in clinical areas but these do not prepare them for teaching using HFMs (Frotjold, 2015:12). Powell *et al.* (2020:217) concur, stating that teaching

with HFMs places a demand on the technological ability of the clinical instructor as it requires greater engagement than other forms of teaching and learning. Participants agreed that clinical instructors need to be equipped with the necessary skills through workshops and skills training regarding the use of technology and HFMs in teaching clinical practice to student nurses.

Effective teaching and learning with HFMs requires the assistance of more than one or two clinical staff because the availability of knowledgeable clinical laboratory support staff with high technological skills is essential. Powell *et al.* (2020:219) also found that educators' lack of training and lack of technological skills are the cause of resistance to using HFM. Similarly, in this study, the clinical instructors expressed the need for technical support from experts such as clinical laboratory technicians. Arthur *et al.* (2011:223) found that only 13.5% of the participants in their study had technical support in using HFMs in clinical teaching. The National League for Nursing, NLN Board of Governors (2015:6) recommended that nursing programme managers need to ensure that there are an adequate number of dedicated clinical simulation teaching staff with training and expertise, and that the operational support staff should be included as part of the simulation team.

The study further revealed that orientation of the new clinical instructors is lacking. A review on the problems of new teachers conducted by Lunenburg (2011:1) showed that lack of support from other teachers or supervisors was among other contributors to feelings of frustration and failure of these new academic staff, and this led to many potentially talented and creative educators finding teaching unrewarding and difficult (Lunenburg, 2011:1). The support and orientation of the new clinical instructors is necessary to ensure that they are well prepared to implement and integrate HFMs throughout the nursing curriculum by providing them with good orientation (Ray, 2017:1,5).

5.4.2 STAFF IN-SERVICE TRAINING

Providing for the continued professional development of the clinical instructors is essential to make teaching with HFMs easier and to make the instructors feel more confident (Lunenburg, 2011:3). The study participants revealed that they were concerned about the lack of in-service training of the clinical instructors regarding the use of HFMs as well as the use of scenarios within their institutions. In-service

training is a deliberate continuous process of staff development for the purpose of upgrading their professional skills, knowledge and interests in order to fill the gap of professional inadequacy (Osamwonyi, 2016:83). Consequently, it is crucial to provide in-service training for clinical instructors to update their skills, knowledge and experience in teaching using HFMs. If the clinical instructors are provided with adequate training this will yield positive outcomes for student nurses as stated by the National League for Nursing Board of Governors (2015:6).

High fidelity manikin simulation scenarios that represent real life clinical situations allow nursing students optimal immersion where they experience strong emotions and have to apply their values and beliefs during clinical teaching and learning (Welman and Spies, 2016:7). Hence, it is important to ensure that the clinical instructors responsible for debriefing sessions have received training on how to use the scenarios effectively (Welman and Spies, 2016:7). Furthermore, the authors argued that even if the clinical instructors are well orientated to the clinical environment, all the features and functions of the HFMs and the simulation experience will be new to them, so they will not necessarily know what to do and what to expect. Hence, clinical instructors require some adjustments of skills and knowledge to write and run scenarios (Welman and Spies, 2016:6).

Ray (2017:3) conducted a study in which the nurse educators voiced their concerns regarding inadequate knowledge on how to create and run scenarios or time to prepare for simulation scenarios. The lack of knowledge and training regarding the development of scenarios to be used in teaching students using HFMs by clinical instructors emanated as a challenge for the current study's participants. Teaching clinical skills with HFMs often requires a specifically trained individual to manage scenarios. Ray (2017:2) supports this by stating that nurse educators need to be able to create and implement HFMs simulation scenarios using International, Nursing Association for Clinical Simulation and Learning (INACSL) standards.

According to the National League of Nurses/Jeffries Simulation Framework (NLN/JSF) (Jeffries, 2005:98), designing a high-fidelity patient simulator to be used in supporting a more complex active learning strategies will result in an interactive learning environment which encourages the students to make connections between concepts (Jeffries, 2005:101). This can be achieved by training clinical

instructors in designing scenarios to be used with HFMs to teach student nurses clinical practice.

5.4.3 ENVIRONMENTAL FACTORS

The shortage of clinical sites has compelled clinical instructors to implement alternative clinical solutions such as the use of HFM simulations. The study findings reveal that most of the clinical skills laboratory environment was not suitable for clinical teaching and learning using HFMs. Some of the challenges that arise from this are the layout of the skills laboratory, storage area and the lack of availability of a control room. According to the findings of the study, there is a challenge regarding the size and the space of the clinical skills laboratory. The clinical instructors revealed that they were experiencing problems with the accommodation of adequate number of students into the skills laboratory around the HFMs because of lack of space. Ray (2017:20) alluded that the frequency of using HFMs for clinical teaching of students is directly related to the skills laboratory space and equipment provided.

This study found that some of the institutions are utilising old skills laboratories for clinical teaching with HFMs without any reconstruction or restructuring to accommodate the manikins and the other related equipment, and storage of the manikins are taking up space in the skills laboratory because there is no dedicated storage space. Powell *et al.* (2020:219) also found that the equipment and the facility for high fidelity simulation was not used optimally owing to the cost and unavailability of space to create a simulation environment effective enough to accommodate bigger classes.

The National League of Nurses/Jeffries Simulation Framework (NLN/JSF) (Jeffries, 2005:98) explains that a simulation design environment needs to be an area which is conducive for meeting the set objectives. If the simulation design environment is not conducive this will have a negative impact on the achievement of the set objectives. This is clearly not the case in this study, with many of the participants saying that unused HFMs which are in boxes and other equipment occupy the space which is required to be used to accommodate students around the HFMs to meet their clinical practice learning.

A well designed and structured clinical skills laboratory should have a lecture room, demonstration rooms, storage rooms and a fully equipped control room where a clinical laboratory technician is housed to operate the HFMs during the teaching sessions. This is supported by Datta, Mandalia, Mackay, Chang, Cheshire and Darzi (2002:318) who state that a fully equipped control room for computer-based simulation allows meticulous assessment of performance including a detailed analysis of movement and behaviour and can be used as a method of measuring procedural psychomotor skills.

The nursing skills laboratory consists of various settings which includes the lecture room area where students learn how to apply procedural skills, the demonstration/practice area where they apply the assessment skills and newly developed nursing skills learned, and the control room (Akaike, Fukutomi, Nagamune, Fujimoto, Tsuji, Ishida and Iwata, 2012:33). This is unlike the clinical skills laboratories in this study where most of the participants revealed that there is a lack of control room. The absence of a control room poses a challenge for the clinical instructors because this is the area where the HFMs are controlled by the laboratory technician.

The clinical instructor can utilise this area to control the simulator and observe the students through a two-way mirror to allow him or her to test their ability to critically assess the situation and respond to what is happening in real time (Woda, Hansen, Dreifuerst, Anderson, Hardy, and Garnier-Villarreal, 2019:19). This study was in line with a study conducted at the American University of Beirut, which revealed that the old academic institutional simulation centre did not have an isolated control room; the simulation technologist and the instructor usually ran the scenario from behind the curtain separating them from the simulation area (Dleikan, Lakissian, Hani, Sharara-Chami, 2020:10). Therefore, it is evident that in order to effectively use HFMs with the application of proper scenarios, the clinical skills laboratory with a proper control room is required.

5.4.4 MAINTENANCE OF RESOURCES

The study findings show that some of the institutions were experiencing a problem with the appropriate maintenance of resources related to teaching with HFMs. Some of the issues arising were related to maintenance of resources, including

lack of care and lack of service of the HFMs, lack of a suitable service agreement with the supplier, as well as the life span of the HFMs.

Most of the study participants alluded to the fact that they lacked knowledge regarding the care of the HFMs and this resulted in their hesitance to use the manikins. It is the responsibility of the user to ensure that the equipment used is kept clean and properly cared for after use, hence this becomes a problem should the user lack the skills, knowledge and the proper equipment to care for them. The availability or lack of resources can be a hindering factor for clinical instructors to actively participate in teaching student nurses using HFMs. According to Whigham (2017:37), most clinical instructors are faced with a struggle regarding the HFMs in nursing education as they are not sure how to take care of them. This is purely because they lack knowledge and skills on how these HFMs should be taken care of, including servicing them after use to ensure that their functionality is maintained.

The study participants also indicated that there was a lack service of the HFMs by the service providers to ensure that they were thoroughly maintained. Nyemba, Mashamba and Mbohwa (2016:303) support this notion by stating that the reasons some of the equipment at the HEIs in sub-Saharan Africa are underutilised include non-servicing, ageing or maintenance-related challenges, obsolescence, and in poor working condition owing to lack of expertise. The National League of Nurses/Jeffries Simulation Framework (NLN/JSF) (Jeffries, 2005:98) identified a word outcome as one of the required components that can be achieved when using HFMs in teaching clinical skills to student nurses to enhance their skills performance. If the HFMs are not regularly serviced to maintain their functionality, teaching using HFMs is compromised as the desired outcomes for skills performance cannot be achieved.

It emanated from the study findings that there is a challenge existing among some of the HEIs regarding the availability of a level of service agreement with suppliers of HFMs. Most of the HEIs realise the need to purchase the HFMs for clinical teaching yet fail to emphasise the need for a service and maintenance plan agreement with the suppliers. Adoption of a clinical teaching strategy without careful planning creates a negative perception among educators (Munangatire and Naidoo, 2017:45). This is based on non-serviced HFMs leading to their

malfunctioning which impacts negatively on the clinical teaching and learning of student nurses.

Many of the suppliers of equipment including HFMs assist with support for the purchase of these but leave the service and maintenance to the purchaser. This is supported by Nyemba *et al.* (2016:304) who state that many of the development organisations and aid organisations provide support for the purchase of new equipment and leave the maintenance of such to the recipients who, in most cases, are HEIs funded by government, but unfortunately these HEIs rarely have the funds to maintain the equipment. Furthermore, most of the suppliers of these HFMs are in the well-developed countries but the HEIs in South Africa are in the developing country that is still lacking in some of the expertise and finances to maintain the equipment (Nyemba *et al.*, 2016:304). Therefore, the existence of service level agreement between the purchaser and the seller of the HFMs is necessary to ensure that the purchased manikins by the HEIs are being cared for and serviced by the experts to ensure that they function optimally.

According to Beteman (2015:799), the useful lifespan of a manikin is five years, while all machines need constant calibration. This calibration needs to be done by a trained technician from the supplying company to ensure that they are kept in a functional state. The findings of this study indicated that some of the institutions are in possession of non-functioning HFMs which may be related to them reaching the end of their life span, being kept in a high temperature environment, or lack of service. Servisky, Mackena and Okuda (2021:4) are of the opinion that it is important for HEIs to consider the warranty and anticipated longevity when purchasing HFMs, and to recognise the recurring associated costs such as maintenance costs. Proper equipment management and maintenance has a major influence on the reliability and the life span of equipment such as HFMs.

When there is lack of proper maintenance or utilisation of these manikins it leads to deterioration and shortening of their life span (Nyemba *et al.*, 2016:304). This is supported by a study conducted by Adamu and Shakantu (2016:137) which found that the life span of HFMs is increased by proper management, service and maintenance thus ensuring that they can be used for longer. Some of the causes of equipment failure include improper storage, inappropriate handling and environmental stress and wear-out failure (Boatema, 2017:28). This was also the

case with the HFMs in this study as expressed by the study participants. This affects the teaching and learning outcomes of student nurses during their teaching because of malfunctioning manikins. Although some of these institutions have funds, the HFMs are usually costly, but the institution must bear the costs associated with an extended service and maintenance plan because this will help with maintaining the manikins and the related equipment in working order for a longer period of time (Costiuc, 2021:1). This can have a positive impact on the clinical teaching of student nurses by clinical instructors.

5.5 CONCLUSION

This study examined the experiences of clinical instructors in using HFMs for teaching clinical practice to student nurses at the selected HEIs in Kwa-Zulu Natal. Several themes and sub-themes emerged during unstructured interviews conducted with the participants regarding this phenomenon. This included the use of HFMs, staff in-service and training, environmental factors, and maintenance of resources. The study revealed that there are many challenges faced by clinical instructors regarding the use of HFMs in teaching clinical practice to student nurses at these HEIs.

5.6 LIMITATIONS OF THE STUDY

This qualitative research study was conducted at the selected HEIs in KwaZulu-Natal which employed clinical instructors to teach clinical practice using HFMs. Data was collected from clinical instructors who use HFMs in teaching clinical practice. Therefore, the findings of this study cannot be generalised due to its limited scope which could have yielded different findings if the target population were broadened to include nurse educators, nursing school skills laboratory technicians and student nurses in data collection at the HEIs in Kwa-Zulu Natal and other provinces.

5.7 RECOMMENDATIONS

The following recommendations are made with reference to the NEIs, nursing education administration, policy development and implementation, and further research.

5.7.1 Nursing education institutions

- The curriculum should be revised to ensure that the clinical practice teaching and learning includes more patient simulated scenarios using HFMs.
- Clinical instructors and nurse educators should be sent for in-service training pertaining to the use of HFMs and the formulation and implementation of scenarios.
- Clinical instructors should be capacitated on the use of technology including the use of HFMs in teaching clinical practice effectively to student nurses.
- Benchmark with other HEIs using HFMs in teaching clinical practice to student nurses to ensure that the clinical instructors are in line with current and effective use of this teaching strategy.
- The HEIs should revamp their clinical skills laboratories to ensure that adequate storage space, demonstration rooms and control room are available for the effective use of HFMs.
- Clinical instructors and the support staff should be taught how to clean, store and care for HFMs to prevent damaging them.

5.7.2 Nursing education administration

- Nursing education administrators should make a budget available for the training of clinical instructors on how to use HFMs for the clinical training of student nurses.
- Experienced clinical instructors with knowledge and skills on how to HFMs should be recruited.
- Purchase new HFMs to replace those that have reached the end of their life span to ensure effective clinical teaching using functional manikins.
- Ensure that there are trained support staff who have knowledge and skills regarding the use of HFMs and effective implementation of relevant scenarios.
- Ensure that they secure and make funds available for the servicing of the available HFMs to ensure that they are fully functional and ready to be used for clinical teaching of student nurses.

- Ensure that there are service agreements with suppliers to ensure that they are being cared for and calibrated as per the manufacturer's recommendations.

5.7.3 Policy development and implementation

- There should be policies and procedures in place to be followed regarding the purchase, service, maintenance and management of HFMs and associated equipment. These should also guide equipment malfunctioning, repair and disposal of the equipment.
- There should be a policy and procedure available in the clinical skills laboratory pertaining to the use, care and storage of HFMs to be implemented by the clinical instructors and the support staff.
- There should be procedure manuals available in the clinical skills laboratory regarding the use of HFMs for clinical teaching of student nurses for reference purposes.
- There should be a policy available on how to dispose of the non-functional HFMs to create space in the clinical skills laboratory.

5.7.4 Further research

- It is recommended that further research to be conducted regarding the phenomenon including a broader population spectrum of HEIs in Kwa-Zulu Natal and in other provinces.

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ANNEXURES



ANNEXURE A: LETTER OF INFORMATION

Title of the Research Study: EXPERIENCES OF CLINICAL INSTRUCTORS IN USING HIGH FIDELITY MANIKINS IN CLINICAL TEACHING AT THE SELECTED HIGHER EDUCATION INSTITUTIONS IN KWAZULU-NATAL

Principal Investigator/s/researcher: J T Mbambo (BCur Nursing)

Co-Investigator/s/supervisor: Dr ST Madlala (D-NURSING)

Brief Introduction and Purpose of the Study: The study is aimed at exploring and describing the experiences of clinical instructors' use of HFMs to teach the student nurses at Higher Education Institutions in KwaZulu-Natal.

Outline of the Procedures: You will be asked few questions during the interview in a private room at the KwaZulu-Natal Higher Education Institution. Permission is requested to use the voice recorder and take field notes during the interview. The interview will take about half an hour to an hour and there may be some follow ups to clarify certain issues if necessary.

Risks or Discomforts to the Participant: The study and the procedure involve no foreseeable risk and discomfort to you.

Benefits: The findings of the study will be used to make recommendation regarding the use of High-Fidelity Simulation Manikins in teaching of student nurses in KwaZulu-Natal Higher Education Institutions. Furthermore, the finding of the study will be harvested in a form of articles which will be published in the DHET accredited journals.

Reason/s why the Participant May Be Withdrawn from the Study: You are allowed to withdraw from the study as a participant at any time without bearing any negative consequences towards you as a participant.

Persons to contact in the event of any problems or queries:

Whom to contact about your rights in this research, for questions, concerns, suggestions, or complaints that are not being addressed by the researcher, or research-related harm: University of Zululand Research Ethics Committee [UZREC], Research & Innovation Office: 035 902 6887 or the researcher's Department/supervisor. Dr ST Madlala, 035 902 6512 or madlalas@unizulu.ac.za.



ANNEXURE B: PARTICIPANT INFORMED CONSENT

INFORMED CONSENT DECLARATION

(Participant)

Project Title: Experiences of Clinical Instructors in using High Fidelity Manikins in clinical teaching at the selected Higher Education Institutions in KwaZulu-Natal.

Jabulile Temperance Mbambo from the Department of Nursing Science, University of Zululand has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in the language that I understand.

I am aware that:

1. The purpose of the research project is to explore and describe the experiences of the clinical instructors in using High Fidelity Manikins in clinical teaching of student nurses at the selected Higher Education Institutions in KwaZulu-Natal.
2. The University of Zululand has given ethical clearance to this research project and I have seen /may request to see the clearance certificate.
3. By participating in this research project, I will be contributing towards the knowledge, understanding and effective use of High Fidelity Simulation Manikins as a teaching and learning strategy.
4. I will participate in the project by giving information on the topic to the research during interviews.
5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.

6. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed. (*There will be no compensation for the participants*).
7. There will be no risks associated with my participation in the project and there is 0% chance of the risk materialising.
8. The researcher intends publishing the research results in the form of articles; however, confidentiality and anonymity of records will be maintained and my name and identity will not be revealed to anyone who has not been involved in the conduct of the research.
9. I will receive feedback in a form of published article regarding the results obtained during the study.
10. Any further questions that I might have concerning the research or my participation will be answered by Jabulile Temperance Mbambo at 0833521751 or my study supervisor Dr ST Madlala at 035 902 6512.
11. By signing this informed consent declaration, I am not waiving any legal claims, rights or remedies.
12. A copy of this informed consent declaration will be given to me, and the original will be kept on the record.

I have read the above information/confirm that the above information has been explained to me in a language that I understand and I am aware of this document contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above- mentioned project.

.....

Participant's signature

.....

Date



ANNEXURE C: ACCESS LETTER REQUESTING PERMISSION TO CONDUCT RESEARCH STUDY

University of Zululand
PO Box X1001
KwaDlangezwa
3886

Dear HOD
Durban University of Technology
P O Box 1334
Durban
4000

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a registered Master Degree student in the Faculty of Science and Agriculture, Department of Nursing Science at the University of Zululand. My supervisor is Dr ST Madlala.

The proposed topic of my research is: **Experiences of Clinical Instructors in using High Fidelity Manikins in clinical teaching of student nurses at the selected Higher Education Institutions in KwaZulu-Natal.**

The objectives of the study are:

- To explore experiences of clinical instructors' use of High Fidelity Manikins in teaching clinical practice to student nurses.
- To describe the factors contributing to the use of the High Fidelity Manikins in teaching clinical practice to student nurses.

- To make recommendations to be implemented by the Higher Education Institutions in assisting clinical instructors' effective use of High Fidelity Manikins in teaching clinical practice to student nurses.

I am hereby seeking your consent to conduct the research study. To assist you in reaching a decision, I have attached to this letter:

- (a) A copy of an ethical clearance certificate issued by the University
- (b) A copy the research instruments which I intend using in my research

Should you require any further information, please do not hesitate to contact me or my supervisor.

Our contact details are as follows:

Jabulile Temperance Mbambo, Cell number: 0833521751, email: ncancazane@gmail.com , my Supervisor Dr ST Madlala, office number: 035 902 6512, email: madlalas@unizulu.ac.za and University of Zululand Research office Professor N Kunene, office number: 035 902 6355, email: kunenen@unizulu.ac.za

Upon completion of the study, I undertake to provide you with a bound copy of the dissertation.

Your permission to conduct this study will be greatly appreciated.

Yours sincerely,

Signature:

Name: Ms JT Mbambo

Student number: 201860888



ANNEXURE D: ACCESS LETTER REQUESTING PERMISSION TO CONDUCT RESEARCH

University of Zululand
PO Box X1001
KwaDlangezwa
3886

Dear HOD

University of Zululand

P O Box 1001

KwaDlangezwa

3886

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a registered Master's student in the Faculty of Science and Agriculture, Department of Nursing Science at the University of Zululand. My supervisor is Dr ST Madlala.

The proposed topic of my research is: **Experiences of clinical instructors in using High Fidelity Manikins in clinical teaching of student nurses at the selected Higher Education Institutions in KwaZulu-Natal**

The objectives of the study are:

- To explore experiences of clinical instructors' use of High Fidelity Manikins in teaching clinical practice to student nurses.
- To describe the factors contributing to the use of the High Fidelity Manikins in teaching clinical practice to student nurses.

- To make recommendations to be implemented by the Higher Education Institutions in assisting clinical instructors' effective use of High Fidelity Manikins in teaching clinical practice to student nurses.

I hereby seek your consent to conduct the research study. To assist you in reaching a decision, I have attached to this letter:

- (a) A copy of an ethical clearance certificate issued by the University
- (b) A copy the research instruments which I intend using in my research

Should you require any further information, please do not hesitate to contact me or my supervisor.

Our contact details are as follows:

Miss Jabulile Temperance Mbambo, Cell number: 0833521751, Email address: ncancazane@gmail.com . My Supervisor: Dr ST Madlala, Office number: 035 902 6512, Email address: madlalas@unizulu.ac.za

Upon completion of the study, I undertake to provide you with a bound copy of the dissertation.

Your permission to conduct this study will be greatly appreciated.

Yours sincerely,

Signature:

Name: Jabulile Temperance Mbambo

Student number: 201860888



ANNEXURE E: RESEARCHER'S DECLARATION

I, Jabulile Temperance Mbambo declare that:

- I explained the information in this document to
- I requested him/her to ask questions if anything was unclear and I have answered them as best as I can.
- I am satisfied that she/he sufficiently understands all aspects of the research so as to make an informed decision on whether or not to participate.
- The conversation took place in English.
- I did not use an interpreter.

.....

Researcher's signature

.....

Date



ANNEXURE F: INTERVIEW GUIDE FOR CLINICAL INSTRUCTORS

Date: Participant no:

Institutional code:

SECTION A: DEMOGRAPHIC DATA

Age: Religion:

Race: Marital Status:

Gender: Your level of education:

Employment status:

SECTION B: GRAND TOUR QUESTION

1. What is your experience regarding the use of high fidelity patient simulator manikins in clinical teaching nursing students?

SECTION C: ANTICIPATED PROBING QUESTIONS

1. What are the contributing factors to the use of HFMs in teaching clinical practice to student nurses?
2. What measures can be taken to assist with effective use of HFMs in clinical teaching of student nurses?

Any other probing questions following the participants' responses will be used to facilitate the discussion.

ANNEXURE G: UZREC ETHICAL CLEARANCE



**UNIVERSITY OF ZULULAND
RESEARCH ETHICS COMMITTEE**
(Reg No: UZREC 171110-030)



RESEARCH & INNOVATION

Website: <http://www.unizulu.ac.za>
Private Bag X1001
KwaDangezwa 3006
Tel: 035 902 6791
Fax: 035 902 6222
Email: LundallN@unizulu.ac.za

ETHICAL CLEARANCE CERTIFICATE

Certificate Number	UZREC 171110-030 PGM 2019/126		
Project Title	Experiences of clinical instructors in using high fidelity manidns to teach student nurses at the selected Higher Education Institutions in KwaZulu-Natal		
Principal Researcher/ Investigator	J Mbambo		
Supervisor and Co-supervisor	Dr S.T Madlala		
Department	Nursing Sciences		
Faculty	Science and Agriculture		
Type of Risk	Low Risk – Desktop, fieldwork or laboratory		
Nature of Project	Honours/4 th Year	<input checked="" type="checkbox"/> Master's	<input type="checkbox"/> Doctoral <input type="checkbox"/> Departmental

The University of Zululand's Research Ethics Committee (UZREC) hereby gives ethical approval in respect of the undertakings contained in the above-mentioned project. The Researcher may therefore commence with data collection as from the date of this Certificate, using the certificate number indicated above.

- Special conditions:**
- (1) This certificate is valid for 1 year from the date of issue.
 - (2) Principal researcher must provide an annual report to the UZREC in the prescribed format [due date-09 November 2021]
 - (3) Principal researcher must submit a report at the end of project in respect of ethical compliance.
 - (4) The UZREC must be informed immediately of any material change in the conditions or undertakings mentioned in the documents that were presented to the meeting.

The UZREC wishes the researcher well in conducting research.


Professor Mashupye R. Kgaphola
 University Research Ethics Committee
 Deputy Vice-Chancellor: Research & Innovation

09Nursing Sciences November 2020

CHAIRPERSON
 UNIVERSITY OF ZULULAND RESEARCH
 ETHICS COMMITTEE (UZREC)
 REG NO: UZREC 171110-030

STAMP

09-11-2020

RESEARCH & INNOVATION OFFICE

ANNEXURE H: HIGHER EDUCATION INSTITUTION APPROVAL LETTER



Siphiwe T. Madfala

From: Jabu Mubambo <jmubambo@gmail.com>
Sent: Thursday, 26 November 2020 10:10 AM
To: Siphiwe T. Madfala
Subject: Fwd: RE: Request for Permission to Conduct Research

Goodmorning Dr

These are the replies from the institutions.

Dear Jabu,

Thank you for your interest in collecting data at DUT. Permission is hereby granted. Please liaise with the Clinical Coordinator, Ms Nisha Bridgelall in copy.

I would like to wish you everything of the best in your study, and I look forward to reading your dissertation once it has been printed.

Regards,

Dr T.A. MANSON

Head Of Dept : Nursing

Durban University of Technology

Indumiso Campus

Tel. 033 845 1016

Cell: 082 505 2514

Email: TheresaM@dut.ac.za

www.dut.ac.za



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ANNEXURE I: APPROVAL FROM HIGHER EDUCATION INSTITUTION



The Department of Nursing Science Faculty of Science and Agriculture

Tel: 035 902 6514/20

Email: MakhobaN@unizulu.ac.za , KerrJ@unizulu.ac.za

6 December 2020

Ms JT Mbambo

Student Number: 201860888

Email: 201860888@stu.unizulu.ac.za

CC: Dr ST Madlala Supervisor MadlalaS@unizulu.ac.za

RE: Request for permission to conduct research among the Clinical Instructors of the Department of Nursing Science at the University of Zululand.

Dear Ms Mbambo,

Your letter dated 23 November 2020 refers.

I, Prof Jane Kerr, hereby grant you permission to conduct your study among the Clinical Instructor cohort of staff in the Department of Nursing Science.

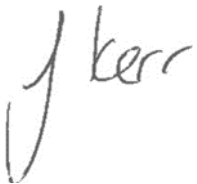
I would like to take this opportunity to wish you the best of luck with your research, and trust that your research will be successful.

Please note that I remain concerned that despite correction made in various platforms, you continue to use the term “grand tour” question. ‘Grand tour questions’ encourage informants to ramble on and on, without interruption (Spradley, 1979. Online.

<http://jan.ucc.nau.edu/~pms/cj355/readings/spradley.pdf>). In research other than Ethnography, this type of question is called an open ended, unstructured question. This must please be corrected prior to your study being examined.

Please note that you will need a permit to gain access to campus, if you will be interviewing the clinical instructors on campus. Please inform me if you require a permit. Please ensure strict social distancing, mask and hand washing principles, in order that both you and the clinical instructors are safe from Covid 19 infection during the data collection.

Thank you

A handwritten signature in black ink, appearing to read 'J Kerr', with a large, stylized initial 'J'.

Thank you Prof Jane Kerr Acting HOD

The Department of Nursing Science

ANNEXURE J: EDITING CERTIFICATE

DR RICHARD STEELE

BA, HDE, MTech(Hom)

HOMEOPATH

Registration No. A07309 HM

Practice No. 0807524

Freelance academic editor

Associate member: Professional Editors' Guild, South Africa

154 Magenta Place

Morgan Bay

5292

Eastern Cape

082-928-6208

Email: rsteele@vodamail.co.za

EDITING CERTIFICATE

Re: **Mbambo Jabulile**

Master's dissertation: **EXPERIENCES OF CLINICAL INSTRUCTORS IN USING HIGH FIDELITY MANIKINS TO TEACH STUDENT NURSES AT THE SELECTED HIGHER EDUCATION INSTITUTIONS IN KWAZULU-NATAL**

I confirm that I have edited this dissertation and references for clarity, language and layout. I returned the document to the author with track changes so correct implementation of the changes and clarifications requested in the text and references is the responsibility of the author. I am a freelance editor specialising in proofreading and editing academic documents. My original tertiary degree which I obtained at the University of Cape Town was a B.A. with English as a major and I went on to complete an H.D.E. (P.G.) Sec. with English as my teaching subject. I obtained a distinction for my M.Tech. dissertation in the Department of Homoeopathy at Technikon Natal in 1999 (now the Durban University of Technology). I was a part-time lecturer in the Department of Homoeopathy at the Durban University of Technology for 13 years.

Dr Richard Steele

15 December 2021

per email

ANNEXURE K: TURNIT IN REPORT

EXPERIENCES OF CLINICAL INSTRUCTORS IN USING HIGH FIDELITY MANIKINS TO TEACH STUDENT NURSES AT THE SELECTED HIGHER EDUCATION INSTITUTIONS IN KWAZULU-NATAL

ORIGINALITY REPORT

8%	8%	0%	0%
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