



UNIVERSITY OF KWAZULU-NATAL
SCHOOL OF NURSING AND PUBLIC HEALTH

**ANALYSING UTILISATION OF A SELF-DIRECTED CLINICAL SKILLS
LABORATORY BY UNDERGRADUATE NURSING STUDENTS IN
HIGHER EDUCATION: A MIXED METHODS DESIGN**

**THESIS SUBMITTED TO THE SCHOOL OF NURSING AND PUBLIC
HEALTH, FACULTY OF HEALTH SCIENCES, UNIVERSITY OF
KWAZULU-NATAL IN FULFILMENT OF THE ACADEMIC
REQUIREMENTS FOR THE DEGREE OF MASTERS IN NURSING
EDUCATION**

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NOVEMBER 2016

*Analysing Utilisation of a Self Directed
Clinical Skills Laboratory by undergraduate
nursing students in Higher Education: A Mixed
Methods Design.*

DECLARATION

I Luke Laari, declare that this thesis titled “**Analysing Utilisation of a Self-Directed Clinical Skills Laboratory by Undergraduate Nursing Students in Higher Education: A Mixed Methods Design**” is my original work and has not been submitted to any other University except the University of KwaZulu-Natal, School of Nursing and Public Health (Durban). All sources of information that the researcher used in the study have been acknowledged in a complete reference list.

Student's Signature

Date

Supervisor

Date

DEDICATION

To my dear late mother Habiba Khada Laari who death did not permit to enjoy the fruits of her labour. If raising children is a battle you have conquered.

ACKNOWLEDGEMENTS

Pleasure in the job puts perfection in the work (Aristotle, 384-322 BC). The following individuals have given me pleasure in this job that culminated in this output. First, I accord thanks to the Almighty God for how far he has brought me through this study. He has been my strength in ages past and my hope in years to come.

My gratitude goes to my supervisor, Mrs. Barbara M. Dube for what I have learnt from her during this process; her commitment, hardworking character, and the sense of success have been significant to this thesis.

To Prof. N.G Mtshali words are not enough to express my appreciation for the quantum of work and direction I received from her, the touch was brief yet the imprint is deep.

I also extend my gratitude to the head of School and the Department of Nursing, and the students who granted me the permission and completed the questionnaire respectively.

The acknowledgement cannot be comprehensive without mentioning my dear wife Mrs Joyce Lomokie Laari and my son, Brian Banlaygnan Laari, for sacrificing the comfort of our inseparableness and allowing me to study in a foreign land, thank you for your support and love.

To all my friends who have in one way or other contributed to the successful completion of this thesis, I say thank you.

ABSTRACT

Background

Nursing qualifications at institutions of higher learning have a strong focus on knowledge acquisition to ensure that the students are well equipped to know both how and why to maximise patient care. This knowledge needs to be balanced with clinical skills, acquired through both supervised and self-directed experiences, the latter being an increasingly important part of student learning in higher education institutions clinical skills laboratories.

Aim

The study aimed to analyse the utilisation of the self-directed clinical skills laboratory by undergraduate nursing students in a selected higher institution, and make recommendation on how teaching and learning in this area can be strengthened as a learning space.

Methods

A non-experimental convergent parallel design was used. A sample of 118 nursing students was collected through systematic random sampling for the quantitative questionnaire survey, semi-structured interviews were conducted using purposive sampling of six clinical facilitators, and focus group discussions were conducted with 32 nursing students, one group from each of the 4 undergraduate years.

Results

The findings suggested that students using the self-directed clinical skills laboratory applied the self-directed learning principles in their learning. The learning space is perceived to be used in line with the South African Nursing Council requirement, and the students using the learning space were positive about its use as a learning environment.

Conclusion

While both staff and students found the self-directed clinical skills laboratory to be a useful learning environment, its use would be improved by providing adequate human and

material resources, and ensuring that what was taught was in line with clinical practices in hospitals.

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ACRONYMS AND ABBREVIATIONS

ALSI	Approach to Learning and Studying Instrument
CSL	Clinical Skills Laboratory
DOH	Department of Health
DREEM	Dundee Ready Education Environment Method
DVD	Digital Versatile Disc
HFS	High-Fidelity Simulation
HPS	Human Patient Simulation
ICN	International Council of Nurses
MMR	Mixed Methods Research
NMC	Nursing and Midwifery Council
SANC	South African Nursing Council
SD	Standard Deviation
SDCSL	Self-Directed Clinical Skills Laboratory
SDL	Self-Directed learning
SPSS	Statistical Package for the Social Sciences
TRREE	Training and Resources in Research Ethics Evaluation
UK	United Kingdom
UKZN	University of KwaZulu-Natal
UNESCO	United Nations Educational, Scientific, and Cultural Organization
WHO	World Health Organisation

CHAPTER ONE

Background to the Study

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Nursing students are required to obtain both academic knowledge and practical skills during their training years, and be able to integrate the two in the ward and other clinical situations. Preparing them for the working environment requires deciding how they will acquire both, and putting systems and process in place to support this acquisition. Nursing qualifications at institutions of higher learning have a strong focus on knowledge acquisition to ensure that the students are well equipped to both how and why to maximize patient care. This knowledge needs to be balanced with clinical skills, acquired through both supervised and self-directed experiences, the latter being an increasingly important part of student learning in higher education institutions that need to qualify large numbers of highly skills nurses who can function independently in the clinical environment. Self-directed clinical skills learning occurs in laboratories that contain the equipment needed for students to practice in their own time at their own pace, and forms an important part of their undergraduate curriculum. Little research has been done on understanding the use of such laboratories and their effectiveness in ensuring that the students obtain the anticipated skills. This study therefore explores the utilisation of self-directed clinical skills laboratory by undergraduate nursing students in a selected institution of higher learning in South Africa.

This chapter presents the background to the study and describes the study context in South Africa. This is followed by the problem statement, the associated Aim and Objectives, and the research questions being explored. The definitions used in this thesis are followed by the anticipated significance of the study, the conceptual framework used, and an outline of the content of each chapter.

1.2 BACKGROUND TO THE STUDY

According to Illich (Illich, 1971:72) schools are designed on the assumption that there is a secret to everything in life and the quality of life depends on knowing that secret. The secret can be known only in orderly succession, and only teachers can properly reveal these secrets. Illich, argues further in his book *Deschooling the Society*, that this notion empowers an individual with a schooled mind to conceive the world as a pyramid of classified packages accessible only to those who carry the proper tags. Thereby making school removes things from everyday use by labelling them as educational tools (Illich, 1971:74).

He believes that the general physical environment must be accessible and those physical learning resources that have been reduced to teaching instruments must become generally available for self-directed learning. He continues his assertion that in school, registered students submit to certified teachers to procure certificates of their own. Both are frustrated and both blame insufficient resources, money, time, or buildings for their shared frustration, raising the question as to whether it is possible to conceive of a different style of learning (Regmi, 2015:317; Illich, 1971:72).

Society can depend on self-motivated learning instead of empowering teachers to bribe or compel the student to find the time and will to learn. We can provide the learner with new links to the world instead of continuing to funnel all educational programs through the teacher (Illich, 1971:72). His argument is that a good educational system should have purposes including providing all who want to learn with access to available resources at any time in their lives (Illich, 1971:72).

More than four decades after this book was published, lifelong learning is being recognised worldwide. According to the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) Sustainable Development Goal four (SDG4), there is a declaration for the next 15years to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all through the Education 2030 Framework for Action. To fulfil this role, UNESCO aims to provide global and regional leadership in education, strengthen education systems worldwide and respond to contemporary global challenges through education (UNESCO, 2015:8).

According to the International Council of Nurses (ICN), nursing today stands at the intersection of powerful forces with increasingly complex technology growth, an ageing population, dramatically changed work environments, and rapid growth in scientific knowledge, require substantially expanded nursing roles and responsibilities (ICN, 2009:6). In the face of these pressures, there is the important question of how to better educate a competent global nurse workforce for the future. In the words of the ICN, the traditional models of work and learning is increasingly dysfunctional for successful performance in today's health systems and this has prompted a concern on how to prepare knowledge workers who are able to provide acceptable levels of care to culturally diverse societies. Additionally, given today's multiple demands, changing environments, rapid advances in science and technology and the expanding body of knowledge, there is a heightened interest in lifelong learning approaches to education (ICN, 2009:6).

In recent years, a successions of educational thinkers in the West sought to reinstate 'learning' as the central concern, arguing that undue emphasis had been placed on the content of what was taught, and that this had led to rigid and unhelpful habits of instruction (Benedict, Schonder & Mcgee, 2013:1). Therefore, talking about learning in the context of teaching, and teaching that has learning as its objective is important and is believed that guiding others to learn is a unique, skilful, creative and yet a demanding human activity that deserves scholarship in its own right (Beetham & Sharpe, 2013:159). Empowering individuals to take responsibility for decisions related to their learning can facilitate knowledge and skill development and promote lifelong learning (Benedict *et al.*, 2013:1).

Therefore, as health care restructuring proceeds, it is important to identify novel techniques to realise the goals of better health care, improve patients' health, reduce costs and maintain clients' safety to meet the challenges of the twenty-first century (Docan-Morgan, 2011:20). This will necessitate a paradigm shift from practice grounded in tradition to one rooted in evidence-based practice. It is significant to use the best evidence, consider patient and their family preferences as well as nurses' expertise in clinical decision making as we endeavour to achieve ideal health outcomes (Nasrin, Soroor & Soodabeh, 2012:1) .

Hain suggested that to move nursing forward we need to keep our history in mind. While this is not suggesting stereotypical ideas, knowing where we came from will be of enormous benefit to the profession and the professionals. Nursing is changing and there is a demand for training more nurses due to the global shortage, with same resources that were used centuries ago; hence, being ready to incorporate developing innovations into practice and educational settings are paramount (Hain, 2013:1). The intricacy of healthcare today is growing with the expansions of knowledge in various specialities, the increase in technological advances and the growing attention to the issues of patient-centred care, patient safety, and patient participation (Arbour, Nypaver & Wika, 2015:278). Nursing education must enable students to improve their nursing skills, solve problems and develop their reflective and critical thinking approaches to their profession (Aslan, Reigeluth & Thomas, 2014:39).

Consequently, self-directed learning approaches (SDL) with regards to teaching and learning strategies, are needs to improve lifelong learning, understanding, competence and skills required by nursing care students (Sundler, Pettersson & Berglund, 2015:1258). One of the most exciting developments in education in recent years is the increased emphasis on the self-directed learning (Duby & Fischer, 2011:21). Although the domination of directing one's own learning is not new, its relatively recent promotion has prompted many educators to look much closer at its many planes, its roots and processes, as well as its potential, to further clearly define its role (Duby & Fischer, 2011:21). SDL is a process in which the person determines his/her learning objective and targets with or without the help of instructors, selects the appropriate research methods and evaluates the learning results (Li, Paterniti, Co & West, 2010:1229). Avdal, defines SDL as a method used by the students to take the responsibility of their own learning, to determine their aims and learning resources, to deal with appropriate activities and to evaluate their learning results (Avdal, 2013a:838).

In contemplating both definitions, taking control of learning and self-evaluation is emphasized implicitly as the basic principles of SDL (Al-Shobaili, Al-Robaee, Al-Zolibani, Gabbani, Sharaf & Inam, 2010:333). Self-directed learning has become a focus for nursing education especially in the Clinical Skills Laboratories (CSL) in the past few

decades owed to the complexity and changes in nursing profession development. It is used increasingly in both undergraduate and postgraduate nursing programs and has a history as long as education itself (Nash, 2014:43; El-Gilany & Abusaad, 2013:1040).

Self-directed clinical skills laboratories (SDCSL) have been increasingly patronised, with the use of simulated learning in health educational institutions, because the teaching of clinical programmes in nursing, involves different strategies for both theoretical and practical material (Cassimjee, 2007:412).

Globally, the use of simulated learning in the clinical skills laboratory settings have grown. This has happened as a product of new teaching strategies into the nursing curricula (Nevin, Neill & Mulkerrins, 2014:154; Roberts, Warda, Garbutt & Curry, 2014:261). According to the World Health Organisation (WHO), a simulated learning environment (such as CSL) is the best method in training healthcare professionals since there are no issues of client confidentiality and invasive recording of the simulation session is feasible (WHO, 2011:147).

However, others argued that, without enough chance of caring for actual clients in a clinical environment, student nurses have difficulty in fine-tuning intricate nursing situations after they graduate from nursing institutions (Basak, Unver, Moss, Watts & Gaioso, 2016:37). This argument has facilitated innovative training strategies in nursing with and simulation having become one of the practical substitutes with principles (Akaike, Fukutomi, Nagamune, Fujimoto, Tsuji, Ishida & Iwata, 2012:28). According to the Nursing and Midwifery Council for the UK, in their 2011 reports, self-directed simulated learning is integral to all pre-registration programs in nursing and midwifery and recommended that the manner in which students learn in these comprehensive clinical simulation groups is worthy of emulation and propagation (NMC, 2011:3).

Analogously, the South African Council on Higher Education (CHE) Work-Integrated Learning: Good Practice Guide, affirms that simulated learning is learning stimulated through an activity that involves the imitation of the real world in the academy. The act of simulating something entails representing certain key characteristics of the selected workplace and includes such things as laboratories, patient models, mock meetings and

flight simulations (Winberg, Engel-Hills, Garraway & Jacobs, 2011:76). Organised in a setting similar to a real-life clinical environment, the clinical skills laboratories are simulated environment for the hospital that were developed as innovative alternative to conventional training in nursing in the early 1990s, in developed nations (Lee, Kim & Park, 2015:222). Reasons for implementing simulated experiences as a component of the nursing curriculum in the self-directed Clinical Skills Laboratories are many and persuasive. They include concerns about avoiding of clinical errors, addressing client safety, limited clinical instruction time, increased competition for clinical placements, and a desire to provide explicit clinical experiences for nursing students (Roberts *et al.*, 2014:259).

In addition, due to the growing global need for nurses the number of nursing students has been increasing, demanding the need for clinical practice sites and experiences (Allen, 2009:35). As real experience in practice is limited, faculty cannot always provide students with sufficient opportunities to practice the number and variety of skills necessary for competent entry into professional nursing practice. For this reason, Basak, (Basak *et al.*, 2016:37) in their study suggested that nursing faculty must employ innovative techniques to improve students' clinical skills and support their practice experience. Simulation training in the SDCSL, has therefore, become a useful tool and is significant as a teaching-learning strategy to improve nursing students' clinical skills and to integrate theory and practice (Basak *et al.*, 2016:37).

Given this move in simulated training within health care and education, there has been an increasing emphasis on lifelong learning. Self-directed learning which applies for lifelong learning has been advocated as an applicable pedagogical method in nursing education, with studies noting that, students' SDL ability can be improved in undergraduate education to prepare them for staying up-to-date with contemporary nursing development (Tao, Li, Xu & Jiang, 2015b:1119; Nardi & Gyurko, 2013:317). This is important because, the complexity of the clinical environment, determined among other factors by increasing patient needs, the increasing use of technology, and new evidence as a basis for decision-making, requires the presence of nurses capable of continuing to develop their knowledge through self-directed learning. This makes the use of self-

directed clinical skills laboratories worth exploring in terms of the contribution to the learning experience (Cadorin, Rei, Dante, Bulfone, Viera & Palese, 2015:746).

It is therefore not surprising that, studies and reports globally suggest that nursing education, especially clinical education, does not always prepare students for the demands of working as a professional registered nurse (Peddle, 2011:467). Peddle, suggested that nursing education faces a major challenge to designing and implementing learning activities that provide students with opportunities to develop their practical skills (Peddle, 2011:467). As educational institutions around the world are changing to a student self-directed learning, with the student accepting more responsibility for their own learning, it is important for clinical learning to follow the same trend (Saakane, John, Timothe'e, Maphosa, Jennifer & Petra, 2008:360). As such, the South African Department of Health (DOH) Strategic Plan for Nursing Education, Training and Practice, entreats nurse educators involved in theoretical teaching to perform clinical teaching and assist students to integrate theory and practice at all levels using suitable teaching approaches and learning to facilitate acquisition of skills. Educators are encouraged to use a range of Work-Integrated Learning (WIL) approaches including experiential and work-based learning for authentically integrate theory and practice and enhancement of students' clinical learning (DOH, 2013:88).

In 2008, a study by Saakane and colleagues in South Africa did a study and a checklist to assess the quality of the clinical self-study laboratory (CSSL) equipment with a retrospective record review of utilisation of the CSSL by students. They found that SDCSL was well implemented and utilised by students. Students reported that it was accessible and that the equipment in the laboratory was of a reasonable quality. The study reported that a few students reported dissatisfaction with some of the equipment and requested that more equipment and trained personnel be made available on the site to assist them with queries (Saakane *et al.*, 2008:360). While this was a good foundational finding, it did not explicitly state whether the SDCSL was used in adherence with the SDL principles and in accordance with the South African Nursing Council requirement. In addition, the study considered only the material resource utilisation and did not address the human resources which are equally important in the SDCSL as a learning environment.

Nursing education and training institutions across South Africa are responding to changing needs, developments, priorities, and expectations in health and healthcare (SANC, 2005:2). According to the South African Nursing Council (SANC), it is expected of every nurse trainee to undertake practical hours of not less than 60% of the total duration of their training that is, a minimum of eight weeks of uninterrupted practical at the end of their course to allow for transition into the workplace (SANC, 2005:2). SANC believes that this total length of clinical experience allows the graduate to meet competency outcomes and that the academic content is intended to prepare the graduate for the timing and length of the clinical placements. SANC prescribes a minimum of 2800 clinical learning experience hours for undergraduate nurses to have undertaken before they can graduate (SANC, 2005:7).

According to Tanda and Denham this puts pressure on faculty considering the fact students have to be conversant with the procedures in the SDCSL which might require frequency and therefore increase utilisation of resources before they move to the real clinical environment to engage with real patients. Tanda and Denham's findings indicate that wise use of the self-directed clinical skills laboratories, consistent clinical placement, supportive clinical learning environments, and effective coaching by clinical educators positively affect student outcomes (Tanda & Denham, 2009:139). It is therefore clear that, students success are dependent upon the learning experiences in the classroom, clinical, and laboratory learning environments which requires the faculty to utilise strategies that integrate engaging learning activities into the curriculum (Bristol, 2012:80). They also need to provide resources that are required and to monitor the functionality and availability of equipment and resources that will facilitate on self-directed learning in the Clinical Skills Laboratories. According to Basak and colleagues, SDCSL has many benefits in nursing education and that simulation training which involves extensive use of technologies to prepare students for self-clinical practice in a risk-free environment is escalating in the Clinical Skills Laboratories. Similarly, the burdens of training students to defend patient rights and safety has become a crucial concern in medicine and in nursing care systems in recent years. The protection of client safety has initiated the challenge of finding real patients for students' clinical training, which has made self-directed clinical skills laboratories an important component of their training (Basak *et al.*, 2016:37).

So, to put the arguments into perspective there is currently limited published findings that analysed the utilisation of self-directed clinical skills laboratories, and whether it is used for its intended purposes and are the principles of SDL adhered to in the Clinical Skills Laboratory. How utilisation of CSL as a learning space be strengthened. This study, therefore, seeks to establish these.

1.3 STUDY CONTEXT

The study context was the coastal city of Durban, in the eastern province of KwaZulu-Natal. South Africa at a selected university that has access to a clinical skills laboratory. The clinical skills laboratory was established in 1994 as part of the restructuring of the Bachelor of Nursing program which leads to registration with the South African Nursing Council as a registered nurse (General, Community Health, Psychiatric nurse) and Midwife (Saakane *et al.*, 2008:360).

The Bachelor of Nursing students in their first and third year of their degree are required to spend much of time in the CSL, gaining the necessary clinical skills. The students are required to plan their individual time during the semester in the CSL and use the various competency baskets to learn and practice the list of clinical skills they have been given in their class guide. When the individual student feels competent with a particular clinical skill, they ask a clinical facilitator working in the laboratory to evaluate them using a standardised checklist.

The clinical skills laboratory operates from morning 8:00am to 4:00pm every working day except public holidays. Its takes care of medical students, post graduate critical care and trauma students and undergraduate nursing students. On average, its receives a booking of 25 students at various times within the day duration of its operation. However, up to 10 undergraduate students are allowed daily to practice without prior booking because of lack of internet connectivity at home or busy schedules that might have prevented them from booking.

The CSL has four permanent clinical facilitators who also give lectures in other modules and two employed postgraduate nursing students and up to 20 postgraduate students of honours in nursing education, Bachelors of nursing and Advance practice (BNAP) and

masters in nursing education who are required to supervise students to earn themselves hours as part of their training.

With regards to material resources, all equipment is in good condition except the computers that indicated some few issues. The laboratory has six beds with mannequins. There are two high-fidelity mannequins that are not available to students except specialisation students which include midwifery and the critical care students who are not undergraduate nurses. All equipment is well maintained with all basic information necessary for training nurses accessible to students and well arranged to simulate the hospital environment. The environment is well kept, dry and well ventilated with cubicles for examinations.

1.4 STATEMENT OF THE PROBLEM

Although evidence suggests that clinical skills laboratories are well documented and accepted as a simulated environment to train nurses and other health care professionals (Tao *et al.*, 2015b:1119), there is a paucity of literature that analyses this learning space for recommendations to improve its operations. The use of self-directed learning in the clinical skills laboratories are increasingly being adopted into nursing education internationally, with a move away from instructive styles of nursing that are teacher and lecturer initiative. Self-directed clinical skills laboratory training has been implemented in nursing education (Klunklin, Viseskul, Sripusanapan & Turale, 2010:177) to facilitates self-directed learning with educational theories now centring education on student learning instead of teaching (Haraldseid, Friberg & Aase, 2015c:1). It is significantly transforming learners to become and remain effective professionals with lifelong learning ability (Reed, Shell, Kassis, Tartaglia, Wallihan, Smith, Hurtubise, Martin, Ledford, Bradbury, Bernstein & Mahan, 2014:170).

For these reasons, there is an energetic enthusiasm among educators in higher educational institutions about the way learning is managed within the clinical skills laboratories (Klunklin *et al.*, 2010:177), however, little is known whether self-directed clinical skills laboratories are operated in line with the South African Nursing Council requirement and whether students practice in line with self-directed learning principles.

There are insufficient studies that have analysed the utilisation of self-directed clinical skills laboratories in Africa, although the use of practice classrooms, or clinical skills laboratories, has a long tradition in nurse education (Wellard, Solvoll & Heggen, 2009:228).

This study, therefore, seeks to explore and describe the utilisation of clinical skills laboratory for Self-Directed Learning in a selected higher educational institution in KwaZulu-Natal in South Africa, with references to the undergraduate nursing students' perception of the environment, Self-Directed Learning principles, and the South African Nursing Council requirement, and thus, make recommendations on how learning in self-directed clinical skills laboratory can be strengthened.

1.5 AIM AND OBJECTIVES

To explore and describe the utilisation of the clinical skills laboratories in undergraduate student nursing training at a selected higher educational institution in KwaZulu-Natal.

The objectives of this study were:

1. To describe the use of clinical skills laboratory in line with self-directed learning principles
2. To explore undergraduate nursing students' views regarding clinical skills laboratory as a learning environment.
3. To explore the academic self-perception of undergraduate nursing students learning experience in the clinical skills laboratory.
4. To describe the undergraduate nursing students' perceptions of learning in the clinical skills laboratory
5. To explore the utilisation of the clinical skills laboratory in line with the South African Nursing Council requirements.
6. To make recommendations about how the utilisation of the clinical skills laboratory as a learning space can be strengthened.

1.6 RESEARCH QUESTIONS

The important questions of this study were:

1. How are clinical skills laboratories used in line with the self-directed learning principles?
2. What are the views of undergraduate nursing students' regarding learning in the clinical skills laboratory environment?
3. What is the academic self-perception of learning to the undergraduate nursing students' in the clinical skills laboratory?
4. How do the undergraduate nursing students perceive learning in the clinical skills laboratory?
5. How is the clinical skills laboratory use with regards to the South African Nursing Council requirements?
6. What recommendations can be made regarding how the use of the clinical skills laboratory as a learning space be strengthened?

1.7 SIGNIFICANCE OF THE STUDY

According to Cohen, Manion and Morrison (Cohen, Manion & Morrison, 2011:226), a research study should have both practical and intellectual goals. They referred to a practical goal as one that can be accomplished and will deliver a specific result to meet a need whereas Intellectual goals should assist in understanding processes that contribute to situations, events and actions and develop causal explanations of phenomena. The intentions of this study were to augment the research database in this field and assist in both intellectual and practical components of the profession under the following subheadings:

Nursing Research: The findings are an additional knowledge and a database in nursing education in Africa, which other researchers can build on while making further investigations in the same area. Intellectually, this might also assist and suggest other areas of importance in clinical skills that need to be researched.

Nursing Practice: Practically, the findings are of value to the clinical nurses as it will accord them an elucidate knowledge which resources to frequently check to prevent

shortage since clinical skills laboratories are a simulated environment of real clinical settings and will help them to adjust where necessary. The findings are also to improve practice as it seeks to recommend and formulate suggested protocols to strengthen CSL as a learning space.

Nursing Education: This study might intellectually be of significance to the Nurse Educators to upgrade their knowledge on resources utilisation in the clinical skill laboratory as it is intending to determine the whether the CSL is used in line with the Self-Directed Learning (SDL) principles and to describe how the utilisation of the CSL as a learning space can be strengthened.

Nursing Mangers: It will be of distinction to the nurse managers in the formulation of clinical policies that will enhance the quality of nursing care regarding resource utilisation in the real clinical environment. It is also to assist managers both in the real hospital environment and in the clinical skills laboratories to plan knowing what resources are in demand and ways to provide to meet those demands. This will prevent a break in service delivery in hospitals and learning in clinical skill laboratories.

1.8 OPERATIONAL DEFINITION OF CONCEPTS

The following definitions apply for the purpose of this study:

Utilisation: The act of finding a useful purpose for something. The use or amount of usage (per unit population) of healthcare or other services; the pattern of use of a service or type of service in a specified time, usually expressed in a rate per unit of population-at-risk for a given period (Cambridge Advanced Learner's Dictionary, 2012). Operationally this adverts to how resources are used and to what extend students perceive the environment during their self-directed practice in the clinical skills laboratory.

Resources: These are tangibles and an intangible asset that an organisation controls, are both valuable that are useful in exploiting opportunities neutralising threats in the environment and rare or uncommon where a competitive advantage is possible (Sirmon, Gove & Hitt, 2008:921). In this study, this meant clinical skills laboratory resources available to students in the facilitation of clinical skills learning.

Self-Directed Learning: This is a process in which the person determines his/her learning objective and targets with or without the help of instructors, selects the appropriate research methods and evaluates the learning results (Avdal, 2013a:838). SDL is used in this study to describe the methods used by students to take responsibility for their own learning, to determine their aims and learning resources, to deal with appropriate activities and to evaluate their learning results.

Higher Education: According to the higher Education Laws Amendments Act twenty-six of 2010, higher education is any institution that provides higher education on a full-time, part-time or distance basis and which is (a) merged, established or deemed to be established as a public higher education institution under this Act; (b) declared as a public higher education institution under this Act; or (c) registered or provisionally registered as a private higher education institution under this Acts (Act101, 2010:7). Operationally this refers to universities and other institutions that have the power to award at least bachelor's degrees.

Simulated Clinical Environment: This is an educational environment that allows interactive and occasionally immerse activities that mimics the real clinical environment for learning without exposing patients to the associated risks (WHO, 2011:48). Operationally simulation is referred to as an artificial demonstration of a phenomenon or action that allows participants to have a realistic situation without real-life risks. It is fabricated to reflect clinical practice as closely as possible to teach procedures and facilitate nursing skills proficiency.

Undergraduate Nursing Students: A nurse who is undergoing a four-year training course in all aspects of nursing care to enable the nurse to be registered with the South African Nursing Council (Act101, 2010:7). Operationally this refers to undergraduate students from an accredited nursing program, in an accredited education institution and has privileges from the South African Nursing Council (SANC) to learn in a real clinical situation in the hospital with real patients. Nursing encompasses independent, dependent and interdependent care of persons of all ages, families, groups and communities, sick or well and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment,

research, participation in shaping health policy and in patient and health systems management, and education is also key nursing roles (Newham, 2015:40). Operationally nursing is a profession that cares for the biopsychosocial and spiritual being of the individual, family, and the society.

Self-directed Clinical Skills Laboratory: This is a place intended and used for teaching and assessing students at all levels, from first-year medical and nursing students to senior resident physicians and staff employing standardised patients. It provides students with the ideal clinical environment for practising the clinical skills of history taking, physical examination, communication, and interpersonal skills. The simulated patient encounters transition students from the classroom to real client contact in safe environments (Akaike *et al.*, 2012:28). Operationally it refers to a dedicated instructional hall with various kinds or resources for the training and self-study of health professionals.

1.9 CONCEPTUAL FRAMEWORK OF THE STUDY

The literature reviewed revealed two educational theories relevant to this study; self-directed learning (Knowles, 1970:40) and the experiential Learning cycle (Kolb, 1976:251). Self-directed learning is a major component of andragogy theory and is relevant to the present study because learners are expected to be self-directed to manage the constant change in healthcare demands. Andragogic philosophy is the art of helping adults to learn (Merriam, 2008:1536; Knowles, 1970:40).

This study assumes that: undergraduates nursing students are adults and are self-directed and responsible for their own learning (Knowles & Holton, 2005:45). It is, therefore, expected that with experience (Kolb, Boyatzis & Mainemelis, 2001:227), learners would be motivated to learn, self-monitor their learning process, plan and implement strategies to meet their learning goals in the clinical skills laboratory. According to Levett-Jones, SDL allows learning to progress beyond mere knowledge acquisition to being a memorable and motivating experience (Levett-Jones, 2009:363). Developed in the early 1970's by David Kolb, Experiential Learning Theory (ELT) emphasises experience as the central focus in learning (Kolb, 1976). Dewey (1938) as cited by Matsuo, believes experience refers to an individual's interaction with his or her external

environment, and it is generally defined as events that occur in an individual's life that is perceived by the individual (Matsuo, 2015:442).

The current study, therefore, assumes that self-directed clinical skills laboratory (SDCSL) should be operated on the South African Nursing Council Requirement and under the principles of self-directed learning (SDL). Adults learning principles are therefore needed with the experiential learning cycle to assist the individual in planning, doing, reviewing and learning (Tolsgaard, 2013:4690; Stice, 1987:291; Kolb, 1976:251). Figure 1.1 below illustrates the conceptual framework based on the self-directed learning and experiential learning cycle.

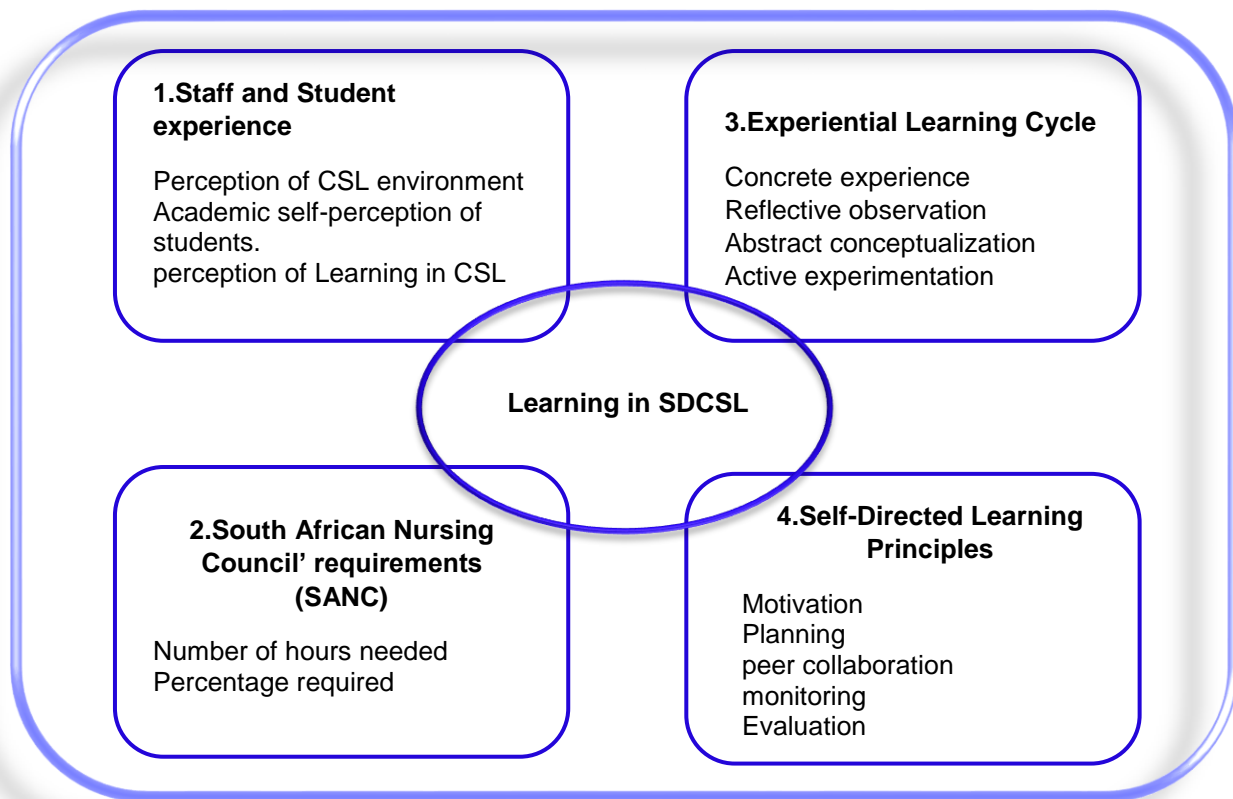


Figure 1.1 Conceptual framework for self-directed clinical skills laboratory

1. Staff and student experience

Learning approaches are influenced by the learning environment, which is created by the characteristics of the teaching and the departments. More precisely, it is the students' perception of this environment that determines the approach to learning and studying that they adopt. Types of learning style models contend that students have a differential preference for learning, which changes to some extent from situation to situation depending on the context and / or environment (Sindi, 2011).

2. The South African Nursing Council requirements

The South African Nursing Council prescribes the amount and the duration of practical learning that should be covered during training. According to the SANC, it is expected of every nurse trainee to cover practical hours of not less than 60% of the total duration, that is, a minimum of eight weeks uninterrupted practical at the end of their training to allow for transition into the workplace (SANC, 2005:2). SANC prescribes a cumulative of clinical learning experience hours as not less than 2800hours (SANC, 2005:7).

3. Experiential learning cycle

The experiential learning cycle of David Kolb consists of four steps: Concrete Experience, Reflective Observation, Abstract Conceptualization and Active Experimentation. He believes that learning is the process whereby knowledge is created through the transformation of experience (Kolb, 2014:273). According to Saul McLeod, a new experience of a situation is encountered, or a reinterpretation of existing experience by the learner and there is a reflective observation of the new experience for any inconsistencies between experience and understanding.

The abstract conceptualisation then makes the learner's reflect to make a new ideas, or a modify an existing abstract concept, which the learner applies them to the world around them to see what it results (McLeod, 2013:45).

According to De Oliveira and colleagues, the experiential learning cycle is relevant because nursing education should take experiential learning into account as an experience is essential for learning which should occur safely and in a pedagogically

planned way. Their study contends that clinical contexts are undoubtedly the richest environment for professional development, but that educators need to ensure that when students encounter real-life learning experiences, they are safe and have the resources needed to provide effective and risk-free care (De Oliveira, Do Prado, Kempfer, Martini, Caravaca-Morera & Bernardi, 2015:50).

4. Self-directed learning principles

Self-Directed Learning is a foundation that can help to establish features of a personalised system that assists students improve their abilities to manage their complete learning activities and monitor their own performance. This system enables collaboration, interaction, and feedback, as well as the much-needed support from the instructor and students' peers (Kim, Olfman, Ryan & Eryilmaz, 2014:150). This is considering personal attributes and autonomous processes which interact to achieve the goal of self-directed learning. An individual will need good Motivation Planning peer collaboration to make self-directed clinical skills laboratory learning more easily.

1.10 FORMAT OF THIS STUDY

This thesis is presented in six interconnected chapters, as indicated in figure 1.2

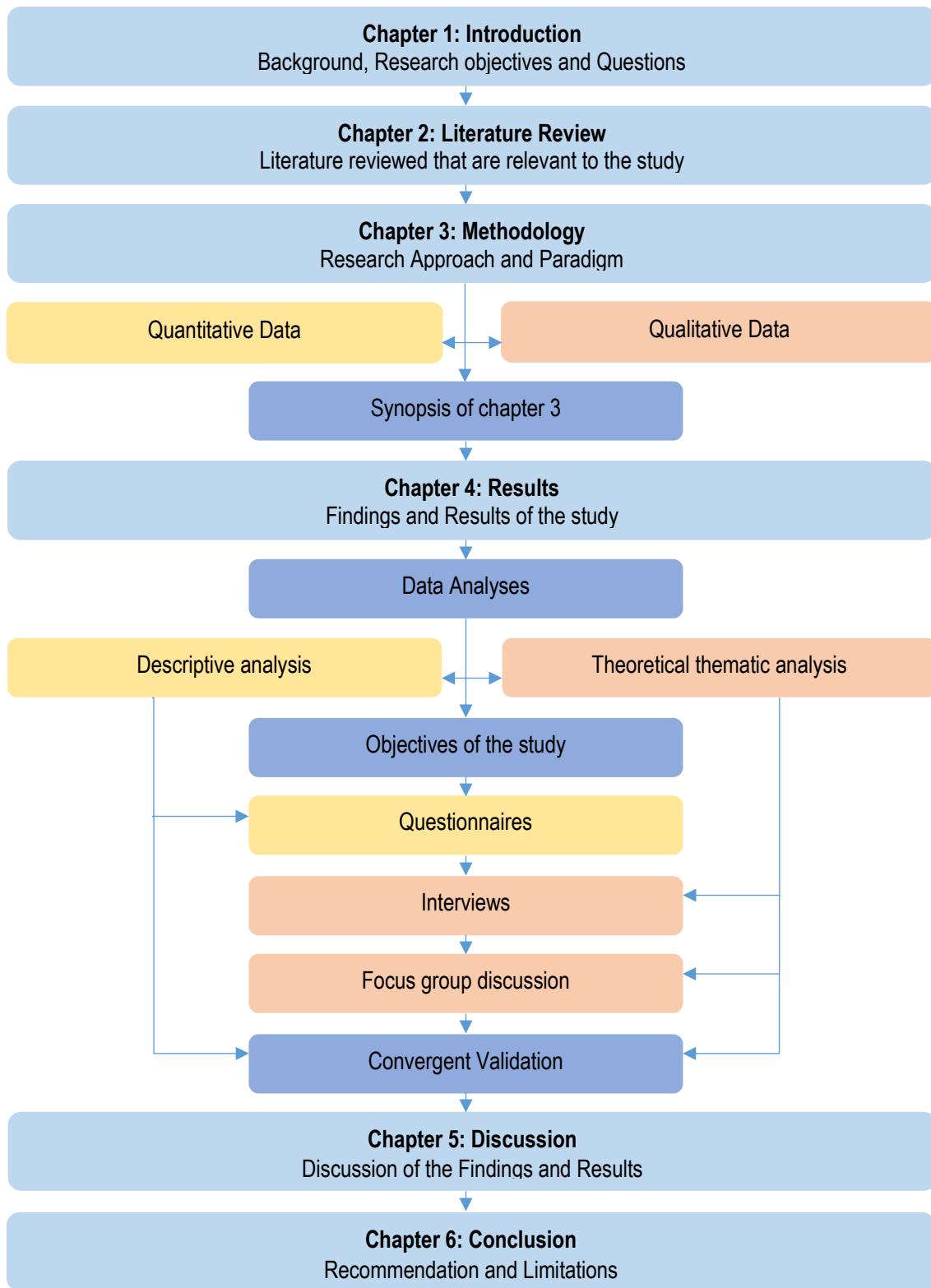


Figure 1.2 Structural arrangement of the thesis

Chapter 1. Introduction: presents an introduction and the background to the study, the study context, the research problem, aim, objectives and research questions. It outlines the significance of the study, operational definitions of terms, and the conceptual framework that will inform the way the study is conducted and how the results will be analysed.

Chapter 2. Literature Review: reviews the related literature, which involves identifying and analysing documents or materials containing information related to the study topic. These are organised into themes presented with their subthemes, specifically those that relate to the four components of the conceptual framework.

Chapter 3. Methodology: this chapter outlines the research paradigm and approach, design and methods of the study and detail of the quantitative and qualitative approaches used. It outlines the data collection tools and processes and methods used for data analysis, as well as the ethical considerations.

Chapter 4. Results: presents the findings and results of this study with respect to the objectives. It covers results from the quantitative and the findings from the qualitative data, each presented under a specific objective of the study. A convergent validation is done under each objective to compare the findings.

Chapter 5. Discussion: this chapter discusses the findings and results from the chapter 4 and compare them to the relevant local and international literature. This discussion takes place under the objectives of the study, presented one after the other.

Chapter 6. Conclusion: this is the concluding chapter and establishes the extent to which the Aim was achieved by summarising the main findings of each objective. It also presents the study limitations and recommendations on how the self-directed clinical skill laboratory can be strengthened.

1.11 SYNOPSIS OF CHAPTER 1

This section departed with the introduction and background to the study which sought to analyse utilisation of self-directed clinical skills laboratory within the higher educational sector with keen interest on the prescriptions of the South African Nursing Council requirements. This gave the researcher clarity to look at the study context and the problem statement. The transition continued with the study, the Aim and objectives and questions of the research were then stated. Finally, the significance, operational definition of concepts, the conceptual framework and closed with the format of this study. The next chapter will present a review of the relevant literature that was considered to support this study.

CHAPTER TWO

Review of the Literature

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews literature and outlines the conceptual framework of this study. Aside from back chaining, information was obtained from electronic resources such as PubMed, MEDLINE, Science Direct, EBSCOhost, and Google scholar with search terms including; demonstration rooms, Clinical Skills Laboratories, Self-directed Learning, Resources Utilisation, teaching and learning among others. Besides the seminal authors in the field, literature from 2010 to 2016 was specifically sought with quantitative, qualitative, and mixed methods studies being included. QSR International Nvivo version 11 for Macintosh was used to organise the searched literature which was coded into nodes using themes prescribed by the objectives. The literature is reviewed with respect to the following themes to address the study objectives;

1. Utilisation of Resources in Self-Directed Clinical Skills Laboratories
2. Self-Directed Learning Principles in Clinical Skills Laboratories
3. Students' Self-perception of CSL as a Learning space in Nursing
4. Teaching and Learning in the Clinical Skills Laboratories

Notwithstanding the gaps in the literature, methodological and theoretical approaches to the various reviewed literature were used to identify relevant gaps and thereby providing clarity and reasons for using the methodology of this study. Figure 2.1 below shows the distribution of the literature by year that was used to back this study.

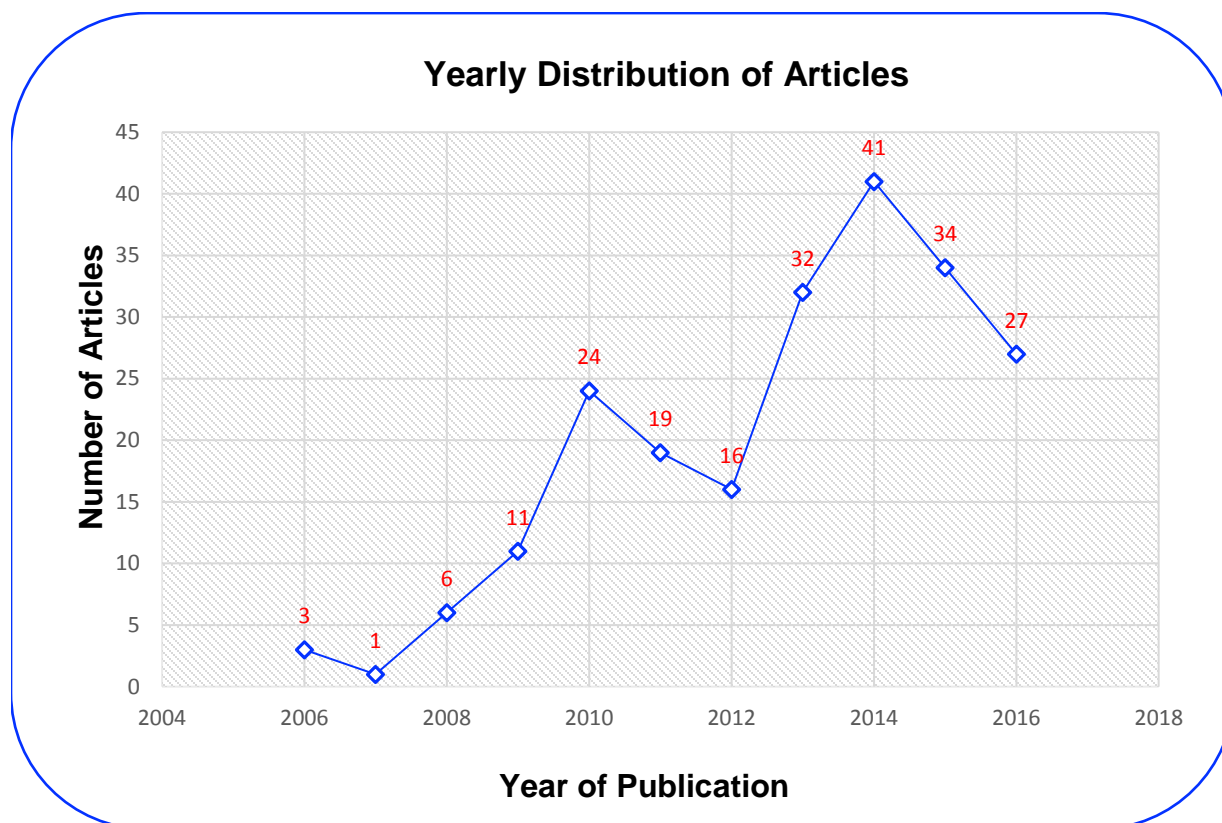


Figure 2.1 Distribution of Literature used

2.1.1 Scope of the Issue in Focus

As a profession, nurses need to maintain and enhance their competence as professionals to serve their patients. While this is a generally shared obligation among health professionals, there is little consensus concerning how best to accomplish this goal (Wise, Sturm, Nutt, Rodolfa, Schaffer & Webb, 2010:288). Nursing education can no longer be viewed as a finite process. Within the rapidly changing and advancing world of health technology, education is best considered as a lifelong process that spans the entirety of a professional career. Such “lifelong” learning has been defined as “a continuation of health education with an ongoing process of professional development along with self-assessment, which enables the professional to maintain the requisite knowledge, skills, and professional standards” (Boiselle, 2013:67). To learn beyond graduation, a professional must be able to self-direct their learning in other words lifelong learning

involves the development of self-directedness (SDL) (Chiang, Leung, Chui, Leung & Mak, 2013:1184).

The capability of lifelong learning is a stable set of attributes and skills related to interest and self-regulation of continuous learning (O'Neill, Deacon, Larson, Hoffart, Brennan, Eggermont & Rosehart, 2015:124). An important learning goal of healthcare education in the past decade has been teaching students the skills of lifelong learning. With the rapid pace of technology and scientific research, the risk of becoming obsolete and out-of-date in the absence of continued reading and studying during our careers is very real (Sierpina & Kreitzer, 2012:210).

Factors such as giving attention to learners' educational needs, orienting them to the rules and regulations of clinical courses, nurturing the self-active management of clinical teaching-learning process and imparting these unto the learners are among the most significant issues in every educational institution, including nursing (M, Emamzadeh Ghasemi, Nikpaima, Fereidooni & Rasoli, 2015:30). Education has a projecting role in making changes and obtaining anticipated results and is seen by some scholars as a basic means to an end. Many useful changes and transformations had been possible by developing appropriate educational backgrounds. However, available literature suggests this is not absolute in nursing profession (Aarabi, Cheraghi & Ghiyasvandian, 2015:161).

According to Aarabi et al, nursing education provided in academic institutions has often been castigated for not adequately equipping students to improve the quality of patient care being too focused on the theoretical aspect of the profession (Aarabi *et al.*, 2015:161). There is that robotic performance of nursing care that is usually rendered unto clients. Meanwhile transferring theoretical knowledge to practice in a real clinical setting is one utmost reason for nursing education and despite an improvement in nursing academic educational development, still nurses' behaviours are based mostly on traditional approaches (Cheraghi, Salsali & Safari, 2010b:1). This might be because education in nursing does not reinforce specialised nursing knowledge; rather, it simply conveys medical knowledge and hence care knowledge is not reinforced as a result (Aarabi *et al.*, 2015:161).

The education and training of nurses became professional after Florence Nightingale established a nursing school in 1860. Nightingale considered that the axiom of nursing was patient care (Sun, Long, Tseng, Huang, You & Chiang, 2016:21). Subsequently, this led to nurses being educated in the classroom and trained in the clinical settings. Contemporary nurse education comprises theoretical courses and practical training where student nurses are holistically prepared to be healthcare professionals (Nasrin *et al.*, 2012:134). The practical training allows students to develop a better understanding of the nursing research, principles and theories and strengthen their professional nursing skills (Sun *et al.*, 2016:21).

There is literature to suggest that even nurses with PhD titles only possess theoretical knowledge and therefore cannot participate adequately in clinical functions. There is thus not much hope for them to improve the clinical performance of nurses". (Aarabi *et al.*, 2015:161). Nursing is becoming more academic and the neglect of the patient is conspicuous in health institutions, with clinical skills laboratories becoming more sophisticated and the human touch, good attitudes and communication skills that make nursing an art being largely absent. So, training of nurses in our institutions with the advent myriad of technological availability and Self-directed learning skills is still lacking and needs refurbishment with proper approaches.

Maranon and Pera (Arreciado Maranon & Isla Pera, 2015:859) aimed of gaining insight into nursing students' perception of their theoretical and practical training and how this training influences constructing their professional identity. They found that students believed both theoretical and practical training were a prerequisite to the real life professional work environment. Nevertheless, clinical placements were considered essential to confer a sense to the theory and to shape their identity as student nurses, which will help them to experience their future professional reality and to engage with what they had been taught in theoretical and academic classes. The study argued that the problem of nurses' professional identity continues to manifest in the disjuncture between theoretical training and clinical placements, with both theory and practice being vital to nursing education (Arreciado Maranon & Isla Pera, 2015:859). Nurses need to

possess the ability to self-direct their learning since they would have to work independently after training.

2.2 HISTORY OF SELF PRACTICE IN NURSING

Nursing is a hands-on profession that synthesises knowledge with practice. Nurses make critical decisions as a matter of routine, often while gathering patient data (Nickerson & Pollard, 2010:435). It is believed to be a dynamic and applied profession with nursing education being a combination of theoretical sciences, practical activities, skills, creativity, and experience (Yaghoubinia, Heydari & Latifnejad Roudsari, 2014:65). Self-directed clinical skills laboratories are an educational environment that allows interactive and occasionally immersive activity that mimics the real clinical environment for learning without exposing patients to the associated risks (WHO, 2011:48). Simulation for nursing training allows self-directed clinical skills acquisition in a laboratory and is more than 100 years. In 1911, one of the earliest patient simulator mannequins was placed into service at the Hartford Hospital Training School in Hartford, Connecticut (Nickerson & Pollard, 2010:435). The history behind simulation in the self-directed clinical skills laboratory shows a progression not only in technological advances but, more importantly, in promoting adult learning principles and improving patient safety (Nickerson & Pollard, 2010:435).

Preceding the 1950s, most nursing skills were taught in class but were practised on the patients themselves (Heidgerken, 1946) as cited by Harder which was the accepted method of teaching. Attempts at simulating skills included practising injections on oranges in the demonstration rooms. This was not realistic in terms of how it feels to administer an injection or of the patient's response (Harder, 2009:169). After the 1950s, several changes became evident as technology was rapidly changing, affecting all areas of the society, including nursing (Harder, 2009:169). This was when students could do self-practice in the demonstration rooms after being shown with little or no supervising from the clinical tutor. After this came the movement which began in the 1980s and continues partly to the present day. Changes in teaching approaches were emerging as educators recognised the role of clinical skills laboratories to meet the needs of students and other health care practitioners (Harder, 2009:169). Increasingly complex clinical skills were

required, and educators saw how important using clinical skills laboratories could be in teaching to help students master those skills.

Harder (2009) posits that we are currently in the fourth crusade of clinical skills laboratories' use in health care education. According to him, the first and second movements focused on the creating of the simulators in CSL and primarily technological advances, which extended from approximately 1958 to the mid-1980s. The 1980s saw the beginning of the third movement, which included affordable realistic simulators and accompanying approaches related to teaching and learning in CSL (Biteman, 2011:65). Many schools and faculties of nursing began developing CSL centres and using simulation in their curriculum. This movement has continued to the present day and consisted of advances in accessibility, as well as being included into teaching, learning and research. Some fascinating events are now happening that are different from what was earlier encountered (Avis, Lozano, White, Youngblood, Zinkan, Niebauer & Tofil, 2012:97).

Nursing education has traditionally used low and intermediate-fidelity simulations in the CSL, and is increasingly adopting High-Fidelity Simulation (HFS) as a significant component in its practice (Kardong-Edgren, Starkweather & Ward, 2008:1). Fidelity in simulation reflects the degree to which a simulation provides an accurate and truthful representation of the original phenomenon and HFS in healthcare has developed with the availability of new technologies that support more accurate physiological modelling in anthropomorphic mannequins (Garrett, Macphee & Jackson, 2011:671). As a key resource in the CSL for health care, HFS is generating positive learning outcomes for nursing students and other health professionals, including being used for cardiac surgery. High-fidelity simulation allows educators to simulate physiological interactions with real-time feedback that helps nurses and students test their abilities to integrate and respond to complex care situations in a safe setting (Garrett *et al.*, 2011:671).

Simulation has been identified as an important method for improving patient safety and quality of care (Chiang & Chan, 2014:257). With the reduction in apprenticeship hours in the clinical setting, simulation can provide effectively practical training with assessment

of technical skills. It has become an essential part of training in many hazardous specialities (Beyea, Slattery & Von Reyn, 2010:169). It is known that simulation-based education improves the quality of care during cardiac arrest team responses. It improves procedural and resuscitation technical skills, as well as teamwork, communication and complete practice (Atamanyuk, Ghez, Saeed, Lane, Hall, Jackson, Desai & Burmester, 2014:17). It is argued that simulation if appropriately integrated into health training, may provide a time efficient, cost-effective and safe method of training (Brewin, Ahmed & Challacombe, 2014:103). In South Africa, it has been suggested that incorporating simulation into training facilities for healthcare professionals could bridge the gap currently experienced in health sciences education in the country (Labuschagne, Nel, Nel & Van Zyl, 2014:138). The use of simulation as a teaching strategy in undergraduate nursing education in the CSL is gaining increasing credibility and popularity (Mills, West, Langtree, Usher, Henry, Chamberlain-Salaun & Mason, 2014:12), and need to be analysed.

2.3 SELF-DIRECTED LEARNING PRINCIPLES IN CLINICAL SKILLS LABORATORY

Increasing pressures worldwide on higher education to re-examine and move its outcomes to a market model have stimulated changes in curricula with much emphasis on the development of personal qualities for lifelong learning (Douglas, 2014:13). There is adequate evidence of studies on self-directed learning (SDL) in nursing education that supports the superiority of SDL to traditional learning methods on students' academic performance and the development of positive attitudes to the learning process by both students and teachers. Students' academic performances are increase when they engage in self-directed learning (Alotaibi, 2016:249; Yuan, Williams, Fang & Pang, 2012:427), this method being used increasingly in adult education (Avdal, 2013b:838). This develops when students take the initiative for their learning by recognising needs, formulating goals, identifying resources, implementing applicable strategies and evaluating their learning outcomes. However, this should be seen as a collaborative process between the nurse educator and the learner (Cadorin, Cheng & Palese, 2016:1).

In accordance with Knowles's theory, SDL can improve with tutorial strategies that are focused on guided reflection and critical analysis of the learning process (Cadorin *et al.*,

2015:746). With the growing trend of preparing students for lifelong learning, the theory of self-directed learning has been increasingly applied in the context of higher education. To foster lifelong learning abilities among nursing students, faculties need to have evidence of nursing students' ability to pursue this course of action (Cheng, Kuo, Lin & Lee-Hsieh, 2010:1152). Self-directed learning has become a focus for nursing education in the past few decades resulting from the complexity and changes in nursing profession development (El-Gilany & Abusaad Fel, 2013:1040).

In a study by Eom, Kim, Kim and Seong, found that the teaching method using self-directed learning approach was more effective than the traditional methods to improve junior nursing students' competence and problem-solving ability (Eom, Kim, Kim & Seong, 2010:151). This is in line with Gagnon's findings which suggest blended-teaching method could better suit some students, depending on their degree of motivation and level of self-directed learning readiness (Gagnon, Gagnon, Desmartis & Njoya, 2013:1). It is also contended that fostering self-directed learning skills in nursing students may provide a foundation for improving the speciality knowledge of these nurses (Kao, Yu, Kuo & Kuang, 2013:53). In addition, the results of Kao and Kuang indicated that the self-directed learning and self-management of nursing students between 20-21 years old was significantly higher than those between 18-19 years old. However, self-directed learning, a desire of learning and self-control in 2-year nursing students was significantly higher than in 4-year trainees (Kao *et al.*, 2013:53). In other words, the ability to benefit from self-directed learning increases with age with motivated individuals likely not having problems with lifelong learning. Kao and Kuang's findings concluded with a recommendation that teachers at nursing institutions should help students develop self-directed learning desires and guide them on to the principles (Kao *et al.*, 2013:53).

The aforementioned is congruent with a study in Thailand where a sample of 272 undergraduate students undertook self-directed learning assessment using two instruments: a demographic data questionnaire and Guglielmino's Self-Directed Learning Readiness Scale. The study found that the overall self-directed learning readiness of participants was at a high level in the categories of openness to learning opportunities, self-concept as an effective learner, initiative and independence in learning, informed

acceptance of responsibility for one's own learning, creativity, and the ability to use basic study and problem-solving skills. The findings therefore, provided encouragement to nurse educators to further apply self-directed learning in nursing courses, to improve teaching and learning methods and promote lifelong learning for nurses (Klunklin *et al.*, 2010:1).

Assisting nursing students in self-directed learning is a major goal of the self-directed clinical skills laboratory. Through repetitive practice, students can gain expertise in motor skills, and gain the ability to integrate them into clinical practice (Zhang, Zeng, Chen & Li, 2012:570). While, some students often need repeat demonstrations of a skill component, others may not. This is taking into account that self-directed learning happens when the learning tasks are largely within the learners' control (Yuan *et al.*, 2012:427). The objective is to find a teaching method that would readily engage students with autonomy in applying technology to existing nursing skills rubrics (Rn, Distefano, Rutgers & Steefel, 2013:664).

Therefore, self-directed learning is crucial to the professional development of nursing students and will assist them to expand the knowledge and enhance the quality of their practice (Shen, Chen & Hu, 2014:1). A study by Tao, Li, Xu and Jiang (Tao, Li, Xu & Jiang, 2015a:1119). A study to assess the effectiveness on undergraduate nursing students' self-directed learning using mixed methods stated that both quantitative and qualitative analyses showed that self-directed learning is beneficial to the students (Tao *et al.*, 2015a:1119).

2.4 STUDENT SELF-PERCEPTION OF CLINICAL SKILLS LABORATORY AS LEARNING SPACE IN NURSING

The acquisition of quality clinical experience within a supportive and pedagogically regulated clinical learning environment is a significant concern for educational institutions (Papastavrou, Dimitriadou, Tsangari & Andreou, 2016:1). In nursing, the mastery of clinical skills learning is required to become a trained nurse, but due to limited opportunities for clinical skills training in clinical areas, undergraduates training at CSLs are an essential part of nursing education. From a sociocultural learning perspective, learning is situated in an environment. The growing student cohorts, rapid introduction of

technology-based teaching methods and a shift from a teaching- to a learning-centred education all influences the environment of the students. These changes also affect CSLs and therefore compel nursing faculties to adapt to the changing learning environment (Dimitriadou, Papastavrou, Efstathiou & Theodorou, 2015:1).

Creating an authentic environment, facilitating motivation, and providing resources for multiple methods and repetitions within clinical skills training are all important for improving CSL learning environments from the student perspective (Haraldseid, Friberg & Aase, 2015b:1). This is because a key component of a quality clinical learning environment is the quality of care delivered after learning (Dimitriadou *et al.*, 2015:1). Nursing education is a process that includes theoretical and practical learning and requires the acquisition of theoretical knowledge and skill. Nursing students needs a good clinical practice environment to apply their knowledge and skills as the clinical practice settings play an important role in the future direction of the nursing profession (Aktas & Karabulut, 2016:124). One of the prerequisites for the training of competent students is to provide them with a good clinical environment because with Aktas reporting that nursing students' academic motivation increased as the quality of their clinical learning environment improved (Aktas & Karabulut, 2016:124).

Similarly, according to Hooven, the clinical learning environment has a considerable imprint on student learning with a positive learning environment increasing student learning, the ability to gain information from the student perspective about the learning environment is therefore essential to nursing education (Hooven, 2015:421). The quality of clinical learning usually reflects the quality of the curriculum and the clinical settings as a learning environment is a significant concern in current nursing education (Papastavrou *et al.*, 2016:1).

The nursing students' satisfaction with a learning environment is considered an important factor in contributing to any potential reforms to optimise the learning activities and achievements within clinical settings. According to Papastavrou and colleagues, the supervisory relationship is perceived by students as the most influential factor in their satisfaction in the clinical learning environment. Student's acceptance within the nursing team and a well-documented individual attention are key to students' satisfaction in a

learning environment (Papastavrou *et al.*, 2016:1). This agrees with Antohe and others in a study that established that an individualised supervision model was a crucial factor in students' total satisfaction during their clinical training periods (Antohe, Riklikiene, Tichelaar & Saarikoski, 2016:139).

The pedagogical atmosphere is considered an important factor, with reference to students' learning activities and competent development within the clinical setting, therefore, a study ascertaining that satisfaction could be used as an important factor to the development of clinical learning environments to satisfy the needs and expectations of students (Papastavrou *et al.*, 2016:1). Nursing students are evaluated in clinical learning environments where skills and knowledge are applied to patient care. These environments affect the achievement of learning outcomes and their preparation for practice and student satisfaction with the nursing profession. So providing clarity of clinical learning environment for nursing education will assist in identifying the antecedents, attributes and consequences affecting student transition to practice (Flott & Linden, 2016:1). This is because, clinical practice enables nursing students to acquire essential professional skills, but little is known about nursing students' perceptions of the clinical learning environment (Nepal, Taketomi, Ito, Kohanawa, Kawabata, Tanaka & Otaki, 2016a:181).

A university in central Taiwan revealed that learning outcomes were significantly better when students' perceptions of their instructional activities were aligned with their preferred learning environment. The researchers concluded that educators need to be circumspect of students' preferences specially that of the learning environment. Educators may also need to pay attention to an individual student's perception and their intention in the learning environment and between the student's preferred and actual perceptions of the learning environment (Yeh, Huang, Chan & Chang, 2016:1).

The clinical learning environment can be enhanced by feedbacks provided by students as peer support and favourable communication with peers which are available in the learning environment, have a positive imprint on student learning. Therefore to ensure the most favourable learning environment for students, cooperation should be increased between school clinical staff, instructor skills should be developed, and students should

be supported in the clinical environment (Sercekus & Baskale, 2016:134). Clinical practice is essential to nursing education as it provides experience with patients and works environments that prepare students for future work as nurses. However, this specialist environment has traditionally not been considered as a practice learning environments for first year nursing students (Lovric, Piskorjanac, Pelvic, Vujanic, Ratkovic, Luketic, Pluzaric, Matijasic-Bodalec, Barac & Zvanut, 2016:48; Mccallum, Lamont & Kerr, 2016:182). Students' exposure to clinical learning environment is one of the most important factors affecting the teaching-learning process in clinical settings. Identifying challenges of nursing students in the clinical learning environment could improve training and enhance the quality of its planning and promotion of the students (Jamshidi, Molazem, Sharif, Torabizadeh & Najafi Kalyani, 2016:1).

Even in self-directed learning in nursing education which has a number advantages over traditional learning methods with regards to students' academic performance and the development of positive attitudes to the learning process by both students and teachers. It is therefore recommended that nursing educators provides a supportive learning environment with good teaching, clear goals and standards, appropriate assessments and workloads, and an emphasis on independence to encourage students to engage in SDL, which can, in turn, enhance their academic performance (Alotaibi, 2016:249).

Technological advances enable virtual learning environments to be used as teaching and learning platforms for nursing education. However, there is only limited evidence in the literature to suggest that the Virtual Learning Environment is used to support the education of student nurses education especially in practical settings (Wilson & Hungerford, 2015:379). The clinical learning environment is an important component to training nurses, with technology not being advanced enough to replace it. Clinical placement is therefore an essential part of nursing education, and students' experiences on clinical placement can affect the quality of their learning. Understanding nursing students' positive and negative perceptions of clinical placement experience in a learning environment is, therefore, important (Salamonson, Everett, Halcomb, Hutchinson, Jackson, Mannix, Peters & Weaver, 2015:206), as clinical learning environment plays an

essential part in student nurses' learning (Sundler, Bjork, Bisholt, Ohlsson, Engstrom & Gustafsson, 2014:661).

A study in Indonesia conducted to assess students' perceptions of their educational environment and approaches to learning, and to determine if perceptions of their learning environment were associated with approaches to learning. The 232 nursing students completed two questionnaires that measured their perceptions of their educational environment and approaches to learning being based on the Dundee Ready Education Environment Measurement (DREEM) and the Approached and Study Skills Inventory for Students (ASSIST). The finding showed that the perceived educational environment was significantly associated with approaches to learning which highlighted the need to maintain a conducive learning environment. There is also a need to improve the management of learning activities to reflect the use of student-centred learning (Rochmawati, Rahayu & Kumara, 2014:724), with the clinical learning environment constituting an initial area of professional practice for nurses. However, Papathanasiou et al. (Papathanasiou, Tsaras & Sarafis, 2014:57), contend there is a noticeable gap between the expectations and reality of the clinical learning environment for the students during their nursing training. Therefore, reorganisation of the educational framework is needed with an emphasis on innovation and individualization (Papathanasiou *et al.*, 2014:57), as most nursing students have to deal with variety of clinical and practical aspects of knowledge to become skilled professionals. Students perceptions may be considered an indicator of teaching quality as their positive perception is directly related to their effective professional learning (Magnani, Di Lorenzo, Bari, Pozzi, Del Giovane & Ferri, 2014:55).

Similarly, positive learning experiences during clinical practice influence not only learning outcomes but also how students reason in future career choices. The supervisory relationship has the greatest effect on how student nurses experience the clinical learning environment in nursing, making it importance to include collaborative activities, between the educational and clinical settings, supporting the work of clinical instructors are established and maintained (Carlson & Idvall, 2014:1130). This is because nursing students performs their clinical practice in different types of clinical settings, and

harmonising the clinical learning environment in CSL is important for students to be able to achieve desired learning outcomes (Wells & Dellinger, 2011:1). This is in line with a study that noted that nursing students' satisfaction with their placement did not significantly differ between various clinical settings, although, those with placements in hospital departments contended that sufficient meaningful learning situations occurred and that learning situations were multi-dimensional (Bisholt, Ohlsson, Engstrom, Johansson & Gustafsson, 2014:304). Some students indicated in the above study that, the atmosphere of the clinical setting made it difficult to achieve the learning objectives, and the study concluded that in the planning of the clinical placement, attention must be paid to whether the setting offers the student a meaningful learning situation where the appropriate learning result may be achieved (Bisholt *et al.*, 2014:304). Effective clinical learning requires integrating nursing students into ward activities, with staff engagement being required to address individual student learning needs, as well as innovative teaching approaches (Henderson, Cooke, Creedy & Walker, 2012:299). Assessing the characteristics of the practice environments can provide useful insights as indicated by reports from various countries ;which note that students report similar perceptions about their learning environments (Wood & Mcphee, 2011:510). Clinical learning environments are most effective in promoting safe practice and are inclusive of student learners, but not seldom open to innovation and challenges to routine practices (Henderson *et al.*, 2012:299).

2.5 TEACHING AND LEARNING IN THE CLINICAL SKILLS LABORATORY

The link between theory and practice during education is a central topic in a debate that takes a position in various disciplines. The notable contribution is by Schön (1992) as cited by Maranon and Pera (Arreciado Maranon & Isla Pera, 2015:859), who contends that the education of university students is based on a pyramid of knowledge in which basic sciences take pride of place and clinical placements are relegated to the last stage of the ladder. In nursing, available literature suggests that this hierarchical distinction between theoretical knowledge and its practical application is evident, as clinical placements occur after knowledge has been acquired resulting from the assumption that it is in this setting that student nurses will learn to apply their acquired knowledge.

However it is the combination of what is taught to students, and what they will do or see in clinical placements, and what they will experience throughout their university education at the clinical sites what will create their idea of a professional nurse in their future practice (Arreciado Maranon & Isla Pera, 2015:859; Bjork, Berntsen, Brynildsen & Hestetun, 2014:2958; Ellard, Chimwaza, Davies, O'hare, Kamwendo, Quenby & Griffiths, 2014:5751).

Nursing education is an evolutionary process that has experienced a transformation through different pedagogies from an apprenticeship model in the exclusive clinical setting to a holistic model in the college setting (Taylor & Hamdy, 2013:1561). Recent developments in adult education and research have influenced the need to change nursing education to cultivate future nurses who can provide safe, effective care based on the individual client needs and their situations (Allen, 2010:33).

Changing from the traditional conservative model of pedagogy in nursing education to a learning-centred model requires innovative thinking about the approach to teaching and learning as well as the various roles within this new environment (Ruble, Cole & Serag-Bolos, 2014:240). Nursing faculty are not required to relinquish authority, administer content-free courses, diminish their roles, present students with more responsibility than they can handle, or allow students to assign their own grades (Allen, 2010:33). Students must still be guided to make the right decisions concerning their learning and enable them to cultivate in themselves the self-directed learning principles and lifelong learning concepts.

There is evidence that nursing faculty and students are often challenged with an overload of content to teach or to learn. Faculty members often struggle with determining the best delivery method for the diverse scope, depth, and breadth of concepts the students need to learn (Byrne, 2016:20), which presents educators into thinking that theoretical learning is more relevant to the student, especially in the higher education institutions. However, as nursing is known as a practice-based discipline, clinical education is an important component of any nursing education program (Megel, Nelson, Black, Vogel & Uphoff, 2013:525; Henderson & Tyler, 2011:288). Nurse educators ought to bridge the gap between theory and practice as clinical education programs that provide clinical

experiences are important for preparing students for real-world conditions (Hickey, 2010:35).

However, is rather unexplainable when students complain about the type of practical training they receive from nurse educators. A study by Haraldseid et al (Haraldseid, Friberg & Aase, 2015a:1), established that students perceived a discrepancy in the information that they received from clinical instructors, giving them the impression that the faculty was unprepared. According to the participants in this study, faculty was difficult to access and that although student desired more time to practice there was little opportunity for them to so (Haraldseid *et al.*, 2015a:1).

Students, valued the ability to train in surroundings that resembled the environment of their future workplace, to depend on the knowledge that the settings will not differ substantially. Not being able to train in such surroundings often led to frustration and diminished satisfaction among the students (Wellard *et al.*, 2009:228). The authors noted that students and staff emphasise the importance of creating an environment that resembles the practical nursing setting. According to Johnson (Johnson, 2009:180), the reason that students want dependability might be the need to create an environment in which students perceive the realism of the situation and understand its relevance for clinical practice. The students clearly stated that they felt uncertain in the CSL when equipment was old, reused or unavailable (Ringel, Burmann, Fellmer-Drueg, Roos, Herzog, Nikendei, Wischmann, Weiss, Eicher, Engeser, Schultz & Junger, 2015:288). Rettedal, (Rettedal, 2009:1) argues that the professional nurse is aided in a simulation training setting by mental images that he or she has gained through real-life practice. As the nursing students are undergraduates with minimal practical experience, the lack of such mental images could explain why they find it difficult to improvise in the clinical skills laboratory which is the simulated setting. Their need for settings that mimic the real environment and thereby enhances their mental images would explain the necessity of authenticity and dependability as a vital component of their learning environment (Wellard *et al.*, 2009:228). Authentic facilities and equipment should therefore be integrated into realistic training settings (Haraldseid *et al.*, 2015a:1; Beyea *et al.*, 2010:169).

The way knowledge is imparted is another debatable issue, according to Zhou, Liu, Zeng and Zhu, who contend that the traditional lecture format of nursing education accompanied by direct demonstration teaching method can no longer cultivate the various skills that nursing student's needs. How to choose a more scientific and cogent teaching strategy is a common global concern for nursing educators. The objective was to investigate the basis for selecting teaching strategies among nursing educators in mainland China, and the application of different teaching strategies in theoretical and skill-based nursing courses. A questionnaire survey designs was used to canvas the opinions of 262 randomly selected nursing educators at 71 nursing colleges in 28 provincial-level administrative regions in mainland China. The findings revealed that nurse educators selected teaching methods mainly based on the characteristics of the teaching content, and the students, as well as their previous teaching experiences.

The factors affecting the selection of teaching methods mainly included large class sizes, limited class time and examination formats. The surveyed nursing educators primarily used lectures to teach theory and direct demonstration method for the skills courses, with the application frequencies of these two teaching methods being significantly higher than those of other teaching methods ($P = 0.000$). The study concluded that more attention should be given to the selecting appropriate nursing teaching strategies. It noted that every nurse educator should strategically choose to teach methods before each lesson, and that nursing education training should focused on selecting more extensive and effective teaching strategies should be more extensive (Zhou, Liu, Zeng & Zhu, 2016:147). The study underscores the significance of teaching strategies of nurse educators and the importance of knowing which strategy to employ and at what situation and circumstance.

Alkhasawneh holds a conflicting opinion, the author contends that nursing students have varied learning styles and educators ought to accommodate their classes to meet the learning needs and styles. Multimodal learners can be more flexible about how they exchange information than those with a single preference. However, multimodal learners need to have at least two, three or four modes involved in learning before they are satisfied. Educators therefore need to use more than one teaching modality to enhance

and make their students satisfy with various learning experience (Alkhasawneh, 2013:1546).

In line with this is the argument that nursing education can maintain its dynamic quality if it moves to innovation and modern methods of teaching and learning, and that it is imperative teachers acquire and employ up to date methods in their teaching plans (Pourghaznein, Sabeghi & Shariatinejad, 2015:162).

Congruent to the above is a review of the need to determine the nursing students common learning styles to develop appropriate teaching styles that are needed. A search was conducted using various electronic databases and journals for the period 2000 to 2013. Two reviewers independently evaluated the methodological quality of the mainly descriptive studies and found that 11 articles represented four continents. The reviews emphasised that nursing students preferred the kinaesthetic and multimodal learning styles. Kinaesthetic learners prefer live examples and much interaction with Interactive and real-life experiences as teaching methodologies being preferred methods of nursing students being considered to be holistic approaches that incorporates all their senses of seeing, feeling, smelling, hearing and sometimes tasting (Frantz & Mthembu, 2014:1814).

Another direction of this argument was by Falk, Falk and Jakobsson Ung, who evaluated the effects of sequencing clinical practice anterior to theoretical studies on student's experiences of self-directed learning readiness and students' approach to learning in the second year of a three-year undergraduate study program in nursing. A total number of 123 nursing students were in the study and divided into two groups. They measured learning readiness, using the Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE), and learning process with the revised two-factor version of the Study Process Questionnaire (R-SPQ-2F). Using a mixed method design, qualitative component focused on the students' personal experiences to the sequencing of theoretical studies and clinical practice and the quantitative component provided information about learning readiness before and after the intervention. Their findings confirmed that students are sensitive and adaptable to their learning contexts and that the sequencing of courses is subordinate to the pedagogical style (Falk, Falk & Jakobsson Ung, 2016:14).

This study indicates that sequence of courses is not as important as we are made to assume and that what is important is the pedagogy used by the instructor. Incorporating creative teaching activities is also positive addition to the training of the health professional. Creativity is clearly an asset to the range of contemporary learning strategies, and is one of the ways that higher education will continue to keep abreast of the needs of graduating students in a complex and rapidly changing professional environment (Rankin & Brown, 2016:93).

Education institutions and clinical settings have a joint responsibility regarding facilitating a learning environment for the nursing students to provide learning outcomes in accordance with the Nursing Curriculum. Some studies suggest that students' evaluation of teaching and learning methods is often under emphasised and misjudged, yet students are the best assessors as they are the consumers of this service. In addition, as students are exposed to different teaching methods daily, most are well equipped to recognise the strengths and weaknesses of each. Teaching clinical programmes, such as nursing, requires different strategies to teach the theoretical and practical material (Struksnes & Ingeborg Engelién, 2016:125; Cassimjee, 2007:412).

2.5.1 Interaction of Educators and Students

Empathetic understanding is the ability of the teacher to recognise and comprehend the feelings of students, which further aids in the non-judgmental interpretation of their actions and behaviours. It is being able to view the world from the students' perspective that facilitates understanding and working with them through their present emotional situation to maximise the academic experience, thus demonstrating consideration (Bryan, Lindo, Anderson-Johnson & Weaver, 2015:141). The main goal of faculty is to help their students develop and mature academically to become competent professionals (Bryan *et al.*, 2015:141).

According to Arbaugh and Benbunan-Fich, instructional interactions are reciprocal events happening between a learner and the learner's environment with changing learners and assisting them to their professional goals. Depending upon the interacting parties, there

are three types of interaction: learner–instructor, learner–learner and learner–content (Arbaugh & Benbunan-Fich, 2009:853).

Learner–instructor interaction measures the involvement of the instructor with the students and the extent to which they experience the proximity of the instructor through his/her presence. Depending on the instructional approach, the instructor can take a prominent role (instructor-centred) or a facilitator role, Such as an objectivist mode of instruction, which is based on the transfer of information from the lecturer to the learner (Arbaugh & Benbunan-Fich, 2009:853).

Learner–learner interaction refers to the exchanges among students enrolled in the course. This uses a collaborative model of learning that is based on the notion that learning is most successful when small groups of students share and discuss information. Interaction with peers provides participants with the synergy and motivation to excel. Through task-oriented and socio-emotional interactions, students obtain the resources and support necessary to succeed in the learning environment (Arbaugh & Benbunan-Fich, 2009:853).

Learner–content is the interaction between the learner and the material to be learned, which can be presented in different formats such as text, audio, video, graphs and images. The connection between the learner and the material is influenced by subject matter and the design of the simulated environment (Arbaugh & Benbunan-Fich, 2009:853). A defining feature of adapting content to learners' needs is the teacher's ability to transform content knowledge comprehensively to students' varied abilities and backgrounds (Ayvazo & Ward, 2011:675)

For instance, in constructivist courses, students should actively construct their own knowledge through intensive engagement with multiple sources of information, whereas in objectivist courses based on lectures and textbooks, the students are mostly expected to recall the material as presented. Consequently, technological support for objectivist approaches of instruction is focused on learner–content and learner–instructor interaction, while technological platforms for constructivism must provide access to

content in a non-linear or non-structured way, using learning tools such as databases, conceptual models, simulations and hypermedia (Arbaugh & Benbunan-Fich, 2009:853).

Faculty members are viewed as nurturers within the academic setting and may be able to influence students' behaviours by forming of positive interpersonal relationships (Bryan *et al.*, 2015:141). An effective educator can facilitate positive Interpersonal Relationships that will enhance students' success because they recognize that partnering with students, instead of dictating to them, will smooth a nurturing classroom climate, encourage learning, and enhance students' integrity (Evertson, 2009:2013; Saavedra & Saavedra, 2009:75). Similarly, nurturing classroom climate can contribute to a higher sense of well-being and enable students to take risks, build trust, and develop a strong sense of community when strong caring interpersonal relationship between educators and students are fashioned (Bryan *et al.*, 2015:141). For some students learning depends on their attitudes and perception of the classroom and the educator. Educators who use realness, pricing and empathetic understanding in creating positive social experiences in the classroom will increase the likelihood that students meet the objectives of the curriculum (Bryan *et al.*, 2015:141).

Again, the students' construction of a nursing identity is grounded in their social interactions with a faculty and is shaped by values and norms learned in both the formal and informal curriculum (Del Prato, 2013:286). Del Prato contends that educator's discourteousness included demeaning experiences, subjective evaluation, rigid expectations, and targeting and weeding out practices and impoliteness hinders professional formation by interfering with learning, self-esteem, self-efficacy, and confidence of the student (Ajibade & Olaitan, 2014:142). Studies also suggest that faculty who model professional values in the formal and hidden curriculum contribute to the positive formation of future nurses. Therefore, nursing educators should be formally prepared to establish respectful, connected relationships with students and should role model professional values, deemphasize their evaluative role, provide constructive formative feedback, and remain open to the student's potential for growth (Bays, Engelberg, Back, Ford, Downey, Shannon, Doorenbos, Edlund, Christianson, Arnold,

O'Connor, Kross, Reinke, Cecere Feemster, Fryer-Edwards, Alexander, Tulsy & Curtis, 2014:1; Del Prato, 2013:286).

According to Benner and colleagues in their book *Educating Nurses: A call for radical transformation*, believe that Socialisation into nursing is the process whereby students develop the knowledge and skills needed to assume the professional role. They argue that becoming a nurse requires more than the mastery of knowledge and skills (Benner, Sutphen & Leonard 166). They claim that socialisation into nursing is a process of professional formation that signifies “the development of perceptual abilities, the ability to draw on knowledge and adept adeptness, and a way of being and acting in practice and in the world” (Benner *et al.* 166).

An essential result of nursing education is the formation of the student's identity as a caring professional, while The Code of Ethics for Nurses obliges nurses to demonstrate caring and respect (Del Prato, 2013:286). These attributes can only be learnt by interacting with educators whom the students have the access to. Within this context, research suggests that the construction of a nursing identity is grounded in social interactions with faculty and others (Del Prato, 2013:286).

In the higher educational literature, academic identity is defined as the extent to which students feel they belong to the greater academic community, their experience of personal academic worth and their visibility in the academic environment (Jensen & Jetten, 2015:126). It is expected that students may derive bonding capital from interactions with peers at university and that this and the sense of belongingness that emerges from participation in group activities with peers, contributes to the development and formation of an academic identity. This helps students to understand the university environment and teaches them to successfully navigate this world. Consistent with this, there is a body of work that suggests that students inherit social capital from being in the academic environment and having social interactions with their fellow students (Scanlon, Rowling & Weber, 2009:223).

However, within universities, students will also interact with others with whom they do not necessarily share identity but these interactions form important building blocks for the formation of bridging capital. Some authors have argued that interactions between students and educators facilitate the process whereby students can view themselves as academics (Komarraju, Musulkin & Bhattacharya, 2010:332). Educators not only have an important role to play in academic identity formation, but they are also uniquely positioned to inform students on future job prospects and the skills required in the workforce and they can act as important role models—all which contributes to the development of a professional identity (Jensen & Jetten, 2015:126). Conversely, the way most universities are structured may affect the ease with which students perceive that there are opportunities to gain relational interaction. It could be argued that the reason such opportunities have declined over the last decades is the increasing conceptualisation of academic institutions as being research rather than teaching focussed (Jensen & Jetten, 2015:126). As a result of this perception while the traditional model of scholarly training for example, the Oxbridge model involves intense contact between a tutor and a small group of students, academic-student and face-to-face interaction, has decreased over the last few decades in favour of the class environment (Jensen & Jetten, 2015:126).

Despite this, considerable pedagogical effort in most institutions is expended on providing rich learning environments that promote volunteering and participating in community activities, clubs, and social organisations. It is however, unclear if these forms of social interaction are efficacious in developing the forms of social capital that provides for both academic and professional identity formation. It is also unclear whether students recognise the opportunities that are provided by institutions to develop an academic and professional identity. If they do recognise these opportunities, the question remains whether they perceive that there are barriers in making use of these opportunities (Meeuwisse, Severiens & Born, 2010:528).

Results from Jensen and Jetten (Jensen & Jetten, 2015:126), show that bridging interactions between students and educators facilitated academic identity formation. However, students described only a handful of such interactions and that their educators were aloof (Jensen & Jetten, 2015:126).

Results further point to the importance of creating opportunities for social interaction with educators at university because this facilitates the generation of bridging social capital, which is essential for students' professional identity development (Jensen & Jetten, 2015:126). Since clinical education is better when is face-to-face the type and quality of the relationship plays a key role in its promotion (Yaghoubinia *et al.*, 2014:65), it is a key component of teaching and learning. An appropriate student–educator relationship can lead to positive consequences such as an increase in learning (Yaghoubinia *et al.*, 2014:65). Students also required clinical educators to consider their needs and conditions in this relationship in stressful clinical environments, and to facilitate their learning by creating a relaxed and safe relationship atmosphere (Yaghoubinia *et al.*, 2014:65).

2.5.2 Effective Ways of Practical Knowledge Acquisition

Knowledge acquisition in nursing has come a long way, from the Nightingale's era until Henderson's age of modern nursing, and today technological era which is pulling every student including qualified nurses along without consent. Time in memorial there has not been one particular way of practical knowledge acquisition in the profession nursing, with several evidenced based strategies being known today and more are being developed or identified in the quest to make nursing a profession of distinction. Huston, identifies seven emerging technologies that will transform the practice of nursing, and he argued nurses will need to develop to acquire, use, and integrate these embryonic technologies. He contends that nurse managers have four challenges to address to incorporate technology into the everyday practice (Huston, 2013:1). While scholars of nursing practices have claimed practical knowledge is a source of knowledge in its own right, little is known about this knowledge and how it can be imparted to trainees (Acebedo-Urdiales, Medina-Noya & Ferre-Grau, 2014:173)

As nursing practice changes, nursing education needs to adapt to accommodate the change and train graduates who will hold the practical knowledge relevant to the patient in the clinical environment. However, there is evidence to suggest that even the PhD nurses who makes policies for practice do so without sufficient knowledge of practical clinical work and client safety (Aarabi *et al.*, 2015:161).

In a study by Acebedo-Urdiales *et al* (Acebedo-Urdiales *et al.*, 2014:173) on the levels of competence, and the clinical and ethical judgment of expert nurses indicates that practice is a source of knowledge in its own right because, that in practice, knowledge is not only used, it is also developed. In addition, experience-based knowledge is indicated as one of the categories that the nurses attributed to their sources of knowledge in practice (Acebedo-Urdiales *et al.*, 2014:173). The study further maintained that practice based on the best evidence is not simply a pragmatic logical process that involves the access and subsequent use of the best research data, but rather an interaction of multiple factors that affect nursing decisions regarding patient care. In addition, they argued that practical knowledge is wisdom that does not come from an intellectual source but is the product of the experiences that the professional has accumulated over time and how he or she has been involved with it. Their literature reveals that few studies have been carried out on practical nursing knowledge and that the practical aspect must be scrutinised using methods that can capture the details of caring, as it is essentially emotional and natural. In the nursing profession this practical knowledge, although based on formal knowledge, is learned and constructed through experience (Acebedo-Urdiales *et al.*, 2014:173). Their conclusion raises concern about whether practical knowledge should be ignored at training until the students completes and registers as a nurse at which stage they can work to accumulate practical knowledge. While the literature suggests that practice comes with experience, there should be a logical process and evidence regarding whether human attributes like good attitudes and good communication skills are possible to acquire during training. Their study however, has a limitation inherently to its methodology as only qualitative analysis was employed.

To consolidate the above arguments, as scholars and healthcare professionals demonstrate a lifelong commitment to reflective learning and applying new practical knowledge, it is important for existing and developing simulation activities and technologies to provide the opportunity for individuals and groups to efficiently and effectively deliver new content or to reinforce existing practical knowledge. They also need to practice the application of new practical knowledge safely until mastery is achieved (Aggarwal, Mytton, Derbrew, Hananel, Heydenburg, Issenberg, Macaulay,

Mancini, Morimoto, Soper, Ziv & Reznick, 2010:40). One good way to train is by using simulation in the self-directed clinical skills laboratories.

For example, by simulation training using a virtual-reality simulator, students can acquire practical knowledge to clinical skills. Early clinical exposure for health students using virtual-reality simulators will enhance their motivation for learning basic clinical procedures (Akaike *et al.*, 2012:28). Similarly, acquisition of competent psychomotor skills is essential to attain competency to execute intricate procedures that are required by some health healthcare professions. Traditionally clinical training is obtained by receiving experts' written and verbal instructions, often in combination with live demonstrations, content lectures, tutorials, laboratory and clinical sessions. However teaching of clinical skills is considered one of the most time-consuming parts of clinical education (Kon, Botelho, Bridges & Leung, 2015:144)

The global health care workforce shortages have prompted many institutions to increased their intake of health professions, educational programs and enrolment. Part of this expansion has been driven by the foreseen need for an increased number of primary care providers resulting from changes in population growth and ageing. Coincident with this expansion of programs has been increased demand for sites of instruction outside the traditional hospital setting (Peyser, Daily, Hudak, Railey & Bosworth, 2014:359). Additionally, approaches to clinical education are also being examined for quality and sustainability (Rodger, Webb, Devitt, Gilbert, Wrightson & McMeecken, 2008:53), as clinical educators worldwide, report that student education can be burdensome and stressful. However, students report that clinical placement experiences can provoke high levels of anxiety, and sometimes do not provide adequate learning experiences. Universities rather have adopted student-centred, collaborative learning models, supported by research and education in the clinical setting and have largely retained traditional models of instruction (Sevenhuysen, Farlie, Keating, Haines & Molloy, 2015:87).

It is clear that clinical skills are difficult for students to acquire as they do not exist independently, but are rather composed of components from the psychomotor, cognitive and affective learning domains (Ross, 2012:429). Skills acquisition is a complex process in which the students must incorporate practical performance with knowledge and critical thinking. Practice in hospitals and home care facilities, one of the most common places for nursing students to learn clinical skills is limited due to shortage in such facilities and many are poorly equipped making the clinical skills laboratory and attractive and viable learning option (Houghton, Casey, Shaw & Murphy, 2012:29). CSLs are located at many nursing schools and the literature documents that both students and educators find them useful and important for the developing clinical skills (Haraldseid *et al.*, 2015a:1).

The environment in the CSL is designed to simulate the real clinical learning environment and is described as a practicum environment where students apply theory to practice, acquire critical thinking skills, participate in clinical decision-making, and practice psychomotor and affective skills (Haraldseid *et al.*, 2015a:1).

The CSL is designed to resemble a hospital ward to optimise the simulation of clinical learning situations. Besides the ordinary interior and layout of a patient room, toilets, medical supply room, etc. an auditorium in the CSL usually has seating for many students for demonstrations and reflection. The CSL usually equipped with all the necessary reusable and stationary medical equipment. Single supplies such as nasal cannulas, wound dressings and syringes are usually distributed to each student in a free equipment kit at the beginning of the course. The intention is to simulate the hospital environment as much as possible (Abdallah, Irani, Sailian, Gebran & Rizk, 2014:427).

In addition, the sub-factors of the physical environment are material equipment, facilities, learning tools and standardised procedures. The students' most pressing issue is to be able to access the material equipment that they need to practice their clinical skills. Lack of equipment, the need to reuse equipment and unfamiliar, old and outdated equipment forced students to improvise, can result in a false and inadequate findings during learning (Haraldseid *et al.*, 2015a:1).

Even when the CSL provides the facilities that the students needed to practice their skills, some will be unable to use the laboratory due to the high numbers and demand. Students complain about booking to practice and then arriving to find that the equipment is being used. Many students have described discrepancies in how to perform some procedures as there is little similarity between what they are taught in the nursing laboratory and what happens in the hospital wards. These discrepancies practice made it difficult for students to know which was the correct ways of doing a procedure making them doubt what they knew (Haraldseid *et al.*, 2015a:1).

Literature indicates that time constraints and limited faculty resources also interfered with students' acquisition of clinical skills (Bisholt *et al.*, 2014:304; Benner *et al.*, 2010:166). Studies contend that the complexity of psychomotor skills acquisition demands a variety of educational approaches and emphasises the importance of the environment in successful learning. Despite this, the teaching of traditional clinical skills in most nursing schools has been based on the perspective that clinical practice makes perfect and that after spending two to four hours a week on skills training, students should be able to use the CSL to perfect their clinical skills on their own schedule (Lin, 2013:546). However, the idea that practical skills develop naturally without feedback and guidance has been challenged (Kardong-Edgren, Adamson & Fitzgerald, 2010:25).

In an era of mass education, emphasis on best practice, pressured clinical placements and staff with reduced learning opportunities there is reason to suspect that educational institutions concentrate too heavily on what is being taught, instead of how it is taught and where (Lin, 2013:546; Reiersen, Hvidsten, Wighus, Brungot & Bjørk, 2013:294; Barnett, Cross, Shahwan-Akl & Jacob, 2010:17). This might place the students in a trap where they are caught between faculty obligations and educational faculties that need to change (Haraldseid *et al.*, 2015a:1). This is relevant because clinical skills training is a basic part of nursing education wherein students combine sensory, motor and cognitive learning processes and learn how to evaluate and act in any situation presented to them (Johannesson, Silén, Kvist & Hult, 2013:99). This complexity of clinical skills acquisition demands a range of different learning approaches for nursing students to learn what they need to know (Benner *et al.*, 2010:156). However, a change to more learner active

teaching strategies in higher education (West, Usher & Delaney, 2012:576) and an expanding knowledge of information technology (Kala, Isaramalai & Pohthong, 2010:61) has produced many modifications to clinical skills training over the last few years. This change has produced multiple new learning strategies, such as simulation among others (Haraldseid, Friberg & Aase, 2016:1).

2.6 UTILISATION OF RESOURCES IN SELF-DIRECTED CLINICAL SKILLS LABORATORIES

As changes in health care continue, the resource utilisation is expected to increase and the role of nurse educators is expected to increase with regards to scope, responsibility and recognition (Omisakin & Ncama, 2010:435). The nurse educators are expected to maintain clinical credibility and competence besides conducting teaching and research. They should have an educational background and the clinical expertise to organise and coordinate services and resources to meet the student nursing care needs in a cost-effective and efficient manner (Omisakin & Ncama, 2010:435). This is because rapid changes during the past two decades have presented a growing challenge to prepare newly qualified nurses who are clinically proficient and poised to meet the demands of contemporary healthcare. Recent nursing literature has emphasised the need to prioritise clinical skills in nursing education (Felton & Royal, 2015:38), as this is a key component of nursing education, and considerable learning opportunities will usually provide the students with the chance to develop and enhance their professional skills as well as qualify them for actual nursing practice (M *et al.*, 2015:30).

For this reason, the role of the clinical facilitator is significant to students' learning, requiring them to not only have knowledge, skills and working methods but to also have ideas, values and attitudes that serve as a model and help to shape students' identities as future nursing professionals (Arreciado Maranon & Isla Pera, 2015:859). Nursing instructors are also integral in clinical learning as a resource, as they have an influential role in providing quality clinical education. Research suggests that the quality of nursing care is directly related to clinical instructors' level of competence (M *et al.*, 2015:30). As today's student nurse is tomorrow's clinical instructor and if care is not taken to develop

their competence, there will not only be poor clinical nurses but incompetent instructors whose lack of knowledge and expertise will have repercussion for future trainee.

According to Aarabi and colleagues, Iran already is facing a deficiency in the competence of graduates to perform clinical procedures. They contend that the weakness is that we desire to make clinical plans, that don't work because our policymakers have an educational view and are less familiar with clinical procedures and that clinical plans should be developed by individuals who know the clinical practice issues (Aarabi *et al.*, 2015:161). They therefore suggested that one of the most crucial capabilities that should be conveyed to the students through nursing education is skilfulness and specialization in the science of care, by which nurses can appear in nursing policymaking domains of the health system with greater dignity as specialists in practical care (Aarabi *et al.*, 2015:161).

It is also reported that the main attributes of an effective clinical instructor include having great professional and clinical competencies, having the ability to transfer knowledge to practice, maintaining unity between words and deeds, and creating a supportive and enjoyable learning environment (M *et al.*, 2015:30). The clinical skills laboratory has become an essential component of nurse education and several benefits of its use have been identified. However, the literature identifies the need to examine the transferability of skills learned there into the reality of practice (Houghton *et al.*, 2012:29).

A study was conducted to explore the role of the clinical skills laboratories in preparing nursing students for the real world of practice with a qualitative multiple case study design using five case study sites. The sample size of 58 participants included academic and clinical staff as well as nursing students. The authors reported that the clinical skills laboratory can provide a pathway to practice and its authenticity is significant. Teaching strategies needs to incorporate communication as well as psychomotor skills, including resources such as audio-visual recording into assessment strategies. Effective relationships between education institutions and clinical settings are needed to enhance the transferability of the skills learned (Houghton *et al.*, 2012:29).

They concluded that the CSL should provide an authentic learning environment relevant and adequate resources and the appropriate use of teaching strategies these being crucial to ensure that effective links between educators and clinical staff are established and maintained (Houghton *et al.*, 2012:29). This study indicate the relevance of the CSL and supports their use for learning the technical skill require to conduct procedures that mimics a clinical setting (Akaike *et al.*, 2012:28).

A study by Maranon and Pera, state that, students contend that both theoretical and practical training are indispensable. Clinical placements were considered essential to be able to implement the theory and to shape their identity, as it helped student nurses to experience their future professional and to compare it with what they had been taught in theoretical and academic classes (Arreciado Maranon & Isla Pera, 2015:859). Another study has shown that laboratory training, particularly by applying the principles of simulation learning, is an effective mean of developing the communication and gestural skills of healthcare professionals. They therefore, highlighted the need to permanently integrate laboratory training sessions into the curriculum of health students, who found them most useful and stimulating (Bagnasco, Pagnucci, Tolotti, Rosa, Torre & Sasso, 2014:106).

According to Akaike and colleagues, in a full environment simulation, learners can obtain not only technical skills but also non-technical skills, such as leadership, teamwork, communication, situation awareness, decision-making, and awareness of personal limitations (Akaike *et al.*, 2012:28). In line with this, the CSL is expected to become a resource integrated health education centre, its purpose being to enable continuing professional development, and the integrated learning of basic and clinical nursing. This is because clinical practice will enable nursing students to acquire essential professional skills (Nepal, Taketomi, Ito, Kohanawa, Kawabata, Tanaka & Otaki, 2016b:181).

2.6.1 The use of Simulation as a Resource in Clinical Skills Laboratory

Simulation is widely used both within and outside the health profession. Simulation-based training began with life-like mannequins and now encompasses an entire range of

systems, from synthetic models through to high-fidelity simulation suites. These models can also be used for training in new technologies, for applying existing technologies to new environments and in prototype testing (Aggarwal *et al.*, 2010:34).

According to Bricker and Pardee simulation 'is a technique to replace or amplify real patient experiences with guided experiences, artificially contrived, that evokes or replicates substantial aspects of the real world in a fully interactive manner' (Bricker & Pardee, 2011:34). As an educational strategy, simulation provides the opportunity for learning that is both immersive and experiential (Bricker & Pardee, 2011:34). Thus, to improve education and ultimately enhance patient safety, healthcare professionals are using simulation in many forms including simulated and virtual patients, static and interactive mannequin simulators, task trainers, screen-based (computer) simulations (Wilt & King, 2012:103). Moreover, simulation has the potential to recreate scenarios that are rarely experienced and test professionals in challenging situations and to carefully replay or examine their actions (Cates, 2011:95). It is a powerful learning tool to help the modern healthcare professional achieve higher levels of competence and safer care. Beyond the impact on individual and team performance, simulation techniques provide an opportunity to improve system performance (Wang, Fitzpatrick & Petrini, 2013:311). There are three broad domains in which simulation is used by healthcare professionals. First, they can be used for practice and assessment of technical procedures. This can take a variety of forms ranging from simple bench models to sophisticated virtual reality machines. Second, simulated or standardised patients have long been used to teach clinical skills and are the foundation for performance-based assessment. Third, simulation technologies are used for team training, improving function in tension-filled complex situations (Aggarwal *et al.*, 2010:34).

In Zimbabwe, students found simulation helpful and enjoyable and their confidence increased after teaching. It offers students a broader exposure to psychiatric conditions than they received during clinical attachment to the inpatient wards. The study suggested that involving psychiatry trainees and nursing staff may be a sustainable approach in settings with a small number of consultants and limited funds to pay for professional

actors (Piette, Muchirahondo, Mangezi, Iversen, Cowan, Dube, Peterkin, Araya & Abas, 2015:23). This is in line with Rauter and colleagues' assertion that simulators are commonly used to train complex and dangerous tasks, to save costs, and to investigate the effect of different factors on task performance. They argue that, usually, the transfer of simulator training to the real task has not been investigated and that without proof of successful skill transfer, simulators might not help at all or could even be counter-productive learning the real task (Rauter, Sigrist, Koch, Crivelli, Van Raai, Riener & Wolf, 2013:82145). While simulation in healthcare education is common practice and although its teaching strategy increases patient safety, it is not proven to enhance patient-centred care in practice (Rubio-Gurung, Putet, Touzet, Gauthier-Moulinier, Jordan, Beissel, Labaune, Blanc, Amamra, Balandras, Rudigoz, Colin & Picaud, 2014:790). Some studies also argue that simulation is not indispensable and that there should be alternatives to institutions that cannot afford to own one (Ryoo, Ha & Cho, 2013:185; Walshe, O'Brien, Murphy & Hartigan, 2013:47).

Simulated patients are used to teach communication skills and to contribute to the authenticity of the simulation. However, establishing how this enhanced authenticity can help to bridge the gap to practice with live patients where patient-centeredness is of crucial importance still needs to be explored. Uys and Treadwell conducted a study to determine whether students who acquired a skill in simulation using a simulated patient displayed more patient-centeredness in practice than students who used a mannequin. A pre-experimental, post-test-only design with a comparison group was used. The population sample comprised all second-year bachelors' students (N = 36) at a tertiary institution, who were divided into two cohorts. Cohort one was trained to administer an intramuscular injection using a simulated patient with a strap-on injectable device, whilst cohort two used an injection model. Thereafter all participants were assessed on their procedural skills as well as patient-centred care whilst administering an injection to a patient in a hospital. A comparison was made of mean scores for patient-centred care rendered by the two cohorts. The results using Fisher's exact test revealed that the mean score for patient-centeredness of cohort one (88%) was significantly higher ($p = 0.001$) than that of cohort two (74%). This study concluded that using a simulated patient to teach

administration of an intramuscular injection enhanced students' patient-centeredness when performing the procedure in practice (Uys & Treadwell, 2014:1).

In the current complex healthcare environment with fewer resources and a reliance on high-level medical equipment, and fewer available clinical settings have led many health educators to using simulation as a method to further augment educational experiences for nursing students (Grant, Dawkins, Molhook, Keltner & Vance, 2014:479). Studies have suggested that complex clinical situations involving simulation using high-fidelity human patient simulators may enhance students' ability to manage these complex patients in clinical practice (Purling & King, 2012:3451). The benefits of high-fidelity simulations are enormous, and their educational use has the potential to enable knowledge, skills and attitudes to be acquired for all healthcare professionals in a safe, educationally orientated and efficient manner (Aggarwal *et al.*, 2010:34).

Aside from the principal use for simulation in the domain of technical competence, the setting provides learners with an opportunity for self-directed learning. They can make mistakes in a safe environment, learn from their mistakes and achieve proficiency by attaining predefined benchmarks (Wilt & King, 2012:103). Procedures such as insertion of Nasogastric tubes and catheterizations are hitherto procedures that cannot be practised on a patient without assurance of skill proficiency, however with simulation, this can easily be done over and over until proficiency is achieved (Chiang & Chan, 2014:257). Simulation and the use of simulators to educate healthcare practitioners has been shown to be effective in transferring knowledge to both trainees and practising healthcare professionals. A wide variety of technologies including virtual reality, simulated patients, animal models, and static and interactive mannequins have been shown to be effective teaching tools and several studies have documented the transfer of training to patient care settings (Uys & Treadwell, 2014:1; Aggarwal *et al.*, 2010:36).

The benefits of the broad arrays of existing and developing simulation activities and technologies provide the opportunity for individuals and groups to efficiently and effectively deliver new content or reinforce existing knowledge, as well as practise the application of new knowledge safely until mastery is achieved (Aggarwal *et al.*, 2010:36).

Simulation training is based on active and adult learning theories with studies having shown that the learning curve of active learning is higher than that of passive learning and that learners can generally remember 90% of what they do by active learning. Bryan et al as cited by Akaike et al (Akaike *et al.*, 2012:28) reported the following five principles in medical education that are relevant and evident in simulation for adults learners: 1) they need to know why they are learning., 2) they are motivated by the need to solve problems., 3) their previous experiences of adult learners must be respected and built upon., 4) the educational approach should match the diversity and background of adult learners., and 5) they need to be involved actively in the process (Akaike *et al.*, 2012:28). Simulation enables the steps of a procedure or action to be clearly outlined and therefore makes this a preferred method of learning educating nurses.

Similarly, clinical simulation allows both students and professionals to perform their clinical practice in a safe environment, facilitating the standardisation of contents and promoting the integration of theoretical knowledge into the clinical practice (Alconero-Camarero, Gualdron-Romero, Sarabia-Cobo & Martinez-Arce, 2016:128).

It provides students with a real clinical and risk-free experience, it promotes learning and teamwork, and it also helps to make clinical decisions and continually develop a search for knowledge. An essential aspect of the procedure is the debriefing that can take place after the practice, this being defined as the discussion between several people to review a real or simulated case, where participants analyse their actions and reflect on the thinking processes (Alconero-Camarero *et al.*, 2016:128)

Simulation-based education has emerged as key to improving patient safety and numerous healthcare organisations has invested in high-fidelity simulation training centres. However, the high purchasing cost, limited portability, technical expertise and organisational skills required to coordinate these high-fidelity simulation centres are factors that limit their use as a wide-spread teaching and learning methods (Dwyer, Reid Searl, Mcallister, Guerin & Friel, 2015:430). According to Burns and Artman, although simulation provides high-quality care simulated patients or simulators on which learning can happen and its effectiveness evaluated has tremendous proven value. Nonetheless, there are some aspects of high-level clinical judgement and decision-making that might

be elusive in simulated clinical environments, these having to be mastered during clinical encounters. This probably refers to rare clinical episodes or mass casualty in rudimentary environments, such as war zones (Burns, O'donnell & Artman, 2010). This is an indication that simulation as with any other resource has a limitation in its function.

2.7 SYNOPSIS OF CHAPTER 2

This chapter dealt with the literature that was reviewed and clarified the methodological and theoretical gaps, giving context to the reason for the study to be conducted. The clinical skills laboratories have an important role to play in nursing training, but cannot replace the real clinical setting. They provide opportunities for experimentation, mistakes and discussion that enable the theory to be integrated into the practical learning experience. The next chapter will address the study methodology and the theoretical justification for the methods used.

CHAPTER THREE

Research Methodology

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

The aim of this study was to analyse the utilisation of self-directed clinical skills laboratory by undergraduate nursing students in a selected higher educational institution in KwaZulu-Natal. The chapter describes the research paradigm, methods, design, and setting. It outlines the sampling procedure, tools used to collect data, and how data were managed and analysed. Potential ethical issues and the necessary provisions taken to manage them. The table 3.1 summarises the sections addressed in this chapter.

Table 3.1 Summary of methodology

Paradigm and Study Approach	Pragmatic Approach	
	Mixed Methods Research	
	Quantitative	Qualitative
Objectives	1, 2, 3 and 4	1, 2, 3, 4, 5 and 6
Sample	Undergraduate Nursing Students	Clinical Facilitators Undergraduate Nursing Students
Sampling	Systematic Random Sampling	Purposive sampling
Sample	118 Nursing Students	6 Clinical Facilitators 32 Nursing Students
Data Collection Instruments	Questionnaire (students) DREEM & ALSI (Sindi, 2011:360)	Interviews (clinical facilitators) Focus Group Discussion (students)
Data Analysis	SPSS Version 24 was used for Descriptive and Inferential Statistics	Nvivo Version 11 was used for Theoretical Thematic Analysis
Issues of Rigour	Validity Reliability	Credibility Transferability Dependability Confirmability

3.2 RESEARCH PARADIGM AND APPROACH

The researcher used a pragmatic approach to guide the design, which, according to Biddle and Schafft, asks not what is, but what difference it makes to assume one standpoint against another in action (Biddle & Schafft, 2015:320). Today's research world is becoming increasingly interdisciplinary, complex, and dynamic, highlighting the need to complement one method with another, and taking a pragmatic and balanced or pluralist position will help improve communication among researchers from different paradigms as they attempt to advance knowledge (Johnson & Onwuegbuzie, 2006:14). Johnson and Onwuegbuzie contend that pragmatism is a philosophy that can help to build bridges of conflicting philosophies between qualitative and quantitative. Both sets of purists view their paradigms as the ideal for research, and, implicitly if not explicitly, they advocate the incompatibility thesis which posits that qualitative and quantitative research paradigms, including their associated methods, cannot and should not be mixed (Johnson & Onwuegbuzie, 2006:14).

The two principal research paradigms have resulted in two research cultures, "one professing the superiority of 'deep, rich observational data' and the other the virtues of 'hard, generalised' data" (Sieber, 1973:1335) as cited by (Johnson & Onwuegbuzie, 2006:14). However, mixed methods research sits in a new third chair, with qualitative research sitting on the left side and quantitative research right (Johnson & Onwuegbuzie, 2006:14). Although there are many important paradigmatic differences between qualitative and quantitative research, there are some similarities between the various approaches that are sometimes overlooked. According to Harrits, both quantitative and qualitative researchers use empirical observations to address research questions, and some scholars have further suggested that pragmatism offers a suitable research paradigm within which Mixed Methods Research (MMR) can be founded (Harrits, 2011:150).

One of the most notable shifts within the social sciences in the past twenty years has been the increasing acceptance and prominence of mixed methods research (Biddle & Schafft, 2015:320). According to Biddle and Schafft, the trend of MMR began to change

in the 2000s, and by the middle of the decade, published mixed methods–associated research experienced near exponential growth. As shown below, in 2013, nearly 1,800 mixed methods articles were identified (Biddle & Schafft, 2015:320).

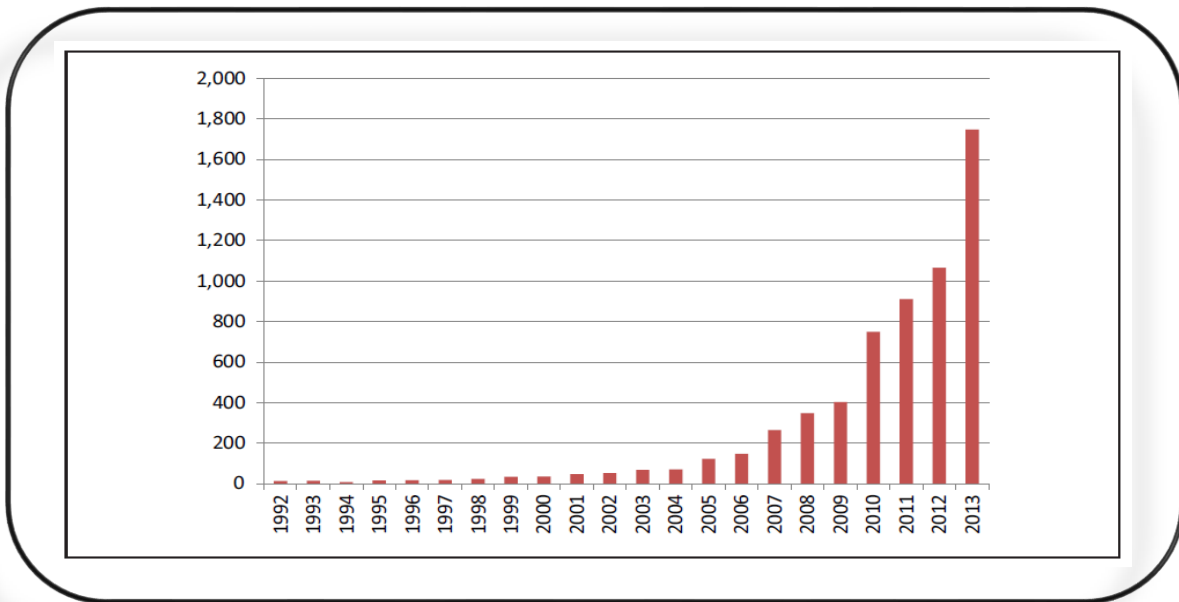


Figure 3.1 Published social scientific mixed methods research.

They argue further, that combining quantitative and qualitative methods within a single-study context is not new in the social sciences, this started as early as 1930 (Jahoda, Lazarfeld, & Zeisel, 1933/1971; Maxwell & Loomis, 2003; Lynd & Lynd, 1929, 1933). Pragmatism is not only one of the most common frameworks used by mixed methods researchers, but is also central to the instruction of new mixed methods researchers (Biddle & Schafft, 2015:320).

The literature suggests that paradigms are not static, unchanging entities that restrict all aspects of the research process. Instead, they can help frame one’s approach to a research problem and offer suggestions for how to address it given certain beliefs about the world (Shannon-Baker, 2015:1). Shannon-Baker agrees, and argues that the pragmatic approach also maintains the “valuable contributions” of the metaphysical paradigm, that is, the importance of epistemology and the centrality of one’s worldviews

for their research, and while considering these issues, pragmatism focuses on what will make a difference, as well as connect abstract issues on the epistemological level to the methodological level (Shannon-Baker, 2015:1). Pragmatism offers several ways to bridge the contradictions that exist in mixed methods, and breaks down the hierarchies between positivist and constructivist ways of knowing to contemplate what is meaningful from both. Addressing the connections between theory and data, pragmatism uses “abduction,” which “moves back and forth between induction and deduction” (Shannon-Baker, 2015:1).

3.3 RESEARCH DESIGN

The research design is the blueprint for conducting a study, and manages the factors that can interfere with the validity of the findings (Grove, Burns & Gray, 2013:236). The research design is the steps taken by the researcher to answer the research questions. A non-experimental explorative descriptive mixed method design with the parallel convergent concurrent approach was used. According to Burns, Grove and Gray (Grove *et al.*, 2013:237), a descriptive design is narrower in scope and can be complemented with an explorative design that is able to provide a detail and accurate picture of a phenomenon under study. An exploratory design was used to increase the knowledge of a field of study and was not intended for generalisation to large populations. Exploratory studies provide the basis for confirmatory studies (Grove *et al.*, 2013:700).

3.4 RESEARCH METHODS

The researcher used mixed methods to collect the data. According to Carayon et al (Carayon, Kianfar, Li, Xie, Alyousef & Wooldridge, 2015:291) ‘Mixed methods research is the type of study in which an investigator or team of investigators combines components of qualitative and quantitative research approaches for the wider purposes of breadth and depth of understanding and validation.’ This is done purposefully to enable a multi-faceted understanding of a phenomenon (Chiang-Hanisko, Newman, Dyess, Piyakong & Liehr, 2016:1). The mixed methods design employed in this study was purposely meant to abduct a different dimension of the phenomenon and not only for cross validation

(Fielding, 2012:124). This involved integrating quantitative and qualitative methods within a single research design.

According to Zou, Sunindijo and Dainty, this need not essentially refer to the combination of research methods associated with one research methodology, but could comprise the combination of methods that transcend different methodologies. According to their study, many researchers believe that both methods complement instead of rival each other, and thus, qualitative research can compensate for the weaknesses of quantitative research and vice versa (Zou, Sunindijo & Dainty, 2014:320). Mixed methods systematically integrate quantitative and qualitative approaches to research to answer and analyse multiple research questions (Fielding, 2012:124). Quantitative research follows a post-positivist worldview and is predominantly interested in collecting and analysing numerical data with structured methods. Qualitative research follows a more constructivist worldview and is predominantly interested in collecting and analysing narrative data using open-ended holistic procedures. Mixed-methods research therefore collects both narrative and numerical data, employs both structured and emergent designs, uses both statistical and thematic analysis, and makes meta-inferences to answer the research questions by integrating the inferences gathered from their qualitative and quantitative findings (Tashakkori & Newman, 2010:514).

Mixed Methods have also been combined to conduct exploratory and confirmatory research, for instance, a researcher might first employ a qualitative method to explore a phenomenon and generate a relevant conceptual model and hypotheses, and then use a quantitative method to test the hypotheses to confirm the validity of the model (Albright, Gechter & Kempe, 2013:402). There is also evidence that mixed methods approach can help to compensate for the constraints of one set of methods (Albright *et al.*, 2013:402). This is because what succeeds in one context or setting may fail in another, and without an understanding of the 'why' behind success or failure, the effect of context cannot be understood (Albright *et al.*, 2013:402). Therefore, mixed methods can allow examination of both the content and context of an intervention, with quantitative methods typically used to measure aspects of the content, and qualitative methods classically used to understand

the context (Ozawa & Pongpirul, 2014:323). Understanding the context of a specific intervention's implementation is crucial, as the settings in which a particular research study occurs are complex and likely to vary significantly. Hence the use of mixed methods, and specifically of at least one quantitative method with at least one qualitative method, characteristically provides a better insight into a topic of interest than does the use of only one method (Albright *et al.*, 2013:402).

However, contemplating mixed methods with the lens of the purist, even though mixed methods research may appear to offer a solution to the deficiencies of individual research paradigms, it is also a subject of criticism. Critics argue that mixed methods carry different epistemological commitments that may not be merged. Some also say that quantitative and qualitative methods are rooted in separate paradigms, and so could be considered as incompatible (Zou *et al.*, 2014:320). Despite these criticisms, the notion of research methods carrying fixed philosophical assumptions is difficult to sustain, because each method could be used in a wide variety of tasks in both qualitative and quantitative research (Zou *et al.*, 2014:320).

Mixed methods have been argued to be important in health systems research because it allows researchers to view problems from multiple perspectives, to contextualize information, develop a more complete understanding of a problem, triangulate results, and quantify hard-to-measure constructs. It also provides illustrations of context for trends, examines processes/experiences along with outcomes and captures a macro picture of a system (Ozawa & Pongpirul, 2014:323; Creswell, Klassen, Plano Clark & Smith, 2011:2094).

Van Griensven, Moore and Hall contend that compared with a single method approaches, MMR may be viewed as providing a more complete and deeper understanding of the subject under investigation, and having greater scope to realize the full potential of the approach. MMR investigators ensure that the strengths of the qualitative and quantitative strands of their study overlap, while their weaknesses offset each other.

Different methods may be used to answer the same or related questions. When methods are engaged to answer the same question, it is known as convergence, whereas it is termed complementarity when qualitative and quantitative methods are used to answer

related questions evaluation or explanation. The concurrent convergent parallel design that was used in this study involved the simultaneous collection of both quantitative and qualitative data, then reviewing the two types together after analysis (Albright *et al.*, 2013:402). Table 3.2: below shows mixed methods typologies.

Table 3. 2 Mixed Methods Design typology

Mixed Methods Design Typologies	Timing	Priority
Convergent parallel design	Simultaneous collection of quantitative and qualitative data. Data merged after analysis.	both
Explanatory sequential design	Quantitative data collection, followed by qualitative data collection. Qualitative data used to explain quantitative data.	Quantitative
Exploratory sequential design	Qualitative data collection, followed by quantitative data collection. Quantitative data used to explain qualitative data.	Qualitative
Embedded design	One form of data is embedded within the other. Data collection may be sequential or concurrent.	Quantitative or qualitative
Multiphase design	A series of separate studies or phases using a combination of sequential and/or concurrent methods of qualitative and/or quantitative data collection.	Equal

3.4.1 The Mixed Methods Design Data Framework

In the parallel convergent mixed methods approach used for this research, data collection, analysis, and inference generation occur side-by-side to address the research objectives (Creswell, 2013:269; Tashakkori & Newman, 2010:515). At least two inferences, two qualitative and one quantitative, was reported, after which they were synthesised at the interpretive point of the boundary to address the research objectives (Chiang-Hanisko *et al.*, 2016:1). This made the phenomenon clearer as compared to using one method.

Each datum was analysed separately, after which the results were synthesised for convergent validation. According to Van Griensven et al, the researcher can decide to keep the study's strands separate, in the parallel convergent mixed methods design, integration is suspended until the results from both are ready to be interpreted and convergent validations are then done (Van Griensven, Moore & Hall, 2014:367). Figure 3.2, shows the data collection framework that the researcher used as a guide adapted from (Chiang-Hanisko et al., 2016:4).

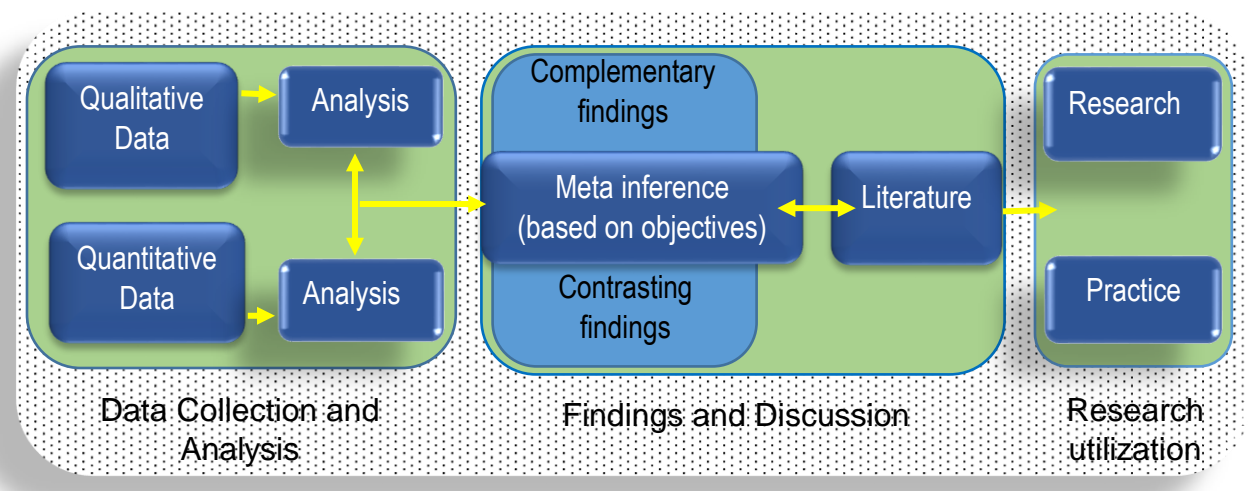


Figure 3.2 The framework of Mixed Methods Design

3.5 RESEARCH SETTING

The study was conducted in the clinical skills laboratory of the College of Health Sciences, University of KwaZulu-Natal, at the Howard College Campus, one of the five campuses of the University of KwaZulu-Natal in Durban, South Africa (Figure 3.4).



Figure 3.3 Map of South Africa indicating Durban.

3.6 STUDY POPULATION

The population is all features, individuals or group of persons, objects or substances that meet the criteria the researcher is interested in investigating (Grove *et al.*, 2013:42). According to Brink and colleagues (Brink, Van Der Walt & Van Rensburg, 2012:131), the target population is the entire set of elements about which the researcher would like to make a generalisation. In this study, the population was the clinical facilitators, and the undergraduates nursing students of the School of Nursing and Public Health at the University of KwaZulu-Natal.

The UKZN accepts students from across South Africa as well as from other countries. When this study was conducted in 2016, 240 nursing students were registered, which consisted of 78 first years, 62 second years, 63 third years, and 37 fourth year students. The staff complement for the Nursing programme consisted of four permanent and two temporary engaged.

3.7 STUDY SAMPLE

Sampling is the process of selecting respondents from the target population. According to Grove et al (Grove *et al.*, 2013:42), a sample is described as a part or fraction of the whole population selected by the researcher to participate in the study. The sample size is the number of subjects, events, behaviours or situations that are examined in a study (Grove *et al.*, 2013:343). As well as the requirement of a minimum number of cases in order to examine relationships between subgroups are concern, researchers must obtain the minimum sample size that will accurately represent the population being targeted (Grove *et al.*, 2013:343; Cohen *et al.*, 2011). The reason for selecting a sample is to attain a description that would precisely depict the features being studied, and to have the opportunity to access detailed information from the population.

To meet the study objectives, three methods were used to obtain the data:

- a. questionnaire survey of undergraduate students (quantitative data)
- b. semi-structured interviews with the clinical facilitators (qualitative data)
- c. focus group discussions with nursing students (qualitative data)

3.7.1 Quantitative Sample

For the quantitative component of the study, a systematic random sampling technique was used to select the students (Polit & Beck, 2010:316), as it guarantees reliability and competence of the informant. It allows the researcher to obtain an appropriate sample, as every potential respondent has an equal probability of being chosen, thereby kerbing the selection bias.

3.7.2 Qualitative Sample

For the qualitative component of the study, purposive sampling was used to identify the staff and students required (Palinkas, Horwitz, Green, Wisdom, Duan & Hoagwood, 2015:533). Purposive sampling is suitable for identifying and selecting information-rich cases related to the phenomenon of interest. It involves choosing the individuals with particular characteristics to serve as participants, and continuing that process until the required sample size has been obtained (Cohen *et al.*, 2011:133). This was used because

of its simplicity and popularity with qualitative and mixed methods design (Creswell, 2013:269), and the fact that it gives periodic quality, and allowed the researcher to obtain the sample, as each potential participant who met the inclusion criteria was selected.

The following inclusion criteria were used to select the participants for both the quantitative and qualitative components of the study:

- undergraduate nursing student in Howard College Campus;
- clinical facilitators in the school of nursing and public health;
- were currently using the skills laboratory for practice
- were providing instruction in the skills laboratory.

The following individuals were excluded from this study:

- students who did not wish to take part in this study;
- nurse clinical facilitators who did not wish to take part in the study;
- students who did not use the clinical skills laboratory
- clinical facilitators who were not involved in providing instruction in the skills laboratory.

The selection of the participants is described with respect to the methods in which they participated, namely: the questionnaire (undergraduate students), interviews (clinical facilitators) and focus group discussions (undergraduate students):

3.7.1 Questionnaire

The researcher used a sample size of 124 respondents for the questionnaire to obtain the quantitative data. According to Cohen and colleagues (Cohen *et al.*, 2011:147), to obtain a representative sample in a population of 240 with a 90% confidence level and a confidence interval 5% the estimated sample size is 124.8. Using a systematic random sampling calculation, the researcher divided total number of the student 240 by 124. This resulted in a sampling interval of two being used as the constant difference between subjects (Polit & Beck, 2010:316), with every second person on each class list being selected to participate, after the first respondent was randomly selected. To obtain the

sampling interval. Therefore, population/sample=sample interval = (240/120=2). As indicated in Table 3.3, the respondents consisted of 39 (32.5%) in first year, 30 (25.8%) in second year, 31 (26.3%) in third year, and 18 (15.4%) in fourth year, which resulted in a sample size of 118 undergraduate nursing students. The study had a response rate of 95.1%. With regards to gender, 85 (72%) of the 118 respondents were female, and 33 (28%) were male.

Table 3.3 Bachelor of nursing population and the sample size

Year of study	The population	% in the population	Sample size	% in the sample size
First	78	32.5%	39	33.0%
Second	62	25.8%	30	25.4%
Third	63	26.3%	31	26.3%
Fourth	37	15.4%	18	15.3%
TOTAL	240	100%	118	100%

3.7.2 Interviews

The researcher used a sample size of 6 for the interviews from the clinical facilitators. The clinical facilitators were sampled for the interview to get their knowledge and expertise in the field. The clinical skills laboratory had only five permanent and one part time clinical facilitators who worked there and hence the researcher used all the six.

3.7.3 Focus Group Discussion

Students who had participated in the questionnaire survey were invited to be part of the focus group discussion. Thirty-two undergraduate nursing students were selected using purposive sampling, this being 8 from each year group. Students were selected as they were accessible to the researcher with regards to the duration of the study, they made extensive use of the CSL and could therefore speak to with clarity to the questions.

3.8 DATA COLLECTION TOOLS

According to Grove, Burns and Gray, (Grove *et al.*, 2013:43), data collection is the precise, systematic collection of information relevant to the research purpose or the specific objectives, questions or hypothesis of a study. In this study, data was collected using the concurrent parallel convergent mixed method approach, using three methods (Table 3.4), each of which is described below in the sequence indicated in the table.

Table 3.4 Content validity of the study

Research Objectives	Conceptual framework	Method and Question
1. To describe the utilisation of clinical skills laboratory in line with self-directed learning principles	Self-Directed Learning principles	Quantitative a. Questionnaire: Q33-Q57 Qualitative b. Interviews c. FGD
2. To explore undergraduate nursing students' views regarding clinical skills laboratory as a learning environment.	Perception of CSL space	Quantitative a. Questionnaire: Q21-Q32 Qualitative b. Interviews c. FGD
3. To explore the academic self-perception of undergraduate nursing students of learning in the clinical skills laboratory.	Academic Self-Perception	Quantitative a. Questionnaire: Q13-Q20 Qualitative b. Interviews c. FGD
4. To describe the undergraduate nursing students' perceptions of learning in the clinical skills laboratory	Perceptions of Learning in Clinical Skills Laboratory	Quantitative a. Questionnaire: Q1-Q12 Qualitative b. Interviews c. FGD
5. To explore the utilisation of the clinical skills laboratory in line with the South African Nursing Council requirements.	South African Nursing Council Requirements	Qualitative b. Interviews c. FGD
6. To explore how the utilisation of the clinical skills laboratory as a learning space can be strengthened.	Learning in SDCSL	Qualitative b. Interviews c. FGD

3.8.1 Questionnaire

A questionnaire (See Annexure 2), was used as a data-collecting tool, which according to (Grove *et al.*, 2013:406), is a printed self-report form designed to elicit written or verbal responses from the respondent. The rationale for using a questionnaire as one of the data

collection methods was that it enabled the investigator to obtain answers from the respondents to address the study objectives (Brink *et al.*, 2012:154). In addition, the use of a questionnaire enabled data to be obtained from a selected sample of respondents in a consistent manner. It is also quick way of obtaining data from a large group of people, is relatively inexpensive in terms of time and money, is one of the easiest research instruments to test validity, and the format is standard and is not dependent on the mood of interviewer.

The researcher adopted the Dundee Ready Education Environment Method (DREEM) questionnaire, (Sindi, 2011:360), a questionnaire the Queen Mary University of London used to assess the undergraduate dental students learning approaches and the dental laboratory environment. The questionnaire is available to the public and consists of three sections made up of 32 questions of Cronbach' alpha value of 0.89. The second questionnaire was the Approach to Learning and Studying Instrument (ALSI) of Cronbach's alpha of 0.93 with 25 individual questions adopted from the same study. The DREEM and ALSI were used to form one questionnaire with ALSI was used to measure the self-directed learning principles, whereas the DREEM was used to measures the clinical skills laboratory environment, learning in the clinical skills laboratory and students' academic self-perception.

The choice of the questionnaire was guided by the research objectives, conceptual framework and the reviewed literature. The instrument was in simple and clear English, was easy for the respondents to complete (Brink *et al.*, 2012:160), and was checked by experts from the School of Nursing. The questionnaire consisted of the following categories:

- demographic data (questions A1 – A5): age, gender, year of the study, race and religion
- Self-directed Learning Principles in the clinical skills laboratory (questions 33-57) (Objective 1): e.g. I constructively self-assessed my work as a learner
- Students' perception of learning in the self-directed clinical skills laboratory (questions 1-12) (Objective 2): e.g. I am encouraged to participate in the

clinical skills laboratory.

- Students' academic self-perceptions (questions 13-20) (Objective 3): e.g. I feel I am being well prepared for this profession.
- Students' perceptions of Clinical Skills Laboratory as a learning space (questions 21-32) (Objective 4): e.g. the atmosphere in the clinical skills laboratory motivates me as a learner

For questions 1 – 32, a five-point Likert scale was used to rate the responses that covered students' perception of learning in the self-directed clinical skills laboratory, their academic self-perception and their perceptions of Clinical Skills Laboratory as a learning space. The Five Likert scale contained options such as: strongly disagree, disagree, uncertain, agree and strongly agree.

For questions 33 – 57, a four point Likert scale was also used for the Self-directed Learning Principles in the clinical skills laboratory with the following options available: Agreed, agree somewhat, disagree somewhat and disagree. According to Brink, (Brink *et al.*, 2012:157) , a Likert scale “is an example of a summated rating scale which is frequently used to test attitudes or feelings”.

3.8.2 Interviews

An open-ended semi-structured individual interview guide (See Annexure 4), was used in this study. In qualitative research, interviewing is a major source of qualitative data gathering that assist in understanding the phenomenon under study (Sharma, 2010:4). Interviews gather data in a tangible way that assists the researcher to explore and describe the phenomenon in details, the supplementary question is always ‘why’, which gives detailed explanations (Cohen *et al.*, 2011:97). Responses are usually rich and honest, as their nonverbal communication is also relevant and taken note of.

Semi-structured interviews are qualitative research techniques that involve conducting intensive discussions with a small number of participants individually to explore their perspectives on a particular idea, program, or situation (Boyce & Neale, 2006:3). Semi-structured interviews were relevant due to their ability to provide valuable information for

programs, particularly when supplementing other methods of data collection (Boyce & Neale, 2006:3). Open-ended questions were used on the selected clinical facilitators to explore their unique points of view and their distinctive understanding of the use of the CSL resources.

3.8.3 Focus Group Discussion

Focus groups are a form of group interview, where the reliance is on the interaction within the group to discuss a topic supplied by the researcher and provide a collective instead of an individual view. The participants interact with each other instead of with the interviewer, such that the views of the participants emerged (Cohen *et al.*, 2011:376). Cohen and colleagues believe that Focus Group Discussions (FGD) are unnatural settings, bringing together a specifically chosen sector of the population to discuss a given theme or topic, where the interaction with the group leads to data and outcomes. Their contrived nature is both its strength and weakness, as they are unnatural settings yet very focused on a particular issue, and therefore provide insights that might not otherwise have been available in a straight forward interview. They are economical, punctual and produce a large amount of data in a short time, (Christenhusz, Devriendt, Van Esch & Dierickx, 2015:249; Cohen *et al.*, 2011:376). The researcher set four focus groups of eight students, as maintained by Polit and Beck, (Polit & Beck, 2010:341), one group from each year (first, second, third and the fourth). Each group had the opportunity to discuss questions and gave their opinions regarding the phenomenon in question. The FGDs allowed the researchers to capture rich qualitative data that would otherwise be challenging to obtain with quantitative surveys and questionnaires. (Woodyatt, Finneran & Stephenson, 2016:741).

3.9 DATA COLLECTION PROCESS

According to Grove and colleagues (Grove *et al.*, 2013:43), data collection is a precise, systematic gathering of information relevant to the research purpose or the specific objectives, questions or hypothesis of a study. In this study, data collection was done using the concurrent parallel convergent mixed methods design approach. The researcher collected data personally since it was expensive to afford a research assistant.

The three methods consisted of a questionnaire to obtain quantitative data, and semi-structured interviews and focus group discussions to obtain the qualitative data. All these were done concurrently depending on availability of the participants/respondents. The process of collecting each method is described below.

3.9.1 Questionnaire

Once permission to conduct the study had been obtained from UKZN and the Nursing programme, the questionnaires surveys were given to respondents who had been identified to participate. So as to not interrupt the respondents' studies, the researcher approached potential respondents immediately after a lecture, and requested that they take it with them to complete and return it the next day.

The researcher introduced himself to establish rapport, informed them about the reasons for the research and responded to any queries regarding the study. The researcher explained that taking part was voluntary, that confidentiality would be maintained, and that they could withdraw at any stage of the process. The selected potential respondents were asked to read the information sheet (See Annexure 1), a copy of which they were given to keep, and to sign the informed consent (See Annexure 3) form should they agree. The Questionnaire took an average time of 25 minutes to complete, which was done with the researcher's cell phone number on the information sheet for them to ask any questions for clarification.

The investigator asked the respondents to return the completed questionnaire in an envelope that was handed over to them for this purpose. Students who were not available during the day were approached during break periods and at their residence after lecture hours, where this was known.

3.9.2 Interviews

To conduct the interviews, appointments were made by approaching the six clinical facilitators and explaining the study to them. All six showed an interest in the study and agreed to participate, with appointments being made to meet them for an interview during their lunch break or at their convenience. Individual interviews were held in the cubicles

of the CSL of the School of Nursing and Public Health, and were digitally recorded. At the interview, the study was again explained in detail, and an information sheet provided with the request that they sign and informed consent form. Once this had been done, they were interviewed using the prepared schedule, which lasted for an average of one hour. A semi-structure open-ended question guide was followed to explore the selected clinical facilitators detail opinion, feelings, thoughts and experiences about the utilisation of the self-directed clinical skills laboratory with the objectives of the study in mind. Based on the participant's understanding, more clarifications were asked and they were encouraged to express their opinions openly.

3.9.3 Focus Group Discussion

Using purposive sampling, the eight undergraduate nursing students were selected in each year group and a date set for a focus group discussion. This discussion happened in the clinical skills laboratory cubicles during a time that the students were available. The researcher and a colleague who assisted observed and took notes as the discussion occurred.

3.10 DATA ANALYSIS

Data analysis is done to reduced, organised and give meaning to the data thereby making interpretation comparison with previous literature easier (Cohen *et al.*, 2011:184). Two types of data analysis were used, quantitative (descriptive and statistical analysis) and qualitative (thematic analysis), after which the data was triangulated to establish similarities between them. The methods of data analysis are described with respect to the various tools used:

3.10.1 Questionnaire

Data analysis for the quantitative questionnaire responses consisted of descriptive and inferential statistics. The data on the returned questionnaires was coded and organised and analysed using the Statistical Package for the Social Sciences (SPSS) Version 24 for Macintosh, with the assistance of a statistician. Descriptive statistics were used to calculate mean, sum and standard deviation. Where necessary, contingency tables were

used to explore objects of concern in the study. Analysis of Variances were also used to compare means of the subscales of the DREEM questionnaire in relation to the year groups. The data is presented in tables and figures.

3.10.2 Interviews and Focus Group Discussions Analyses

The qualitative interview and focus group data were analysed using thematic analysis. Qualitative data analysis involves organising, accounting for and explaining the data (Cohen *et al.*, 2011:461). Thematic analysis is a qualitative method for uncovering a collection of themes, ‘some level of patterned response or meaning’ (Braun & Clarke, 2006:77) within a data-set. It goes beyond word or phrase counting to analyses involving “‘identifying and describing both implicit and explicit ideas’ (Fugard & Potts, 2015:669). Data analysis in this study were done qualitatively with the assistance of Nvivo 11 for Macintosh using theoretical thematic analysis (Braun & Clarke, 2006:77).

According to Braun and Clarke, theoretical thematic analysis is driven by the researcher’s theoretical or analytic interest in the area, and is accordingly more explicitly analyst-driven. This form of thematic analysis tends to provide less rich description of the data generally, but more detailed analysis of some aspect of the data, and is coded for specific research questions (Braun & Clarke, 2006:77). Thematic analysis is recurrently used to analyse qualitative data in psychology, healthcare, social research and beyond. Topics addressed are diverse, including understanding experiences, understandings, perceptions, practices, and causal factors underlying phenomena (Fugard & Potts, 2015:669). Some authors demarcate Thematic Analysis as a phenomenological method (Guest, G., Macqueen, K.M. & Namey, E.E., 2012; Joffe, 2011). In contrast, Braun and Clarke, (Braun & Clarke, 2006:77) emphasise the theoretical flexibility of Thematic Analysis, and identify it as just an analytic method, than a methodology, which most other qualitative approaches are.

Thematic Analysis is suited to a wide range of research interests and theoretical perspectives, it works with a wide range of research questions, and can be used to analyse different types of data, including focus groups or interviews (Braun & Clarke, 2014:1).

The digital data from the interviews and focus group discussions were transcribed to enable thematic analysis to occur. The transcribed lengths per interviews were approximately 7 pages each, and 12 pages for the focus group discussions. Except for Nvivo version 11 software, which facilitated coding of relevance statements by queries, an inductive, iterative process of reading and rereading the transcriptions was used to produce subthemes for information analysis within the context of the study phenomenon. The researcher divided the participant's statements into entities, grouped in common theme headings, analysed, and summarised. The credibility of subthemes was established by testing them with new information units until all relevant information was assigned to a theme. In this way, common codes were identified and differences between participants noted. Creating information analysis trustworthiness included (a) implementing interrater reliability coding checks; (b) uncovering biases that might skew to the researcher's perspective, and (c) linking obtained outcomes to earlier published research conclusions.

Clarke and Braun, (Clarke & Braun, 2013:120) outlined six phases of thematic analysis, these being, familiarisation with the data, coding, searching for themes, reviewing themes, defining and naming themes, and finally Writing up. The researcher did the analysis personally with assistance from the research supervisor and other experts in the nursing department using these steps by Clarke and Braun (Clarke & Braun, 2013:120).

3.11 TRIANGULATION

Triangulation is the use of two or more methods of data collection in the study of some aspect of human behavior (Cohen *et al.*, 2011:195). This is done to corroborate the findings and facilitate validation of data through cross verification of two or more sources. Triangulation also known as convergent validation as used in this study (Creswell, 2013:201) is to compare data in concurrent mixed method research. The findings after data analysis were merged to either compliment or contrast based on the findings of the study. Convergent validation was done under each objective after analysis using both the qualitative and the quantitative data.

3.12 TRUSTWORTHINESS OF THE QUALITATIVE DATA

To maintain the trustworthiness of the data, Guba and Lincoln's four criteria for trustworthiness were used, these being credibility, transferability, dependability and confirmability (Cohen *et al.*, 2011:241). This describes how the researcher addressed any threats that might have arisen that could have affected the credibility of the findings.

3.12.1 Credibility

Credibility also known as truth value strategy talks about the internal validity of the study (Hanson, Balmer & Giardino, 2011:380). According to Cope, it refers to the truth of the data or the participant's views and the interpretation and representation of them by the researcher (Cope, 2014:89). The investigator maintained the credibility of the research by using convergent validation approach to facilitate the process. Data gathering were done in more than one source (Yin, 2013:321). The researcher employed the convergent parallel concurrent mixed data collection methods that made use of both qualitative and quantitative data. These were collected separately yet concurrently and analysed separately before synthesis was done in order to contrast and compliment the findings. Detailed and sufficient data were gathered to build a credible case about the phenomenon. In addition, the investigator used skillful interview techniques by using questions that were able to generate descriptions and probed for deeper insights into questions that are organised in a way to assist participants to answer clearly.

3.12.2 Transferability

Transferability or Applicability-strategy has to do with external validity and findings that can be applied to other settings or groups (Moonaghi, Ahanchian & Hassanian, 2014:3). The researcher did not intend to generalise the findings using only the qualitative data since different settings might produce different perceptions, feelings and hence different findings. However, that notwithstanding a detailed description of the sample is provided including the setting and results to enable those who read the research to determine if their own settings are comparable. This gives an opportunity to other researchers to replicate the study in other settings.

3.12.3 Dependability

Dependability also known as reliability or Consistency-strategy refers to the constancy of the data over similar conditions (Cope, 2014:890). Reliability of the data was maintained by seeking ideas from senior colleagues in the same field regarding the methods and procedures. The researcher's supervisors crossed checked the data and significant other authorities in the department were consulted that built multiple analyser platforms in order to keep the data dependable (Moonaghi *et al.*, 2014:3). Participants were also contacted after analysis to confirm if the data make sense to what they said during the interview (Polit & Beck, 2010:492). Whether the analysis expresses the feelings, experiences and thoughts they wanted to express.

3.12.4 Confirmability

Confirmability or Neutrality-strategy has to do with the objectivity of the study, it refers to the researcher's ability to demonstrate that the data represent the participants' responses and not the investigator's biases or viewpoints (Cope, 2014:890; Hanson *et al.*, 2011:380). The reports were read by the research supervisor who did not take part in the data collection process, the results were reviewed to determine if the plan of reasoning makes sense. Data recording procedure, analysis, and interpretation audit were done by a specialist in the field to confirm the objectivity of the study before a conclusion was drawn as maintained by (Moonaghi *et al.*, 2014:3). In addition, an in-depth description of the methodology was provided and the possible shortcomings and their potential effects made clear to allow scrutinising of the integrity of the study findings.

3.13 MANAGING THREATS TO THE STUDY

This section dealt with reliability and validity of the quantitative data obtained to address the study objectives. According to Sharma, regardless of the method used in collecting data, the researcher must always critically examine and assess to what extent validity and reliability are adhered to (Sharma, 2010:3). Cohen contends that threats to validity and reliability can never totally be eliminated, the aim here being attenuate them by critically examining every stage and process (Cohen *et al.*, 2011:133). While the

researcher acknowledges the fact that the findings in this study might not be generalizable to another setting, as other students may have different experiences and their response may differ. That notwithstanding, the researcher paid attention and addressed all issues regarding threats and triangulated the results to reduce any weakness.

3.13.1 Validity

Grove, Burns and Gray (Grove *et al.*, 2013:380) defined validity as the “degree to which an instrument measures what it is supposed to measure”. Cohen et al believe that validity is the ability of a study to accurately reflect the meaning, interpretations and terms of the research (Cohen *et al.*, 2011:133). In this research, the investigator used content and face validity as means of ensuring that the instruments measured what they were intended to measure, and whether they answered the questions posed by the study objectives. The questionnaire survey DREEM and ALSI, (Sindi, 2011:319) have been used elsewhere, and were therefore adapted and modified to suit this environment. Validity is the criteria for how effective the design is in employing methods of measurement that will capture the data to address the research questions.

- **Content validity:** Content validity was used as a means of ensuring the validity of the data collection instrument for the quantitative part so as “to assess how well the instrument represents all the components of the variable to be measured” (Brink *et al.*, 2012:169). Polit and Beck, (Polit & Beck, 2010:377) also stated that validity refers to the ability of the research instrument to measure the phenomenon that it is supposed to measure.

3.13.2 Reliability

According to Brink et al (Brink *et al.*, 2012:169), reliability is a ‘measure of consistency or accuracy which an instrument measures an attribute’. It refers to the possibility that a given measurement or procedure will yield the same description of a given phenomenon if the measurement or procedure is repeated. A reliable item is one that consistently carries the same connotation every time it is read by the research respondents, and it is

interpreted with the same results. To aid reliability and reduce interviewer bias, the study used a semi-structured approach (Polit & Beck, 2010:376). During the interviews, care was taken not to ask questions that would lead the participant to a selected viewpoint. Answers were accepted as the clinical facilitator's views, and follow-up questions were asked to ascertain the participant's reason for the thought and not to lead them. Quantitatively, the questionnaire was adapted from Sindi (Sindi, 2011:319) and modified to suit the objectives of this study. The questionnaire consisted of 57 questions in four subscales to establish the self-directed learning principles, perception of the learning environment, students' academic self-perception and their perception of learning in the environment of the clinical skills laboratory.

3.14 ETHICAL CONSIDERATIONS

According to Grove et al (Grove *et al.*, 2013:61), ethical consideration are a system of moral values that are concerned with the degree to which research procedures adhere to the professional, legal and social obligation of the study participants/respondents. Ethical approval was obtained from the University of KwaZulu-Natal's Humanities and Social Sciences Research Ethics Committee and permission granted by the Discipline of Nursing to conduct the research before commencing data collection (See Annexure 14). Permission was also obtained from the Registrar of the University of KwaZulu-Natal to use the clinical skills laboratory, and to have access to the nursing student who attended it for clinical demonstration and practice (See Annexure 10).

3.14.1 Informed Consent

Written informed consent was obtained from the participants/respondents. According to Brink et al (Brink *et al.*, 2012:38), informed consent is described as the measure whereby the researcher obtains participants/respondents permission for voluntary participation in the study. Consent is the prospective subject's agreement to participate in a study as a participant, which he/she reaches after assimilating essential information (Grove *et al.*, 2013:201). Before the researcher collected data from the respondents/participants, he provided them with an information sheet with information on purpose, duration and ethical principles of the study.

3.14.2 Right to Self-Determination

Right to self-determination is based on the ethical principle of respect for a person, which holds that a human is capable of self-determination, or controlling their destiny, and should be treated as an autonomous agent who has the freedom to conduct their lives as they choose without external control (Grove *et al.*, 2013:189). Before data collection, the respondents/participants were informed about the study and allowed to voluntarily choose to participate or not. They were also informed that they have right to withdraw from the study at any stage of the process without consequences.

3.14.3 Right to Autonomy and Confidentiality

Autonomy means participant's/respondent's identity cannot be linked with his or her responses (Grove *et al.*, 2013:196). Confidentiality is the management of the private data in research so that their identities are not linked with their response (Grove *et al.*, 2013:196). Each participant/respondent was given a code number for identification instead of their name, student number, identity number or date of birth to ensure anonymity. During the data collection, the researcher developed a master list of their names and assigned codes. When entering, data collected in the computer, the researcher used the code numbers for identification. The consent forms were stored in a locked cupboard with the master list of their names and code numbers away from the questionnaires and the interview data. This list was destroyed after the study was completed. The signed consent forms are not stapled to the questionnaire to make it difficult to link them to the response. The questionnaires and informed consent are stored in an area with limited access, except to the research team, which consists of the researcher, supervisor, and statistician. The research team signed the confidentiality pledge to ensure that no confidential information obtains during data collection/gathering is disclosed. No confidential information was shared with a person who is not officially and directly involved with the research.

3.14.4 Right to Fair Treatment

Right to fair treatment is based on the ethical principles of justice, which holds that each person should be treated fairly and should receive what she or he is due or owed (Grove *et al.*, 2013:198). During data collection, random systematic sampling techniques were

employed to eliminate some of the research bias that might have influenced the selection of the respondents.

3.14.5 Right to Protection from Discomfort and Harm

Right to protection from discomfort and harm is based on the ethical principles of beneficence, which holds that one should do good, and above all, do no harm (Grove *et al.*, 2013:198). During data collection, the participants/respondents were not harmed. No physical or psychological discomfort was experienced as a result of their participation in the study. Data was collected at their leisure time in order to reduce any discomfort that might arise.

3.14.6 Benefits and Risk from the Study

During data collection, the participants/respondents had the potential to increase their understanding of the research process and learn about self-directed clinical skills laboratory. The study had no financial benefits to the students, and thanked by the researcher. The researcher collected the data by himself. The process of data collection was done over a period of five weeks, which start from 26th September 2016 to 29th October 2016.

3.14.7 Scientific Validity and Scientific Honesty

The investigator maintained scientific validity and honesty, as recommended by Brink *et al.* (Brink *et al.*, 2012:43). For scientific honesty, the investigator adhered to the principle by acknowledging all the literature and academic writing that was used in this research. In addition, to be scientifically honest, the investigator presented a true picture of the study barren of distortion, fabrication or falsification. The investigator avoided plagiarism and subjected the text to TURNITIN to affirm the scientific honesty. To respect the principle of scientific validity, the investigator has enhanced his knowledge and completed the Online course (TRREE) on research and has been awarded certificates.

3.14.8 Data Storage and Management Plan

To maintain the integrity of stored data from the research, the thesis data are protected from physical damage as well as from tampering, loss, or theft, this being done by limiting

access to the data. After analyses, the questionnaires and the interview notes were kept together in a safe, a locked file cabinet, a secure location from public access with the help of and in the office of the thesis supervisor for a minimum of five (5) years or as per the University of KwaZulu-Natal policies regarding research data storage. Privacy and anonymity were increased by replacing names and other information with encoded identifiers, with the encoding key kept in a different secure location. The electronic data is stored in its various formats on a computer with an encrypted password to prevent unauthorised access to the data. This is backed up in an external hard drive and a DVD, and is kept in a secure and safe area with a lock. Antiviruses on the computer will be updated frequently to prevent damage to the data. This will be kept for five years or per the university policies when the electronic data will be deleted and the hard copies shredded and buried to decompose.

3.14.9 Data Dissemination

The final results were communicated through the supervisor to Head of School at the end of the study. A copy of the report of the findings was submitted to the College of Health sciences at UKZN, besides, the researcher intends to publish the results which will make it possible for the participants and the respondents to get access to the results.

3.15 SYNOPSIS OF CHAPTER 3

This chapter reviewed the pragmatic approach that informed that non-experimental explorative descriptive mixed method design used to meet the study objectives. This formed the basis for the three data collection tools, specifically a questionnaire survey of students, clinical facilitators interviews and student focus group discussions. The quantitative and qualitative data collected by these methods were analysed and then triangulated to enable corroboration of the data in the next chapter.

CHAPTER FOUR

Findings and Results of the Study

CHAPTER 4

RESULTS AND FINDINGS

4.1 INTRODUCTION

This chapter presents the study findings of the six Objectives, as established from the quantitative questionnaire survey with undergraduate nursing student respondents, interview with the clinical facilitators and focus group discussion with students, the latter two resulting in qualitative data. As this was a mixed method study, the data is presented with respect to each objective, the results of the questionnaire survey being followed by the interview and the focus group discussions. The findings for each objective concludes with the triangulation of data of the three methods.

4.1.1 Questionnaire

Two instruments were adopted, from (Sindi, 2011:360), an Approach to Learning and Studying Instrument (ALSI) for the self-directed learning principles and Dundee Ready Education Environment Method (DREEM) for students perception of learning, their views about the learning environment and their academic self-perception. The analysis of the ALSI was done to establish if undergraduate nursing students use the resources in the clinical skills laboratory according to the self-directed learning principles, (objective 1) specifically the following:

- Motivation to learn,
- planning of learning activities,
- Peer collaboration during learning,
- Monitoring and Evaluation of their studies.

DREEM was used to establish their views about three specific areas: their perception of the laboratory as a learning environment (objective 2), their academic self-perception (objective 3) and their perception of learning in the clinical skills laboratory (objective 4).

Prior to commencing the quantitative data analysis, data cleansing were done (Ashby, 2014:110) to ensure accuracy and precision. Statistical Package for the Social Sciences

(SPSS) version 24 was used to organise and analysed the raw quantitative data. Reversed coding was done on questions 8, 12, 23 and 28 according to the DREEM questionnaire guidelines (Sindi, 2011:360). In all, 118 undergraduate student nurses were sampled using a systematic random sampling technique with a response rate of 95.1%.

4.1.1.1 Data Cleaning

Before a data item gets into a database, it typically goes through several steps involving both humans' interaction and computation. Data errors such as data entry errors, measurement errors and data integration errors can creep in at every step of the process from initial data acquisition to archival storage (Hellerstein, 2008:42). For this reason, the researcher used an iterative process involving collection, transformation, storage, auditing, cleaning and analysis.

4.1.1.2 Missing data

Missing data might be a common occurrence and should be noted to have a possible effect on the analysis and conclusions drawn from the data. This can alter the meaning of a data set because of incomplete answers. However, within this study, the missing data were very minimal and appeared among only the religious affiliation.

4.1.1.3 Comparing means of the DREEM tool for Objectives 2,3 and 4.

The analysis indicated Students' perception of learning in the clinical skills laboratory had a total mean score of 33.69 (n=118). Whereas, the Students' academic self-perception bagged 23.81, (n=118). Meanwhile, the students' perception of clinical skills laboratory as a learning space gathered 33.31 (n=118). There was no statistical significance. Levine's test of homogeneity indicated no statistical significance, except the students' perception of CSL as a learning space where there is a clinical significance. This is indicated in table 4.1 below.

Table 4.1 Test of Homogeneity of Variances

Subscales	Levene Statistic	df1	df2	Sig.
Students' Perception of CSL as a learning environment (Objective 2)	2.965	3	114	.035
Students' Academic Self-perceptions (Objective 3)	1.767	3	114	.158
Students' Perception of Learning in clinical skills laboratory (Objective 4)	1.241	3	114	.298

Regarding comparing the mean score for gender and the means of the yearly groups, the analysis indicated that male on the average scored a higher mean compared to the female gender. The highest mean in the subscales was 34.60 with a standard deviation of 5.11 of the male gender for academic self-perception, whereas, their lowest mean score was 23.24 with a 4.77 variation from the mean for academic self-perception by the female gender (Table 4. 2). Both genders had some more positive perceptions for their academic self-perception than they did for learning and the learning environment.

Table 4.2 Distribution of mean and standard deviation by gender

Subscales and objectives	Gender	N	Mean	Standard Deviation
Students' perception of CSL as a learning environment (Objective 2)	Male	33	34.09	5.27
	Female	85	33.01	6.36
Students' academic self-perception (Objective 3)	Male	33	25.27	4.00
	Female	85	23.24	4.77
Students' perceptions of learning in the clinical skills laboratory (Objectives 4)	Male	33	34.60	5.11
	Female	85	33.34	6.90

Relating to the mean with regards to year groups, there is an indication that the third-year group had the highest mean score of the subscales (Table 4.3).

Table 4.3 Mean distribution by year group

Subcategory and objectives	Year group	N	Mean	Standard Deviation
Students' perception of CSL as a learning environment (Objective 2)	First year	39	34.38	5.13
	Second year	30	31.63	5.04
	Third year	31	34.77	4.49
	Fourth year	18	31.27	10.01
	Total	118	33.31	6.07
Students' academic self-perception (Objective 3)	First year	39	24.66	3.97
	Second year	30	23.33	3.70
	Third year	31	23.70	5.34
	Fourth year	18	22.94	6.05
	Total	118	23.81	4.64
Students' perceptions of learning in the clinical skills laboratory (Objective 4)	First year	39	34.46	6.16
	Second year	30	32.23	6.16
	Third year	31	35.03	4.31
	Fourth year	18	32.16	9.66
	Total	118	33.69	6.45

The first year's students (n=39) scored a mean of 34.46 with a standard deviation of 6.16 for their perception for learning in the CSL, 24.66 with regards to their academic-self-

perception and 34.38 with a standard deviation of 5.13 for their perceptions on clinical skills laboratory as a learning environment. The analysis indicated that the respondents rated their perceptions of CSL as a learning environment lower as compared to the other two subscales. Table 4.3 shows that, with regards to magnitudes of the means, students' academic self-perception is the lowest. However, with the DREEM guide (Annexure 16) in mind, academic self-perception is the highest rated in the subscales.

Students' perceptions of the CSL as a learning environment is the lowest with regards to the means displayed in Table 4.3. All the year groups rated that lower than the two other subscales listed above. For instance, the first years rated from 34.46 regarding their perception of learning to 34.38 in their perception of CSL as learning environment. Likewise, the second year's rated from 32.23 regarding their perception of learning to 31.63 in their perceptions of CSL as a learning environment and then the same applies to the third and the four years with their rating (Table 4.3).

The Analysis of Variance (ANOVA) indicated no statistical significance with the DREEM subscales as indicated in Table 4.4 Below. The ANOVA between groups for students' perception of learning in clinical skills laboratory indicated ($p=0.220$), students' academic self-perceptions ($p=0.522$) and students' perception of CSL as a learning space ($p=0.060$). None of these were statistical significant.

Table 4.4 Analysis of Variance between groups

Subscales and Objectives		Sum of Squares	df	Mean Square	F	Sig.
Students' Perception of CSL as a learning environment (Objective 2)	Between Groups	270.170	3	90.057	2.535	.060
	Within Groups	4049.228	114	35.520		
	Total	4319.398	117			
Students' Academic Self-perceptions (Objective 3)	Between Groups	49.233	3	16.411	.755	.522
	Within Groups	2478.665	114	21.743		
	Total	2527.898	117			
Students' Perception of Learning in clinical skills laboratory (Objective 4)	Between Groups	184.490	3	61.497	1.494	.220
	Within Groups	4692.527	114	41.163		
	Total	4877.017	117			

4.1.2 Interviews

On completion of the interviews, the scripts were transcribed and themes considered through a thematic analysis. This entailed recording of data, familiarisation with the data, coding, searching for themes, reviewing themes, defining and naming themes and finally Writing up. Within the themes additional sub-themes were noted and analysis of the transcripts which were mapped and re-analysed (Braun & Clarke, 2014:1).

The inductive thematic analysis of the interview with the six staff members resulted in six themes being identified, as indicated in Table 4.5. According to Clarke and Braun, (Clarke & Braun, 2013:120) 6-10 participants are recommended in a small project.

Interpretation of the qualitative data provided a platform for the researcher to consider the potential beliefs and opinions underpinning the actions and statements of the participants.

Table 4.5 Themes and sub-themes of the interview thematic analysis

Objective	Themes	Sub-themes
1	Acquiring information	Demonstration
		Processing learning
		Knowledge reassessment
2	Learning space	Access to the space and equipment
		Organization of the space
		Privacy during feedback
		Technological innovations
3	Pursued objectives	Control measures
		Linkages (meeting)
4	Acquiring knowledge	Faculty collaboration
		Material reinforcement
		Personnel inadequacy
5	Training conditions	Equipment accessibility
		Facilitator interventions
		Disparities between skills laboratory and hospitals
6	Resources	Human resource
		Material resource

4.1.3 Focus Group Discussion

Four focus groups using a purposive sampling technique was employed to select eight students in each year group for the discussion. The four groups consisted of one each from the four years, these being first-year nursing students (FYNS), second year nursing students (SYNS) third year nursing students (TYNS) and fourth year nursing students (FINALS). Clarke and Braun, (Clarke & Braun, 2013:120) believes that 2-4 groups are ideal for a focus group discussion with at least eight in a group.

Table 4.6 Themes and sub-themes of focus group discussion

Objective	Themes	Sub-themes
1	Self-practice skills acquisition	Motivation and feedback
		Human resource and waiting time
		Plan to practice and self-evaluation
		Proactive innovations and peer collaboration
2	Environmental analysis	Good personnel
		Scheduling
		Time limitations
3	Academic introspection	Certainties
		Uncertainties
4	Progressive learning	Areas to learn
		Areas to improve
5	Provisions/regulations	Legal lessons
		Meeting the hours
6	Changing the trends	Demonstration
		Faculty collaboration
		Duration of practice
		Material and human resource

4.1.4 Convergent Validation of Data

This section presents triangulation of data from the quantitative and qualitative based on the objectives of the study, which the conceptual framework fashioned. According to Creswell and colleagues (Creswell *et al.*, 2011:2094), triangulation is not only used for cross validation, but also helps to capture a different dimension of the phenomenon for data corroboration. Data integration is a matter of creativity, novelty and inventiveness, and the reason for mixed methods is to appreciate the analytical implication of connecting data originated from different methods rather than having findings from different methods (Ogarkova, Soriano & Gladkova, 2016:73; Fielding, 2012:124). Data from various data collection methods were compared to validate the findings of the study.

4.2 DEMOGRAPHIC DATA

The demographic data for all three groups of study participants is presented, the students who participated in the questionnaire survey, the clinical facilitators who were interviewed in the clinical skills laboratory, and the students who formed the focus groups.

4.2.1 Questionnaire

With regards to gender, 85 (72%) of the 118 respondents were female, and 33 (28%) were male. Most of the respondents (n=93, 78.8%) were aged 20 to 22 years, with 9 (16.1%) being below 19 years and six (5.1%) above the age of 22 years. Most of the students were Black (n=89, 75.4%), 20 were Indians and three were White. The majority (n=80, 68.4%) were Christians, nine (7.7%) were Muslim and 28 (23.9%) indicated their affiliation to the various other religions, including Tamir and African belief systems, while one person did not indicate their affiliation (Table 4.7).

Table 4.7 Demographics of the quantitative sample

Item	Category	Number	Percentage in Sample
Gender	Male	33	28.0%
	Female	85	72.0%
	Others	-	-
Age	Less than or equal to 19years	19	16.1%
	20 to 22years	93	78.8%
	Greater 22years	6	5.1%
Race	Black	89	75.4%
	White	3	2.4%
	Indian	20	16.9%
	Others	6	5.1%
Religious Affiliation	Christian	80	68.4%
	Muslim	9	7.7%
	Others	28	23.9%
Year of Study	First year	39	33.0%
	Second year	30	25.4%
	Third year	31	26.3%
	Four year	18	15.3%

4.2.2 Interviews

Six participants participated in semi-structured interviews (Table 4.8), all of whom were female. Two of these were undertaking post graduate studies and four were permanent clinical facilitators of the clinical skills laboratory.

Table 4.8 Codes for the participant undertaking the interview.

Code	Gender	Designation	Age (years)
CF1	Female	Facilitator	35-45
CF2	Female	Facilitator	35-45
CF3	Female	Facilitator	35-45
CF4	Female	Facilitator	25-35
CF5	Female	Facilitator	25-35
CF6	Female	Facilitator	35-45

4.2.3 Focus Group Discussion

Four focus group discussions were also employed with participants from the undergraduate nursing students. Eight students in each group from year one to year four, making a total of 32 students, participated, of whom 25 were female and seven were males, 13 were 18- 20 years of age, 15 were 21 – 23 years, and four were 24-26 years old. This is indicated in Table 4.9 below.

Table 4.9 Demographic data for focus group discussion

Item	Category	Numbers
Year of study	1-year	8
	2-year	8
	3-year	8
	4-year	8
Gender	Male	7
	Female	25
Age	18-20 years	13
	21-23 years	15
	24-26 years	4

4.3 OBJECTIVE 1. TO DESCRIBE THE UTILISATION OF CLINICAL SKILLS LABORATORY IN LINE WITH SELF-DIRECTED LEARNING PRINCIPLES

The findings are presented with respect to the six objectives for each of the three groups of participants, after which the results of the data integration are presented.

4.3.1 Questionnaire

The instrument adopted for the self-directed learning principles was from the Approach to Learning and Studying Instrument (ALSI) (Sindi, 2011:360). The analysis of the ALSI was done to establish if undergraduate nursing students use the resources in the clinical skills laboratory according to the self-directed learning principles, specifically the following:

- Motivation to learn,
- planning of learning activities,
- Peer collaboration during learning,
- Monitoring and Evaluation of their studies.

Regarding the motivation to learn, the analysis indicated that majority [83 (70.3%)] agreed and 23 (19.4%) agreed somewhat that they think about what they want to get out of their studies so as to keep their work well focused. Meanwhile, 10 (8.4%) disagreed somewhat and disagreed with the assertion. Similarly, the majority (n=72, 61.0%) agreed and 27 (22.8%) agreed somewhat that they try to find a better way of tracking relevant information in their procedures, with a mean of 1.55 and standard deviation of 0.758, had only 19 (16.1%) disagreed somewhat to the statement. Likewise, a total of 55 (46.6%) agreed and 48 (40.6%) agreed somewhat that they do look at the evidence carefully to reach their own conclusion about what they are studying. Figure 4.1 below shows the detail presentation on a bar graph.

In relation to the planning of learning activities, as shown in Table 4.6. the analysis indicated that majority [60 (50.8%)] agreed and 31 (26.2%) agreed somewhat that they carefully prioritise their time to make sure they can fit everything in. A total of 15 (12.7%)

disagreed somewhat and 12 (10.1%) disagreed with the claim with a mean of 1.82 and a standard deviation of 1.01 as indicated in Table 4.10.

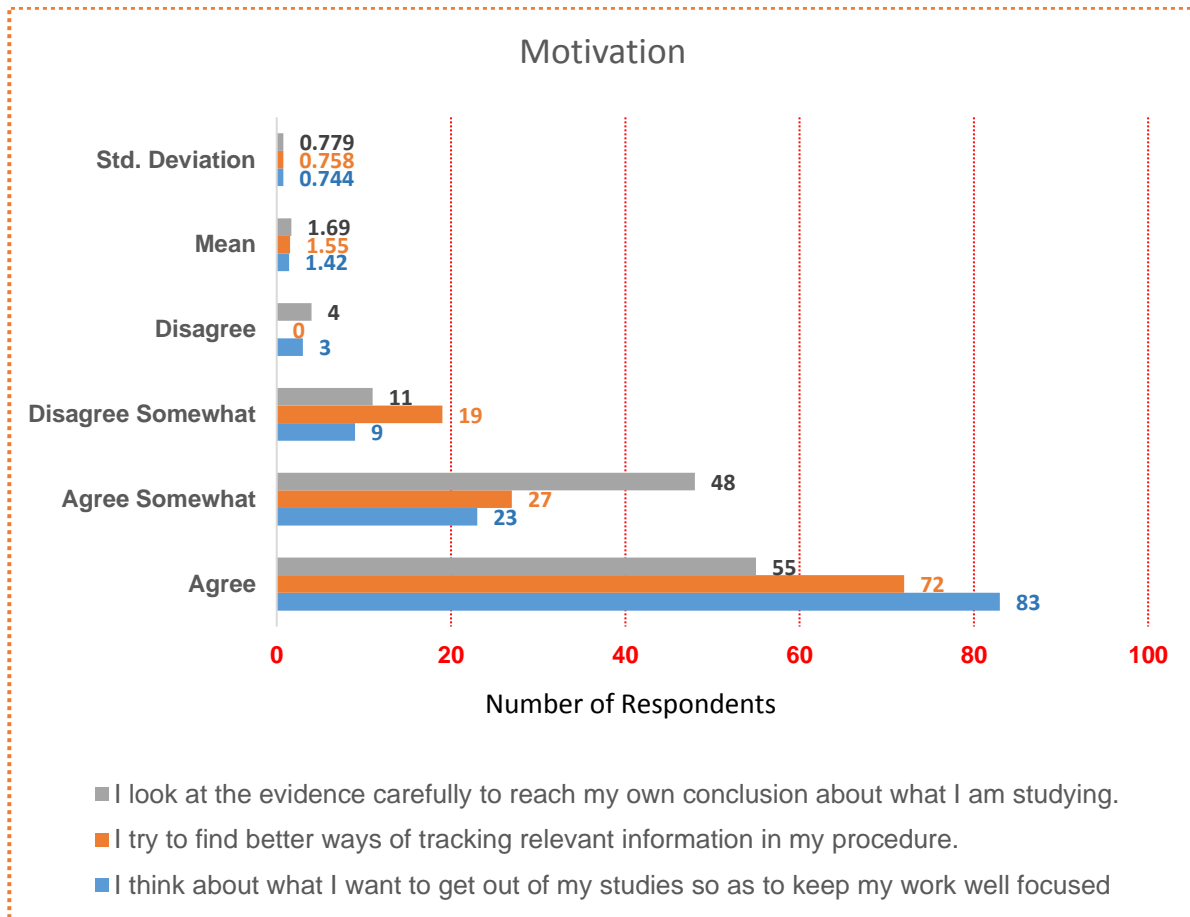


Figure 4.1 Motivation to Learn

Of the 118 students sampled, 47 (39.8%) agreed and 51 (43.2%) agreed somewhat that they organised their study time carefully to make the best use of the laboratory. However, 12 (10.1%) and eight (6.7%) disagreed somewhat and disagreed respectively. The analysis also indicated that 53 (44.9%) agreed and 36 (30.5%) agreed somewhat that they work steadily during the course, rather than just leaving things until the last minutes. Of the 118, 17 (14.4%) disagreed somewhat and 12 (10.1%) disagreed with the statement with a mean of 1.99 and a standard deviation of 0.99 (Table 4.10). Of the 11 questions

relating to how they plan their learning activities, in only four did more than (50%) students indicate that they agreed with sound planning strategies.

The planning of learning activities is indicated from the analysis that 36 (30.5%) agreed and 45 (38.1%) agreed somewhat that they are good at preparing for classes in advance. Meanwhile, 27 (22.8%) disagreed somewhat and 10 (8.4%) disagreed (Table 4.10).

Table 4.10 Planning of Learning Activities

Item	Total (N)	Frequencies				Mean	Standard Deviation
		Agree	Agree Somewhat	Disagree Somewhat	Disagree		
Mentally I processed what I already knew and what I needed to know about the procedures	118	64	48	6	-	1.51	.596
I'm pretty good at getting down to work whenever I need to.	118	62	35	17	4	1.69	.844
I carefully prioritise my time to make sure I can fit everything in.	118	60	31	15	12	1.82	1.01
I organise my study time carefully to make the best use of it	118	47	51	12	8	1.84	.867
I work steadily during the course, rather than just leaving things until the last minute	118	53	36	17	12	1.90	.999
I'm quite good at preparing for classes in advance	118	36	45	27	10	2.09	.934
On the whole, I'm quite systematic and organised in my studying	118	45	42	25	6	1.93	.894
I have usually set out to understand for myself the meaning of what we had to learn.	118	55	52	9	2	1.64	.698
On the whole, I've been quite systematic and organised in my studying	118	68	25	19	6	1.69	.922
I've organised my study time carefully to make the best use of it.	118	42	48	20	8	1.99	.895
I do carefully plan my learning tasks before going to CSL	118	42	55	15	6	1.87	.822

Similarly, 45 (38.1) agreed and 42 (35.5%) agreed somewhat that they are quite systematic and organised in their studies, with a standard deviation of 0.89 and a mean

of 1.93. A number of 25 (21.1%) and 6 (5.0%) students did, however, disagree somewhat and disagreed respectively.

Almost half of the respondents (n=55, 46.6%) agreed and (n=52, 44.0%) agreed somewhat that they have usually set out to understand for themselves the meaning of what they had to learn, while only nine (7.6%) and two (1.6%) disagreed somewhat and disagreed respectively. On the assertion that they carefully plan their learning tasks before going to the clinical skills laboratory, 42 (35.5%) agreed and 55 (46.6%) agreed somewhat that they did, with a mean of 1.87 and a standard deviation of 0.82. However, 15 (12.7%) disagreed somewhat and six (5.0%) disagreed.

In connection with peer collaboration, as indicated in Table 4.11. The analysis indicated that majority (n=81, 68.6%) agreed and 29 (24.5%) agreed somewhat to the statement that they pay careful attention to any advice or feedback they are given, and try to improve their understanding. With only six (5.0%) and two (1.6%) disagreed somewhat and disagreed respectively. In conjunction with this, a majority (n=75, 63.5%) agreed and 30 (25.4%) agreed somewhat that if they do not understand things enough during studies they have tried to ask colleagues. A total of 11 (9.3%) disagreed somewhat and two (1.6%) disagreed with the statement.

Almost half of the students of the 118 (n=57, 48.3%) agreed and 37 (31.3%) agreed somewhat that they do talk to their colleagues about learning and methods of study. Although a total of 18 (15.2%) disagreed somewhat and six (5.0%) disagreed with a mean of 1.77 as shown in Table 4.11 below.

Table 4.11 Peer Collaboration during Learning

Item	Total (N)	Frequencies				Mean	Standard Deviation
		Agree	Agree Somewhat	Disagree Somewhat	Disagree		
If I'm not understanding things well enough when I'm studying, I try a different approach.	118	65	35	11	7	1.66	.879
I pay careful attention to any advice or feedback I'm given, and try to improve my understanding.	118	81	29	6	2	1.40	.668
In making sense of new ideas, I have often related them to practical or real life contexts	118	67	34	13	4	1.61	.817
If I've not understood things well enough when studying, I've tried and asked colleagues	118	75	30	11	2	1.49	.737
I do talk with my colleagues about learning and methods of study	118	57	37	18	6	1.77	.891

With regards to monitoring as a principle of self-directed learning, 71 (60.1%) agreed and 26 (22.0%) agreed somewhat that when they have finished a piece of work, they checked to see it really meets the requirements. However, 14 (11.8%) disagreed somewhat and seven (5.9%) disagreed with the assertion with a mean of 1.64 and a standard deviation of 0.91. Similarly, a total of 39 (33.0%) agreed and 49 (41.5%) agreed somewhat that they do integrate all topics in a course with each other. Although a total of 22 (18.6%) disagreed somewhat and eight (6.7%) disagreed with a mean of 1.9 and a standard deviation of 0.89. Figure 4.2 below indicates the details.

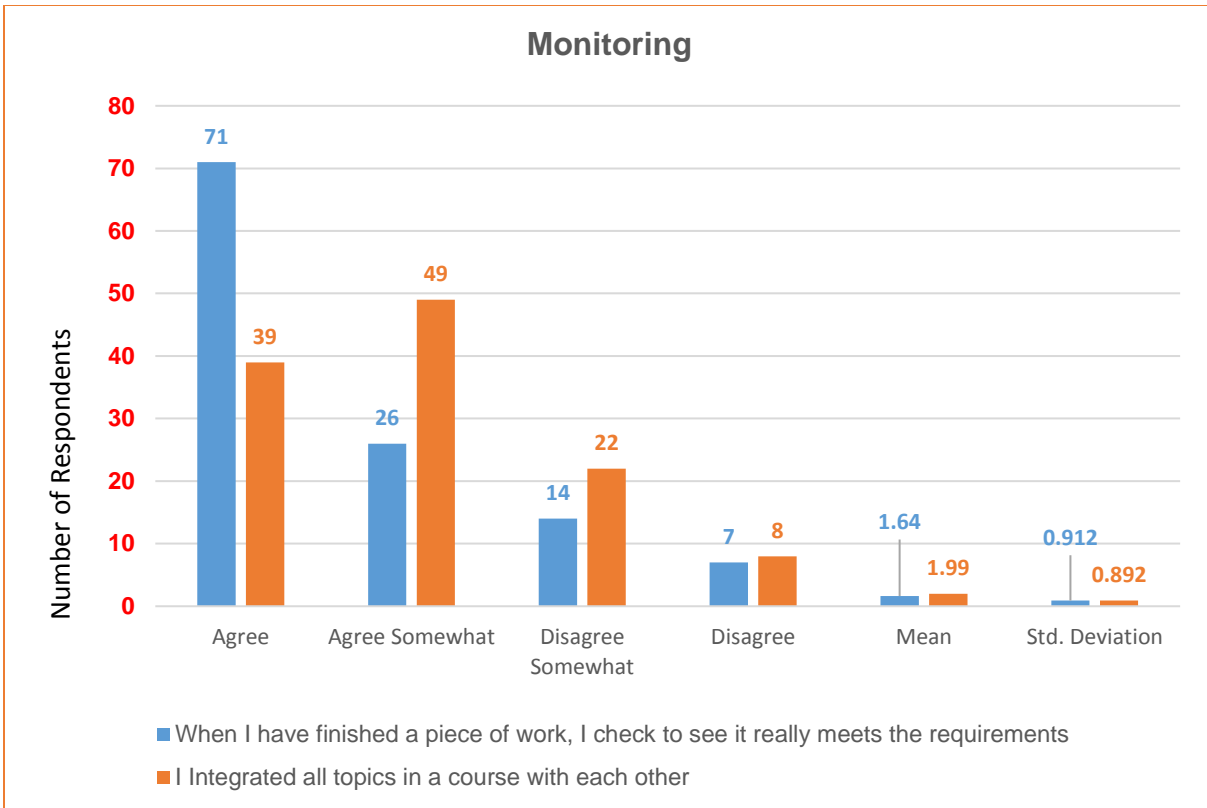


Figure 4.2 Monitoring of learning

The ALSI analysis concluded on the self-evaluation of learning. The analysis indicated that the respondents 79 (66.9%) agreed and 28 (23.7%) agreed somewhat that they go over their work to check their reasoning and see that it makes sense. Only five (4.2%) and six (5.0%) disagreed somewhat and disagreed respectively.

Similarly, about half of the respondents (n=60, 50.8%) agreed and 42 (35.5%) agreed somewhat that they mindfully summarise what they have learnt day in day out in their studies. Only 16 (13.5%) disagreed somewhat with the assertion. This is indicated in a bar graph of Figure 4.3 below.

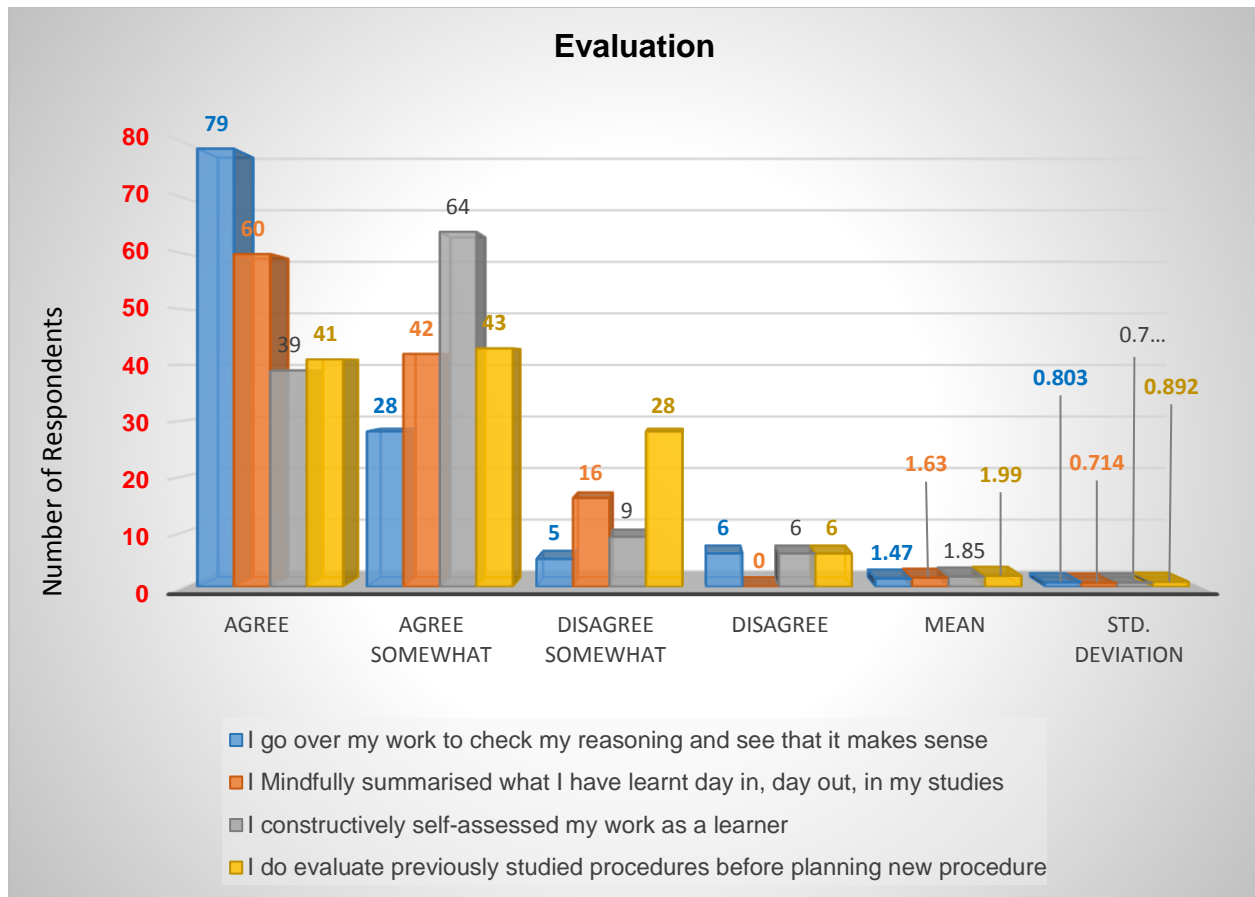


Figure 4.3 Evaluation of learning

A total of 39 (33.0%) agreed and 64 (54.2%) agreed somewhat that they constructively self-assessed their work as learners. With a mean of 1.85 and a standard deviation of 0.76, only nine (7.6%) disagreed somewhat and six (5.0%) disagreed.

Regarding self-evaluation, 41 (34.7%) agreed and 43 (36.4%) agreed somewhat that they do evaluate previously studied procedures before planning new procedures. However, 28 (23.7%) disagreed somewhat and six (5.0%) disagreed with the statement with a mean of 1.99 and standard deviation of 0.89. this is shown in the Figure 4.3 above.

4.3.2 Interviews: Theme 1. Acquiring Information

The thematic analysis generated the first theme acquiring information which was based on the utilisation of clinical skills laboratory in line with self-directed learning principles objective of the study. Further interpretation demonstrated the development of three sub-

themes demonstration (1.1), processing learning (1.2) and knowledge reassessment (1.3).

a. Sub-theme 1.1 Demonstration

Participants expressed their views and opinions about the principles of self-directed learning and suggested demonstration of procedures to the students before they are allowed to practice using the available principles of self-guidance. The participants stated that students were doing well with the ability to initiate their own learning, yet there were some areas with regards to the profession that needed an individual with an experience to guide them. The participants agreed self-directed learning happens in the clinical skills laboratory:

'I will say self-directed learning that is really what I see' (CF6).

'I think 80% of the time the students are using self-directed learning' (CF4).

'The self-directed learning you don't go and give the whole information or teach them the whole thing, if a student feels that he is not understanding then he will call for you because there are videos that they watch on the computers as well' (CF4).

Even though participants agreed with the self-directed learning principles, some participants believed there was a need to assist the students with demonstrations of the procedures. A participant said:

'with the first years they don't even understand what they are doing I can say am not sure about them they are just going up and down with little focus so, therefore, I think they need guidance in relation to a demonstration of the procedure first before they start' (CF3).

Apart from the demonstration of procedures by the facilitator to the students, participants also indicated that peer collaboration was eminent with the students in the clinical skills laboratory. The students could discuss with colleagues in the skills laboratory about procedures they are not familiar with and to ask questions during

their discussions among colleagues to facilitate their learning. The participant attested that they have witnessed the students collaborating during practice in the clinical skills laboratory.

'They have the guidelines and they use that to follow and ask other students when they need help from them' (CF1).

'Peer collaboration, some of them do, because I have realised they are always in pairs discussion in the clinical skills laboratory' (CF2).

'Regarding peer collaboration, yea I have noticed that they help each other during practice' (CF3).

'We also have the students working together with the peer groups so they learning from each' (CF4).

One participant, however, believed peer collaboration among the nursing students was sparingly seen and that few will try to assist their colleagues in the clinical skills laboratory.

'from my observation peer collaboration doesn't happen all the time, few will go out their way to assist their colleagues' (CF5).

b. Sub-theme 1.2 processing learning

Participants were required to give their views and opinions regarding students desire and their ability to plan for their studies in the clinical skills laboratory and their motivation to practice procedures. It came clear that participants believe the students had no desire to plan before coming to the skills laboratory. They aver that students just walked in any time they felt like to practice without planning what they were coming to do or rehearsing it at home. Two participants noted that:

'What I have observed, they come here before some of them start taking material to study and then start doing their competencies....Is like they usually don't come prepared, they start preparing when they are here at the clinical skills laboratory' (CF3).

'I think the students just come, no planning, there are those who came already prepared but there are those you see they just come for the

sake of coming to start everything here' (CF2).

Some participants rather had a contradicting opinion regarding students desire to plan before coming to the clinical skills laboratory. They believed there are some who plan before coming to perform the procedures. They stated that:

'Is not all of them that plan before coming, we have the books to cross check and see those that have booked if not we add them to the list' (CF1).

'I can say so since I came in here the students that are here are like they will have time to sit watch the video and then from then they come and ask for assistance' (CF6).

'They also have access to computers they watch videos on how to do the procedures before they ask to be assessed on a competency' (CF4).

'Students come to take the competency home to learn before coming to perform the procedures' (CF5).

c. Sub-theme 1.3 Knowledge reassessment

The participant believed that the students are not able to monitor their own learning but the facilitators do assist them to evaluate their learning in the clinical skills laboratory. They also thought that the accessibility of the competencies to the students in the clinical skills laboratory in a way facilitate their learning and helps the student to monitor what they can do before calling for assessment by the facilitator.

'We have the competencies accessible to the students so they practice using the competencies before they come to be evaluated by us facilitators as competent' (CF4).

'The facilitators help them to evaluate their studies by asking them what do you think about your performance today during the procedure?' (CF1).

4.3.3 Focus Group Discussion: Theme 1. Self-practice skills acquisition

The theme self-practice skills acquisition initially emerged as two main themes, self-practice and skills acquisition. These themes were merged after searching and reviewing themes. The theme is analysed based on the objective that sought to describe the utilisation of clinical skills laboratory in line with self-directed learning principles. Four sub-themes emerged from this theme; motivation and feedback (1.1), human resource and waiting time (1.2), plan to practice and self-evaluation (1.3) and proactive innovations and peer collaboration.

a. Sub-theme 1.1 Motivation and feedback

Participant asserted the communication in the clinical skills laboratory is very demotivating. The students stated they feel bad when other students are listening to the feedback that they are receiving from their facilitators during practice. They will prefer to take the feedback in a way that other students wouldn't know what it was about. They stated:

'Is not the best when someone is correcting me on something and another person is listening because some facilitators will be so harsh and you know someone will be listening and you end up so confused' (FYNS)

'The communication we have with the facilitators I don't think it is professional if I should say, some facilitators have their favourite students...I have cried several times in the clinical skills laboratory, there is inequality in the clinical skills laboratory regarding communication and feedback' (FINALS).

According to the participants, they go to the clinical skills laboratory sometimes, because is a requirement. This is because the way they receive feedback it doesn't motivate them, but they have to because of the requirement of the semester. In addition, believed that if the supervisors will follow them sometimes to the clinical area it will be a good experience.

'We just go there; we are not motivated at all...I learn more in the

hospital than in the clinical skills laboratory' (FINALS).

'Our motivation here is the hours and we do get to learn but the most are hours' (SYNS).

'I just come, get what I will be doing a day before send it to my room cram and cram then I come here watch when they are assessing someone and then I go grab a paper and then come and do mine...I just come to the skills laboratory and watch what someone else is doing and then I do mine' (TYNS).

b. Sub-theme 1.2 Human resource and waiting time

Participants discussing issues of human resource and waiting time in the clinical skills laboratory stated that, is good the postgraduate nursing education students are here to supervise them because apart from meeting new people they learn new ideas on how to do things in different ways. Their presence also reduces the waiting time in a clinical skills laboratory. They believed most of them are previous teachers and they empower them with their words of encouragement. The students stated they are relaxed and do things just like they are friends and if the student misses something or don't know they will correct them on what to do. They, however, agreed that there is a need for more clinical facilitators.

'it is good we get people from all over the world and not only South Africa to prepare us practically ready to work anywhere in the world after completion' (SYNS).

'I think there should be more facilitators who are qualified to help us in the skills laboratory because we come and meet only two facilitators and they rush from this to the other and therefore not able to teach us well' (TYNS).

'We have to wait until one is finished before another can start with this rule of only 2hours in the skills laboratory' (FYNS).

c. Sub-theme 1.3 Plan to practice and self-evaluation

Participants maintained that learning before coming to the skills laboratory is pointless, because they watch videos from other countries where people do the competencies in a different way with equipment that might not be available here. The students believed that although they do occasionally plan, it has not been a routine habit.

'It depends, sometimes I will plan what I want to come and do but other times the procedure is long so I just cram and cram' (FYNS).

'Yes, we learn before we go there, we go to the clinical skills laboratory to take paper and cram it and before we go and when we go we forget because some facilitators want everything systematically, you can't skip and come back if you remember and then they say you have failed' (FINALS).

'I don't also plan I just come in to see what I can do....I sometimes I do and other times I don't' (FYNS).

Some participants held slightly different opinions, stating that they did not plan before coming, but would do some practice by watching videos on the YouTube.

'We don't plan to come here, we just wake up and feel like not doing anything, so you go to skills laboratory to fetch the paper and go home and come back tomorrow then do it.... We don't plan we just come and take the paper, watch videos, ask a person who has done it and go do it same day' (SYNS).

Regarding the desire to evaluate what has been learnt so far, most participants stated they do not cross-check to confirm what has been learnt but move on to other material and start learning again. Some students stated that:

'when I'm done I don't check anything again.... But we learn more in the hospital' (SYNS).

'I don't do evaluation if I'm given some competence, when I'm done am done. I move to the next one there is no time to waste' (TYNS)

'I do not evaluate my studies sometimes but I have a picture of what I did' (FINALS).

d. Sub-theme 1.4 Proactive innovations and peer collaboration

The analysis indicated students believed peer collaboration is important to their self-practice and in their skills acquisition. They indicated that their peers are consulted in situations where they get stuck and need help to proceed on their practice. Others indicated that they sometimes have discussions about procedures they are coming to perform before they come to the laboratory.

'for me, we have a mini group with some of my colleagues, we decide on what we want to do and we just basically help each other' (TYNS).

'Yes we do, is much more comforting someone doing and you watching, also we do help each other with information to learn. We prepare together if we are coming to do the same competencies but if we are coming to do different competence then we don't' (FYNS).

'Sometimes we do consult our colleagues when we are confused on what we are doing' (TYNS).

Participants thought facilitators should be proactive and innovative to facilitate their self-practice and skills acquisition in the clinical skills laboratory. They believed being proactive and innovative would give them the opportunity to learn from the facilitators all the time and not only during the assessment. They believed being proactive will enable facilitators to create measures that will assist them in the clinical skills laboratory saying that:

'I think they need to supply both manual and automatic machines since we can't tell the type of machines we will meet when we get to the hospitals...things like bandages they just have only one and you find out that there are different types yet we have only one type here and this confuses us when we get to the hospitals' (SYNS).

'I also think that they should let us pick the materials on our own since that is what happens in the hospitals...they should have diverse

equipment for us to familiarise ourselves' (FYNS).

The analysis also showed most students believed it will be good if there are changes as to how many competencies are done in a semester, some competencies can be moved from one semester to another depending on how busy or free that semester might be. They indicated that it would be good for the future, to enable them to reduce their load. In order to make meaning of what they are practicing asking students to sit as a human element during practice rather than a mannequin during assessment will increase the confidence level of the students. This will help them in the hospitals when they meet the real patients.

'I think they must move some competencies from the third year to the second year because the third year is very busy and the second year is free' (SYNS).

'They do not spoon feed us, every time they make us go and find out ourselves its makes us remember because things you find yourself you hardly forget' (TYNS).

4.3.4 Convergent Validation of data of self-directed learning principles

The quantitative and qualitative data indicated that more than half the students in each data set agreed they are motivated to learn in the clinical skills laboratory. Fewer students were noted to have a plan before coming to the clinical skills laboratory whereas all the participants and the respondents noted that peer collaboration was evident during practice. While responses to the quantitative data indicated that more students monitored their studies, the qualitative data from the clinical facilitators did not support this claim. Tables 4.12 and 4.13 below give detail compilation of the data.

Table 4.12 Comparison of qualitative themes of objective 1

Item	Theme	Sub-theme
Interview	Acquiring information	Demonstration
		Processing learning
		Knowledge reassessment
Focus group discussion	Self-practice skills acquisition	Motivation and feedback
		Human resource and waiting time
		Plan to practice and self-evaluation
		proactive innovations and peer collaboration

Table 4. 13 Data triangulations for self-directed learning principles.

Quantitative data	Qualitative data	
	Interviews	Focus groups
<ul style="list-style-type: none"> • 70.3% agreed they are motivated to learn • half the sample (50.8%) agreed they plan their studies before coming to the clinical skills laboratory. • few students organise their studies (39.8%). • 60% check to see what they are learning (monitor). • few students (33%) constructively self-assess their work (evaluate) • many students (68%) agreed that they ask colleagues anytime the problems understanding some procedures (peer collaboration) 	<ul style="list-style-type: none"> • They are encouraged to learn • Participants believe more students are able to initiate their own learning and decides what they what to learn at what time. • They are not organised with their studies • Some participants believe students are not able to monitor their learning but facilitators assist them to evaluate what they have learnt. • participants believe peer collaboration is seen but sparingly among the students 	<ul style="list-style-type: none"> • Some students believe they are sometimes motivated to learn • We prepare sometimes but is not a routine habit of planning. • We just come to practice, no time to organise • Some students cross check what they learn. • Most participants will not check to evaluate what is already done. • Some students agreed peers are consulted when they get stacked with their studies. They also noted that discussions are done among colleagues about procedures.

4.4 OBJECTIVE 2. TO EXPLORE UNDERGRADUATE NURSING STUDENTS' VIEWS REGARDING CLINICAL SKILLS LABORATORY AS A LEARNING ENVIRONMENT.

This presents results from the questionnaire and findings from the interview and the focus group discussion.

4.4.1 Questionnaire

The undergraduates' perceptions of the clinical skills laboratory as a learning environment are indicated in Table 4.14. The respondents (n=31, 26.2%) strongly agreed and (n=66, 55.9%) agreed that the CSL environment is relaxed during teaching. However, two (1.6%) disagreed and four (3.3%) strongly disagreed with the claim. A total of 31 (26.2%) strongly agreed and 68 (57.6%) agreed that the atmosphere at the CSL is relaxed during lectures. A total of eight (6.7%) and two (1.6%) however disagreed and strongly disagreed respectively. Similarly, a total of 32 (27.1%) strongly agreed and 78 (66.1%) agreed that there are opportunities for them to develop their interpersonal skills in the clinical skills laboratory. That aside, four (3.3%) disagreed and four (3.3) strongly disagreed that there were such opportunities, with a mean of 3.17 and standard deviation of 0.645 as indicated in Table 4.14 below.

Of the respondents who believed the experience in the CSL was disappointing, 20 (16.9%) strongly agreed and 46 (38.9%) agreed. Approximately 30% (n=22, 18.6%) disagreed and 16 (13.5%) strongly disagreed with the statement that the experience in the CSL was disappointing. Regarding whether the atmosphere in the CSL motivates them as learners, 31 (26.2%) strongly agreed and 53 (44.9%) agreed, while five (4.2%) disagreed to the statement with a mean of 3.03 and standard deviation of 0.768 as shown in Table 4.14 below.

Table 4.14 Students Perception of CSL as a Learning Space

Item	Total (N)	Frequencies					Mean	Standard Deviation
		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree		
The atmosphere is relaxed during the CSL teaching	118	4	2	15	66	31	3.00	.877
This skill lab is well timetabled	118	6	14	14	51	33	2.77	1.135
Cleanliness is a problem in this skills lab	118	27	26	25	22	18	1.81	1.383
The atmosphere is relaxed during practice	118	2	8	9	68	31	3.00	.877
There are opportunities for me to develop interpersonal skills in the CSL	118	-	4	4	78	32	3.17	.645
I feel comfortable in class socially	118	4	6	6	76	26	2.97	.886
The atmosphere is relaxed during seminars/tutorials	118	2	4	26	65	21	2.84	.816
I find the experience in the CSL disappointing	118	16	22	14	46	20	2.27	1.318
I am able to concentrate well	118	-	2	25	63	28	2.99	.722
The enjoyment outweighs the stress of studying nursing	118	4	17	29	45	23	2.56	1.067
The atmosphere CSL motivates me as a learner	118	-	8	26	53	31	2.91	.867
I feel able to ask the questions I want	118	-	5	18	64	31	3.03	.768

4.4.2 Interviews: Theme 2. Learning space

This theme was analysed based on the views regarding clinical skills laboratory as a learning environment, the second objective this study sought to explore. Four sub-themes emerged from the theme and included; access to the space and equipment (2.1), organisation of the space (2.2), privacy during feedback (2.3) and technological innovations (2.4).

Regarding the learning space, some participants used words such as good, friendly, conducive to learning and a neat place to describe the environment within the clinical skills laboratory. They stated it was well poised and ready for students practical training.

'The environment is good because is a place where there is no noise, it is very calm, very comfortable and very clean....is meeting the objectives to which it was set' (CF1).

'so generally the skills laboratory is a good environment for them to practice because most of the time they are unable to practice at the clinical area due to many factors' (CF4).

'I see it as a good learning environment where students are able to access information and learn skills that are needed for their journey in the profession...with the environment, I will say is a good environment for the students to learn' (CF6).

Some participants, however, held some divergent views regarding the environment of the skills laboratory, relating it to a lack of adequate equipment for practice by students.

'well, I can say the environment is not that much conducive because some of the equipment are not available and students sometimes go up and down to look for equipment to practice' (CF5).

a. Sub-theme 2.1 Access to the space and equipment

Participants stated that there is access to the laboratory, as students can practice on their own and when they feel confident to be able to perform a procedure on their own they ask to be assessed on that competency. The available equipment is accessible to the students, except where some equipment is in short supply because of the number of students present.

'The equipment are well-arranged and that makes it easier for students since they are label according to the procedures' (CF2).

'With the accessibility of the equipment, I saw some issues there, some of the equipment is not readily available for the students' (CF6).

b. Sub-theme 2.2 Organization of the space

Participants also believed that the clinical skills laboratory is well equipped with regards to the way it is organized, and allows students to acquire skills during practice. The supervisors also ensure that students get the support they need at all the time in the clinical skills laboratory.

'I think for me it is well-organised' (CF5)

'I don't think that is a suitable setup even though it is well organised' (CF1).

c. Sub-theme 2.3 Privacy during feedback

The analysis indicated that participants view the clinical skills laboratory as a setup to facilitate clinical practice, as there are beds with mannequins and screens around for privacy. They indicated that every procedure here should maintain the basic principles of the profession for the students to learn. They felt that when a student does competence or perform procedures, there should be some degree of privacy, which is not allowed in current layout.

The participants complain that students end up standing and watching each other being assess, which can be intimidating and also the one watching learning what not to do when it comes to their turn. This will undermine the self-directed aspect that entreats the student to search his information before coming to practice. They believe the learning space is not conducive in regards to allowing for privacy for facilitators to feel free to give feedback and for the student to accept the feedback without been embarrassed.

'Even with the screen student will screen for privacy but that doesn't allow privacy of the student and there is no privacy for me as a facilitator to be able to feel free to give her feedback to the student' (CF1).

'There are instances where a student is a little bit embarrassed because you say, you know what I feel that you are not competent we should take this as a practice, continue practising and perhaps before you leave you can be reassessed to see if you are competent' (CF4).

'There have been times I am assessing a student and I have to tell the other students you know what, this assessment is between me and the student and that doesn't include you' (CF3).

Participants also noted that the learning space might not be of good use if students continue to come in and regurgitate the tool as it is without prior knowledge and without knowing the theoretical bases regarding the physiology that underpins the procedure he or she is performing on the mannequin. A participant stated that:

'I have also realised some the students are cramming....when I get a student like that I will just pop in and ask some questions to see if the student understand what he or she is doing' (CF6).

d. Sub-theme 2.4 Technological innovations

Participants believed the learning space is technologically competent and that what students need in the clinical skills laboratory is available. They stated there are computers mounted with internet connectivity at areas where the students use to access information to assist in their practice. In addition, they also noted that the skills laboratory has mannequins of various kinds, ranging from high through medium to low fidelity for students use.

'They have some computers students can watch some practice on the YouTube' (CF1).

'There are different mannequins, the mannequins here give the students the exposure of whatever skills they want to acquire.... and the way is being managed and controlled is good' (CF2).

'In a meantime, we got an area where students are able to access information on YouTube' (CF5).

With regards to the technological innovations, participants believed it was of some high standards, especially the mannequins, including the way they are maintained in the clinical skills laboratory.

4.4.3 Focus Group Discussion: Theme 2. Environmental analysis

The theme environmental analysis emerged with three sub-themes; good personnel (2.1), queues and time limitations (2.2) and scheduling (2.3). This theme was based on the objective that explored undergraduate nursing students' views regarding clinical skills laboratory as a learning environment. The findings under this theme indicated participants believed the clinical skills laboratory is clean and conducive to learning as it has the equipment to use for the practice. The interviewees mentioned items such as computers to watch videos that explain the procedures to them before practice as being very relevant. They considered it to be a good environment for learning as is quiet and up to standards. They said learning is efficiently progressing because the setting is not different from the hospital wards, which makes changing from the clinical skills laboratory to the hospital easy. Some stated that:

'I agree in terms of cleanliness; the place is very good for doing competence' (FINALS).

'Is beautiful, clean, student-friendly, it makes you want to learn...It is colourful, conducive, you can work on the material that they give us' (SYNS).

'Ok well is a neat and clean environment, is always kept that way and is a conducive environment for education as well as learning and we feel welcome' (TYNS).

Some participants, however, thought otherwise. According to them, the environment needs some rearrangement to provide privacy and reduce the noise and interruptions that are experienced from other students during practice. They believed the current situation where people practice whiles other watches procedures on YouTube is intrusive especially if a student is being assessed. They noted that:

'For me, I don't think the environment is good for learning because if am doing a competence and someone else is doing a competence or watching a video it distracts me' (FINALS).

'and if someone is talking and another is watching videos, you are not able to concentrate when you are being assessed' (SYNS).

a. Sub-theme 2.1 Knowledgeable and accessible personnel

The analysis indicated that the skills laboratory is where the students increase their confidence to perform procedures in the hospital. They indicated that it is self-directed learning, so they must research information about what they want to do before coming, and the facilitators are available during practice. The students believe the facilitators are very knowledgeable and had this to say about them:

'The personnel here are great, they do help us but they torment us sometimes, because, they make us start all over again, is a good, though, because it helps us to learn but sometimes I get scared I just mess up everything...if they make you repeat you learn...I get happy when I am here because I learn' (FYNS).

'Knowledge wise the facilitators are good...I think the facilitators are good and I have not seen any issues' (FINALS)

'I think it is the good environment we have the equipment to do the competencies and the facilitators do explain to us at the end the procedures what we don't understand' (TYNS).

The majority of the participants indicated they were happy with the way the facilitators treat them. They are able to access any help in relation to their practice from the clinical skills facilitators.

b. Sub-theme 2.2 Scheduling

The findings revealed that students prefer to walk in to practice instead of booking. Participants noted that the online booking system was difficult and poses a challenge to students who stay at a location without internet connectivity. They blamed the channels of communication used in the skills laboratory, stating it makes the process cumbersome and that when they book sometimes there is no response, and they had to wait for confirmation.

'I don't understand why we have to book, because if we come here they can write our names that we have come' (FYNS).

'There is a new system about booking, at first I tried to use it but I

couldn't...the way we communicate with the clinical skills laboratory is the problem...It was fine at first but now with the emails is difficult' (FINALS).

'We understand this is not a hospital, but the booking sometimes you book and you do not get the response and you have to wait until the confirmation comes' (TYNS).

Another issue that came out during the analysis was the disparity between the clinical skills laboratory environment and the hospital environment. Participants noted the clinical skills laboratory environment lacked some logistics including the patient interaction which is available in the hospitals. They stated that:

'the difference are that we deal with real people in the hospital, if you checking for blood pressure you checking for real people, and there is a huge difference' (FYNS).

'These videos, most are from the US and they have different equipment and are well advanced than usso there is difference' (FYNS).

Participants also noted that apart from the aforementioned, disparities also existed in the way they access material for their practice. According to the students, all materials needed in clinical skills laboratory are arranged already and brought to them in a basket, whereas in the hospital you have to go and look for it, based on what procedure you want to perform and your client's needs. They believe this hampers their learning ability regarding how fast they are able to link the equipment needed in each procedure, and makes it difficult for them to practice in the hospitals when they are sent to pick instruments during procedures.

'if we request, they bring what we want in a basket and I think is wrong. We must be allowed to go there to look for what we want because at the hospital I was told to take some instrument I didn't know what it was because I was always given a basket to practice... they should allow us to take the things ourselves so that we know what we need not be given to us' (FINALS).

'they should allow us to take the things ourselves so we know what we

need not to be given to us...after all it is self-directed learning environment' (TYNS).

c. Sub-theme 2.3 Time limitations

One key limitation all participants observed was the duration students are allowed to stay in the clinical skills laboratory to practice. They indicated that there is a 2-hour allocation for each student per day, which they considered to be inadequate, as there are not enough facilitators to attend to them on time. In addition, some materials are too few for the number of students, who then have to wait to use them.

'I feel we limited in terms of time, I remember in first years it was very hard to get all your competencies done on time. This was because you have to compete with your peers for logistics and for a facilitator' (FINALS).

'Is clean environment it has most of the equipment but just the time that do limit us...I think the environment is good but the time is limiting us...It is really hard in the third year to complete the competencies' (TYNS).

'I don't think it is all that good because, sometimes we need to do a particular competency and because of inadequate equipment we have to wait, if someone is already using it until she is done before we can get the opportunity to use it' (FYNS).

4.4.4 Convergent Validation of data for students' view of the learning environment

The triangulation indicated that data from quantitative questionnaire showed that more students believed the clinical skills laboratory environment is good for learning, and the qualitative data from the focus group discussion recorded students as saying the environment is neat, good and conducive for clinical learning. In addition, the qualitative data from the clinical facilitators indicated that the environment is well suited for students' practical training. Tables 4.15 and 4.16 show the results as were recorded from the participants.

Table 4.15 Comparison of the qualitative themes of objective 2

Item	Theme	Sub-theme
Interviews	Learning space	Access to the space and equipment
		Organization of the space
		Privacy during feedback
		Technological innovations
Focus group discussion	Environmental analysis	Good personnel
		Scheduling
		Time limitations

Table 4.16 Data triangulation of students' view on the environment of the CSL

Quantitative data	Qualitative data	
	Interviews	Focus groups
<ul style="list-style-type: none"> More students (82%) believed the environment is good for learning but need improvement 	<ul style="list-style-type: none"> All the participants noted the environment is good for learning purposes and is it well poised and ready for students practical training 	<ul style="list-style-type: none"> Students noted the environment is neat, good and conducive for effective practical skills learning.

4.5 OBJECTIVE 3. TO EXPLORE THE ACADEMIC SELF-PERCEPTION OF UNDERGRADUATE NURSING STUDENTS LEARNING EXPERIENCE IN THE CLINICAL SKILLS LABORATORY.

This objective also consisted of three components, the quantitative survey questionnaire, the qualitative interviews and focus group discussion, it is being analysed as per the mixed methods framework in triangulation.

4.5.1 Questionnaire

Regarding the academic self-perception of students in the clinical skills laboratory, various responses were made by respondents. A significant number of respondents 56 (47.4%) strongly agreed and 48 (40.6%) agreed that they are confident they will pass this year. Only one (0.84%) disagreed and 13 (11.0%) were uncertain whether they will pass this year or not. Similarly, 37 (31.3%) strongly agreed and 57 (48.3%) agreed that they were being well prepared in their profession, with two (1.6%) disagreeing and five (4.2%) strongly disagreeing with the assertion.

In relation to problem-solving skills development in the clinical skills laboratory, 30 (25.4%) strongly agreed and 67 (56.7%) agreed that their problem-solving skills are being well developed with regards to the practice environment. With a mean 3.01 and 0.811 standard deviation only six (5.0%) disagreed and one (0.84%) strongly disagreed with the statement that their problem-solving skills were being well developed. Also, 45 (38.1%) strongly agreed and 55 (46.6%) agreed that much of what they had to learn seemed relevant to their career in healthcare. However, six (5.0%) disagreed and three (2.5%) strongly disagreed with the assertion with a variation of 0.939 of the mean 3.13. The Table 4.17 below shows the details.

Table 4.17 Students' Academic Self-perception in the CSL

Item	Total (N)	Frequencies					Mean	Standard Deviation
		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree		
Learning strategies which worked for me before continue to work for me now	118	-	11	16	69	22	2.86	.826
I am confident about passing this year	118	-	1	13	48	56	3.35	.709
I feel I am being well prepared for my profession	118	5	2	17	57	37	3.01	.956
Last year's work has been a good preparation for this year's work	118	9	17	13	49	30	2.63	1.225
I am able to memorise all I need	118	2	13	19	63	21	2.75	.935
I have learned a lot about empathy in my profession	118	-	5	12	69	32	3.08	.735
My problem-solving skills are being well developed here	118	1	6	14	67	30	3.01	.811
Much of what I have to learn seems relevant to a career in healthcare	118	3	6	9	55	45	3.13	.939

4.5.2 Interviews: Theme 3. Pursued objectives.

The third theme consisted of control measures (3.1) and linkage/meetings (3.2) as sub-themes. The clinical facilitators noted the institution does its best by monitoring and recording all the hours students cover for references and also for the South African Nursing Council's confirmation. This includes several strategies, including planning and monitoring the students, empowering them and giving them the necessary links to academically progress.

a. Sub-theme 3.1 linkages and meetings

Participants agreed that for students to have a better academic self-perception there must be links and meetings between the clinical facilitators to discuss what is relevant to the students, and to have a harmonious way to operate as clinical

facilitators. Speaking one language regarding supervision, they suggested could facilitate and bridge the way they assess students in the clinical skills laboratory in a way that will empower students' academic self-perception. Participants stated:

'There is a need for us to have meetings to discuss what to do for the students to benefits' (CF1)

b. Sub-theme 3.2 Control measures

Participants suggested that control in the clinical skills laboratory will empower and motivate students to positively perceive their academics. They also believe having schedules will give facilitators idea about what students are doing at what time, whether students are there for a practice or for assessment, which will enable they the facilitators to decide if they should be available. Participants believed having control measures will make students see the clinical skills laboratory a simulated area for the hospitals. Some participants said:

'Is just that there are things that we should confront, for instance, the control measures.....in the clinical skills laboratory we must not focus on hours attended, but it should be what skills were assessed on or learnt, that counting of hours must be controlled' (CF3).

'You get the odd time that maybe the students have booked but wouldn't come and no reason is given because there are no controls' (CF2).

4.5.3 Focus Group Discussion: Theme 3. Academic introspection

This theme emerged with two sub-themes; certainties (3.1) and uncertainties (3.2). The theme was based on the objective that explored the academic self-perception of undergraduate nursing students of learning experiences in the clinical skills laboratory. Participants believed that learning this year is better, and that things become clearer as they progress towards the final year. Some stated that:

'For this year the learning strategies is much better... because I am now able to do most of the things in the hospital' (SYNS).

'Learning in the clinical skills laboratory is good because when you are in the clinical area and you have been exposed to the procedures in the skills

laboratory it makes it easier' (TYNS).

a. Sub-theme 3.1 Certainties

According to the participants, there are areas in their academic training that they found certain and could predict what will happen, as long as things do not change and remained the same. Students believed the nursing module was better because there is progression in their practice. One participant said;

'I feel certain for some modules that I am gonna pass anyway...because I can see my progression and am happy with that' (FYNS).

'I think am more competent now for practising in the clinical skills laboratory and therefore academically I am positive about my progress' (TYNS).

Some students agreed that clinical skills laboratory is a good environment to learn and that it helps them and gives them some certainties on what to expect in the hospitals before they get there. Although they agreed it is not a complete learning area, it does give them an idea of what should be done. According to the students, it will be nerve-racking if they do not practice and only encountered things for the first time in the hospital.

'It helps and gives you some ideas to learn, if you don't practice and go to the hospital seeing it for the first time such as putting the catheter for the first time it will be difficult' (FINALS).

'this place is not a complete learning area, just that it exposes us to the other learning areas and as nurses from the university it offers us the confidence and the awareness of what we should expect in the hospitals before we go there and also helps us with integration as students' (TYNS).

Regarding the belief of the students, the clinical skills laboratory environment gives them some certainties as far as their academics are concern. As they perform the procedures on the mannequins there is an assurance that they will not hurt anybody

if they make a mistakes.

b. Sub-theme 3.2 Uncertainties

All the participants agreed that there were some aspects of their academics they are not sure which turn is taking, because it was uncertain to them. Some students stated that;

'There are times, I think that man I'm gonna repeat this module but it differs, certain modules the stress you feel for it is heightened...I have it that, for some modules, I think I will get supplementary' (FYNS).

'for me, in the first year I didn't have that much confidence because I had to take the paper cram it so that when I get there I can just be confidence at once...because it is a self-directed learning and no one is teaching me I had to do it all by myself and sometimes I am just not sure what will happen' (FINALS).

What also heightens their uncertainties was the fact that they practice on mannequins that do not interact. They become concerned and uncertain of what will happen if they perform this same task on someone who can interact with them, how will they handle it. Students agreed that although the facilitators assess them as competent, they still feel uncertainty as to whether if they meet the real patient in the ward will they be competent. They believed that;

'practicing on the dolls is different from practice in the hospital on the real human...in the clinical skills laboratory if you want to put a drip there is a hole in the doll you put it there, in a life patient you have to find it and is difficult' (FINALS).

'The facilitators will say you are competent with the doll, how can you be competent with a doll?' (TYNS).

The analysis revealed that participants consider the clinical skills laboratory as not the same with the hospitals, and this makes things uncertain for them on what to expect in the hospitals. They believed that:

'it is different, you need to learn how to do everything fast when you are here...for instance when we are demonstrating on how to do bed pan, in skills laboratory we normally say, hey how are you and my name is... but when you get to the hospital it totally different' (SYNS).

The students agreed that sometimes what they do in a clinical skills laboratory is done differently in the hospitals. They worry that they are doing procedures here and when they get to the hospital the same procedures will be done in a different way and it leaves them with a lot of uncertainties. In addition, they were concerned about using wrong tools in the clinical skills laboratory or an old tool that is no longer being used in the hospital. They raised issues such as;

'I have perfected a procedure with a wrong tool and when I get to the ward am going to learn again with the right tool' (TYNS).

'In the first year, I remember they were using an old outdated thermometer in the clinical skills laboratory and when I got to the hospital they were using the new ones and I didn't know what to do' (FINALS).

The participants also noted that the staff nurses do not explain things to them with an excuse that if they are not taught, they should go back to school and learn. Some students noted some staff telling them:

"go back to the school and learn it,' they will not teach you how to use any equipment you are not familiar with...I think is difficult, if there is no one there to teach you' (SYNS).

'a facilitator will just show you something once and the rest is on you...is like you learn yourself, you not very confident in doing whatever you have to do and is very frustrating for us as students' (FINALS).

4.5.4 Convergent Validation of data of students' academic self-perception

The findings regarding the academic self-perception of the students indicated more students (88%) from the quantitative data showed positive academic self-perception,

which was also indicated by qualitative data that emerged from the focus groups discussions. According to the findings from the clinical facilitators, they believed students have a positive academic self-perception. The Tables 4.18 and 4.19 below give the detail of the findings from quantitative and qualitative data for the objective under consideration.

Table 4. 18 Comparison of qualitative themes of objective 3

Item	Theme	Sub-theme
Interviews	Pursued objectives	Control measures
		Linkages (meeting)
Focus group discussion	Academic introspection	Certainties
		Uncertainties

Table 4.19 Data triangulation of students' academic self-perception

Quantitative data	Qualitative data	
	Interviews	Focus group
<ul style="list-style-type: none"> More students (88%) have positive perception of their academic progression 	<ul style="list-style-type: none"> Participants believe the students get the best learning space from the institution so should have positive academic self-perception. 	<ul style="list-style-type: none"> More students noted their academics are progression and certain.

4.6 OBJECTIVE 4. TO DESCRIBE THE UNDERGRADUATE NURSING STUDENTS' PERCEPTIONS OF LEARNING IN THE CLINICAL SKILLS LABORATORY

The objective consisted of data from quantitative being a questionnaire survey and a qualitative made of interviews and focus group discussions.

4.6.1 Questionnaire

The respondents had various ratings with regards to their perceptions of learning in the clinical skills laboratory. Of the 118 sampled, 30 (25.0%) strongly agreed and 69 (58.4%) agreed that teaching in clinical skills laboratory is stimulating, whereas only seven (5.9%) disagreed with the statement. Likewise, 43 (36.4%) strongly agreed and 56 (47.4%) agreed with the assertion that the teaching is student centred with a mean 3.13 and a standard deviation of 0.86, only nine (7.6%) disagreed. Regarding the statement, whether teaching is well focused in the clinical skills laboratory, 32 (27.1%) strongly agreed and 62 (52.5%) agreed that the teaching is well focused. With a mean of 2.94, only seven (5.9%) and four (3.3%) disagreed and strongly disagreed respectively. The respondents 26 (22.0%) strongly agreed and 73 (61.8%) agreed that teaching is put to good use in the CSL, only two (0.84%) disagreed and four (3.3%) strongly disagreed with the statement.

The respondents believed that teaching in the CSL encourages them to be active learners, as 39 (33.0%) strongly agreed and 62 (52.5%) agreed to the assertion. However, respondents had some divergent opinions whether the teaching in the CSL was teacher centred. Even though majority 39 (33.0%) agreed and 17 (14.4%) strongly agreed to the statement, a considerable number, 27 (22.8%) disagreed and 14 (11.8%) strongly disagreed with a mean of 2.15 and a standard deviation of 1.26 (Table 4.20).

Table 4.20 Students' Perception of Learning in the clinical skills laboratory

Item	Total (N)	Frequencies					Mean	Standard Deviation
		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree		
I am encouraged to participate in class	118	4	6	8	49	51	3.16	.995
The teaching is often stimulating	118	-	7	12	69	30	3.03	.773
The teaching is student centred	118	-	9	10	56	43	3.13	.863
The teaching helps to develop my competence	118	4	-	15	51	48	3.18	.902
The teaching is well focused	118	4	7	13	62	32	2.94	.963
The teaching helps to develop my confidence	118	4	6	14	62	32	2.95	.950
The teaching time is put to good use	118	4	2	13	73	26	2.97	.842
The teaching over-emphasizes factual learning	118	16	74	20	4	4	1.20	.843
I am clear about the learning objectives of the course	118	2	2	15	66	33	3.07	.792
The teaching encourages me to be an active learner	118	4	4	9	62	39	3.08	.921
Long-term learning is emphasised over short-term learning	118	2	4	28	63	21	2.82	.823
The teaching is too teacher-centred	118	14	27	21	39	17	2.15	1.265

4.6.2 Interviews: Theme 4. Acquiring knowledge

This theme was linked with the objective that explored nursing students' perceptions of learning in the clinical skills laboratory. Three sub-themes emerged relating to faculty collaboration (4.1), material reinforcement (4.2) and personnel inadequacy (4.3).

a. Sub-theme 4.1 Faculty collaboration

Participants believed there is a need for them to collaborate as clinical facilitators to assist the students in acquiring the needed knowledge during practice. They also saw collaboration as a key area that could change the environment where the students practice, as that will harmonise the way procedures are performed in the clinical skills laboratory. They asserted that collaboration should not be the clinical facilitators only, but will be best if the lecturers that are not part of the facilitating team can participate. One participant stated that:

'I see that sometimes it will be good the lecturer teaching them to try and verifies and have a discussion with the clinical facilitators' (CF1).

The clinical facilitators maintained that collaborating and providing one area for practice and another for waiting will facilitate learning in the clinical skills laboratory. The analysis also revealed participants' views that students should not spend more time in the clinical skills laboratory but they should rather spend time in the wards where they will be meeting real patient to do what they need to do, but that this would only be possible if there is a cordial link between the facilitators, lecturers and the clinical nurses. A participant suggested that:

'It shouldn't be all of them at the same time in the practice area, they should be controlled with a practice and a waiting area I suggest' (CF2).

The findings indicated that participants believe coming together as facilitators to urge the rearrangement of the learning environment would be a good idea, to enable access for specific things, such as midwifery, like the pelvis, which must be arranged when it is needed. Having stations set up already within the area will speed up preparation and facilitate learning for the students during practice. Some participants stated that:

'Really there are few changes that we can make to improve the skills laboratory, like having station setup already' (CF4).

'Also ideally, it will be right if we should have a dressing room set up

because in the real life we got the duty room and dressing room setup' (CF6).

'For teaching purposes, you could have an area where you have cupboards, where you have medicine trolley' (CF5).

b. Sub-theme 4.2 Material reinforcement

The analysis revealed that participants had no problem with students using expired consumables to practice, if only the student will always tell them where the expiry date is and indicate that they must check it before performing the procedure. Participants suggested that expiry dates that exceeded one year should be removed. Much of the participants recommended more equipment and mannequins stating that:

'There is also some equipment that needs to be changed to make things better for students to work comfortable' (CF1).

'Regarding old resources, it true that this is a clinical practice area and it doesn't matter about the expiry dates but there are some things that are very old' (CF6).

'supply of enough consumables will be good.....the trolleys are not having enough equipment; this may be the reason why the students are not even coming for practices' (CF4).

The findings indicated that participants believed introducing the high-fidelity simulators for the undergraduate nursing students will be a step to improve their practical knowledge. This would be very useful because students would be able to do hands on, due to the degree of fidelity, the mannequin responds to the nursing interventions performed by the student. Some participants mentioned that:

'I do think, actually they should be introduced from the first year on how to use the high-fidelity mannequins' (CF3).

'If you should give patient medication or fluid you make that adjustment on your computer so that it matches to the response of the patient and that is what our students want to see, that the patient is responding to

the intervention' (CF2).

'if you do blood pressure monitoring on the medium fidelity, the apparatus will not indicate any reading but on the high fidelity, if you allow it to calibrate the result shows on the computer and the student sees as the patient's blood pressure reading and then they can interpret the findings....so is not only about performing the procedures but to interpret the findings is key....it will be advisable all undergraduates use the high-fidelity simulators' (CF6).

c. Sub-theme 4.3 Personnel inadequacy

The findings indicated that the clinical facilitators hold the opinion that the clinical skills laboratory has inadequate personnel. Participants suggested that students should be advised to use the skills laboratory more often and not just for completing their hours if the staffing problems were addressed. If the students practiced frequently they would be competent in whatever procedure they were doing. They believe the clinical skills laboratory simulates whatever happens in the hospital, and that adequate staffing is imperative for proper monitoring and assessment of students before they come into real contact with patients in the hospitals.

'I think the skills laboratory especially for this big institution, needs its own personnel to run the place...there should be enough permanent professional staff to all the levels as required from first to fourth years...Personnel and facilitators are really small in number here and need to be increased' (CF2).

'I recommend an increase in the human resource who can assist in the clinical skills laboratory' (CF3).

'Is difficult if there is only one person assigned to the skills laboratory, you can't see to every student at the same time, is impossible' (CF4).

A participant also suggested having a permanent in-house professional clinical facilitator who will ease the issues of arranging and setting the equipment to best simulate a hospital. A participant made a mention that:

'I think it will help if there i an in-house clinical skills facilitator in the skills laboratory...it will be ideal to have all equipment arranged well for students but, once again it will require someone in the field to manage that properly' (CF5).

The analysis also made it clear that demonstrating the maiden procedures to the students are important to the facilitators. Some participants believed that students, especially the first years, are just theorising and that they need help, as after practising, they would be performing the same thing to the real patient, and knowing the right way to carry out procedures is important.

'first years should be treated differently from other groups because they really need guidance' (CF3).

Participants felt because of the inadequate personnel in the clinical skills laboratory the control systems are either not effective or not present at all. They indicated it can sometimes be very noisy, and that there should be ways to reduce the noise. They believe putting in some control mechanisms will keep students within boundaries, but that this cannot be done with only one clinical facilitator on duty.

'For me, the place is not well controlled yes, it is true we depend on the readiness of students but in a controlled manner...also, there seems to be a sort of congestion, may be not the arrangement but the control strategies' (CF1).

'There must be a control as to how many can be allowed into the skills laboratory' (CF2).

4.6.3 Focus Group Discussion: Theme 4. Progressive learning

The theme progressive learning emerged with two sub-themes; areas to learn (4.1) and areas to improve (4.2). The theme was linked to the objective that sought to describe the undergraduate nursing students' perceptions of learning in the clinical skills laboratory. The analysis indicated that students believed learning in the clinical skills laboratory is good and encouraging. They noted that their knowledge in academics are growing

because they get to learn things before they go to the hospital. Some so the participants claimed, the clinical skills laboratory also adds to what they learn in class because sometimes they read from a slide and finds it abstract. However, if they practice, it helps to understand what they learnt in class and they are able to fill the gaps.

'I believe I do gain knowledge...it is really helpful and then so I think learnings is going on' (SYNS).

'I think learning here is self-directed and anytime we watch the videos and need help we call for help...so I think skills laboratory promote learning' (FINALS).

'the skills laboratory helps a lot because we sometimes dodge theory but by doing practical here it helps us' (FYNS).

'When you work with the mannequins and gets to the real people they can be intimidating and indicating if you are making a mistake but with practice on the procedures in the clinical skills laboratory we are getting there' (TYNS).

Participants believed learning is progressing in the clinical skills laboratory and it helpful and conducive to learn there.

a. Sub-theme 4.1 Areas to learn

The analysis indicated that participants are concern about the areas to learn.

Some of the students believed learning in the clinical skills laboratory help them to acquire knowledge from different people in different ways through, the competencies and videos. They also indicated that there are very experienced people as facilitators, who guide them on the areas to learn in the clinical skills laboratory.

'We get knowledge from them and through finding things and learning about a lot of things' (SYNS).

b. Sub-theme 4.2 Areas to improve

The findings revealed that the participants believed the clinical skills laboratory can improve their learning by providing the things that make the hospitals different from the clinical skills laboratory. They, however, noted that practising with the

mannequins are difficult because it can't react. The majority of the participants believed it would be best to engage with the patient during practice or if the mannequins could react so that they would know what to do in those instances so as not to go to the hospital to make mistakes which could have been prevented by the mannequins in the clinical skills laboratory. Some participants noted it will facilitate their learning should the facilitators at least call them in a group to demonstrate the procedure before they go to the skills laboratory to practice. Some students stated:

'I believe learning can also improve by getting those things that make the hospital environment different from here so that it will simulate the hospital environment perfectly' (FYNS).

'we need someone to show us or teach us or maybe someone to teach us in a class before we go to the skills laboratory and then we can do the procedures well' (FINALS).

'I still have an issue with doing it on the doll, because is different when you go to do it on a real patient because a patient can move but a doll doesn't move when you do it' (TYNS).

4.6.4 Convergent Validation of perceptions of learning in the clinical skills laboratory

The findings showed that both quantitative and qualitative data indicated the same results. More students (93%) had a positive perception for learning in the clinical skills laboratory and believed learning is stimulating and interesting in the skills laboratory. In addition, both the students and the clinical facilitators from the interview believed, learning is progressing in the clinical skills laboratory. The Table 4.21 and 4. 22 indicate the results compared from both data sets.

Table 4.21 Comparison of qualitative themes of objective 4

Item	Theme	Sub-theme
Interview	Acquiring knowledge	Faculty collaboration
		Material reinforcement
		Personnel inadequacy
Focus group discussion	Progressive learning	Areas to learn
		Areas to improve

Table 4.22 Data triangulation of perception of learning by students in the CSL

Quantitative data	Qualitative data	
	Interviews	Focus groups
<ul style="list-style-type: none"> • More students (93%) believe learning is stimulating and interesting in the clinical skills laboratory 	<ul style="list-style-type: none"> • All participants hold some opinion that learning should be perceived positively by students in most sectors of the clinical skills laboratory. 	<ul style="list-style-type: none"> • More students noted they enjoy to practice in the clinical skills laboratory and that learning is progressive

4.7 OBJECTIVE 5. TO EXPLORE THE UTILISATION OF THE CLINICAL SKILLS LABORATORY IN LINE WITH THE SOUTH AFRICAN NURSING COUNCIL’S REQUIREMENTS.

The objective presents data from qualitative data consists of interviews and focus group discussions.

4.7.1 Interviews: Theme 5. Training conditions

The theme training conditions emerged from the objective that sought to explore the utilisation of the clinical skills laboratory in line with the South African Nursing Council requirements. This theme upon readjusting came out with three sub-themes; Equipment accessibility (5.1), facilitator interventions (5.2) and disparities between skills laboratory and the hospitals (5.3). This objective was curved to explore whether the utilisation of the clinical skills laboratory is in line with the South African Nursing Council requirement.

a. Sub-theme 5.1 Equipment accessibility

The analysis revealed that clinical facilitators would prefer the students to use protective wears just like they do when at the hospitals. They believe this will prepare the students for the culture of the profession and to make them get used to those wears and to learn how to perform procedures with the protectives on.

'Things like masks and aprons although we have them we don't keep it free in the skills laboratory for students to use and most of the time they don't use either by not asking or we not giving to them to use' (CF4).

Participants underpin the importance of the clinical skills laboratory as one of the units that are needed within every health training institution, as students get theory from the class go there to practice. They believed the place is relevant in terms of practice, from class the student is unable to reach the ward to practice what has been learnt. So, according to the facilitators is fair for the student to come to the clinical skills laboratory and see the mannequins, practice on them to sharpen the skills during a procedure before meeting a real patient.

'Though practice on the mannequins might not be the same but when the student meets the real patient it will not take much time in the ward to perfect the skills practised' (CF6).

'I believe learning do take place in the clinical skills laboratory' (CF3).

'I know the clinical skills laboratory provides the students with the opportunity to practice to achieve their competencies before reaching the clinical area' (CF5).

b. Sub-theme 5.2 Facilitator interventions

According to the participants, they have always intervened a lot of times to assist the students to meet the conditions of their training. They believe as they facilitate, is their role to empower the students and take them out of the situation of only trying to meet the regulatory body requirement, bring them to the reality and make them understand that this is something that they will do to save lives and must be accountable and responsible for what they do as nurses now and in the future. Students need to learn to have a discretion that is professionally benefiting to the patient, whatever the discretion that it might be, self-directed learning is good because it stimulates critical thinking, but at the end of the day, students need the support to whatever critical thinking part they acquire relating to real life situation.

'we always intervene as clinical facilitators and sacrifices ourselves to assist the students because the human resource is inadequate' (CF1).

'But I do tell them, nursing is not about hours we are to do things to understand because skills laboratory is where we practice with mannequins but things are different when you are dealing with a human being...I can say learning takes place here but depends on the facilitator who is ready to intervene and assist the student' (CF3).

'In the situation, they don't perform well with the competencies you tell the student in the proper way that you still need to do this and the student get the chance to go and practice and come and repeat the procedure' (CF6).

Participants hold the opinion that they do intervene a lot of time to make students gain the appropriate knowledge in the clinical skills laboratory. They, however, do this when the student is ready for assistance from the facilitators. they stated that:

'The time that we actually go in to correct the students is when we see something that is not supposed to be happening then we correct the student, we don't restrict the students' (CF4).

'Also, students that are lacking behind we do allow them to book or come when they are free. I will not force anybody through when I feel

they are not competent' (CF5).

The analysis indicated that some of the clinical facilitators view hours as important only when students have been in the ward practising and working with the real patient or implementing whatever they have learnt in class. They would not consider hours for practice in clinical skills laboratory because that should not be considered as compared to the hospital environment.

'For me, skills laboratory is just to practice, I wouldn't say if a student is here he has met some hours' (CF6).

c. Sub-theme 5.3 Disparities between skills laboratory and the hospitals

The participants noted that performing on a mannequin is not the same as performing on a life patient in a hospital. According to them, they feel the students are learning two separate things that should have been one. Another area they noted brings disparity was watching different videos from other countries that sometimes have different ways of performing one task.

'It will be nice to have the clinical facilitator standing by when the student is doing his first injection on a real patient for instance but unfortunately, this is not so....we are depending on the registered nurses and the truth is performing an injection on the mannequin is different when performing it on a real-life patient' (CF5).

The analysis also indicated that students work both in Government hospitals and private hospitals and what is happening in private hospital is not necessary the same thing that happens in the government hospitals. So, they get confused and needs direction from the facilitators. Also, it was noted that a lot of the things that are happening in the clinical area is different in the clinical skills laboratory, so students try to do things based on what they see in the clinical area, when corrected they still do the same thing again, because they learn different ways of doing things.

'so for me it is like there is a separation of what is done in the clinical area and what is done in the clinical skills laboratory...students are even

saying they are frustrated, you cram and do this and is not the real patient and you go and meet the real patient and is another issue' (CF6). 'They practice in isolation; students need to know that you will not be only assigned to administer an injection. They should be able to link the activities and how each is done. The competencies are separated here yet in the clinical area they could be five competencies in one' (CF5).

Participants noted that it is important when students come to the clinical skills laboratory, they should come with the relevant theory because most of the students come with their focus only on the competency form. A participant mentioned that:

'student will say I am going to record or document and do medical asepsis when you ask them why, because the form says it but, in reality, what should be done' (CF5).

It was again revealed that what is done in the hospital should be simulated here to allow student similarity when practising. Measures such as no phones and use of protective wear in the hospital should be obeyed here when students come for practice.

'I think some of the protectives wears need to be here like the masks and aprons for students to use when they come to practices' (CF1).

'the way students come into this skills laboratory with phones can be distracting...Sometimes you find them busy reading messages while they are supposed to be spending the time doing procedures....Is not easy to be there supervising students and on another side, you see other students busy with phones. Cell phones shouldn't be allowed in the skills laboratory' (CF4).

4.7.2 Focus Group Discussion: Theme 5. Provisions and regulations

The theme provisions and regulations emerged in relation to exploring the utilisation of the clinical skills laboratory in line with the South African Nursing Council requirements. This theme emerged with two sub-themes which included; legal lessons (5.1) and

meeting the hours (5.2). The students believed regulations by the South African Nursing Council (SANC) demands them to meet a certain number of hours in clinical and in the clinical skills laboratory. They are supposed to cover this in order to get approval from SANC. Participant believed it was mandatory that they study in accordance with the SANC regulations before they complete. So they stated that:

'Both the school and students we do follow SANC regulations in order to meet the requirement' (FINALs).

'obviously, the university has a structure in terms of management and is their primary objective to make sure what we do here is in accordance with the South African Nursing Council's requirement...we work in the clinical area almost the whole year while we still attend lectures and I believe is because we have to meet the South African Nursing Council's requirements.

Even the arrangement on where we start and how we continue is linked to what the regulations prescribe for us to do, (TYNS).

'The school helps by splitting the days in the week that makes it easy for us to follow and to complete the South African Nursing Council's requirement' (SYNS).

All the participants alluded to the fact that the clinical skills laboratory has booklets with a list of competencies to be done within a semester or year as a requirement and they are given certain hours to complete in both clinical skills laboratory and hospitals. Some students noted, they are just there to complete their hours. A participant said;

'I was like this year I got a break and I am happy and to think about the third year in my mind I am like oh, again but it must be done, so being in skills laboratory I would say I am here to meet the hours' (SYNS).

a. Sub-theme 5.1 Legal lessons

The analysis revealed that some participants believed the clinical skills laboratory allow them to make mistakes and correct it without hurting a patient. They noted this as very necessary to them because they are liable to any mistake they make to a real patient in the hospitals. In addition, stated that they come to the clinical skills

laboratory to practice because what they learn here is what they will use. They believed not practising will make them detrimental to the patient and can consequently lead them to the law court. Some stated that:

'In skills laboratory instead of coming here for just hours, we should come here for a practice of what we are going to use and not just for hours' (FYNS).

'skills laboratory allows us to inject in a wrong way and that is allowed because no one will be injured... But you can't do that to the real patient' (TYNS).

b. Sub-theme 5.2 Meeting the hours

The analysis revealed students were after hours as a requirement by SANC. They noted without meeting the required hours one can't graduate as a nurse and therefore this urge them to pursue the hours to fulfil what is expected of them by the institution and the South African Nursing Council. Others held a contrary opinion that it should not be all about the hours but that students should be able to come to the clinical skills laboratory to practice because is necessary for their future in the profession.

'I can even come here not just for hours but to practice because is necessary for us' (TYNS).

'Honestly I was here in skills laboratory to meet the hours, and I also got some knowledge after that because I needed it, but sometimes you are here for the hours just for the facilitators to sign' (SYNS).

4.7.3 Convergent Validation of utilisation clinical skills laboratory

This objective was covered in only qualitative as the tool used in the quantitative did not cover it. Comparing the students focus group discussion and the clinical facilitator's interviews indicated both groups believed the institution has laid the necessary guidelines that facilitate attaining the requirement of the South African Nursing Council. Tables 4.23 and 4.24 show the details.

Table 4.23 Comparison of qualitative themes of objective 5

Item	Theme	Sub-theme
Interviews	Training conditions	Equipment accessibility
		Facilitator interventions
		Disparities between skills laboratory and hospitals
Focus group discussion	Provisions/regulations	Legal lessons
		Meeting the hours

Table 4.24 Data triangulation of clinical skills laboratory utilisation

Quantitative data	Qualitative data	
	Interviews	Focus groups
none	<ul style="list-style-type: none"> The interviewees believe the clinical skills laboratory is relevant as it allows students to achieve hours and facilitates the use of self-directed learning to practice and meet hours set by the South African Nursing Council. Participants during facilitation believe in empowering students and directing them to meet the necessary requirement set by the South African Nursing Council. 	<ul style="list-style-type: none"> The institution has worked our programme in a way to make it easier for us to meet the regulatory body requirement. They also stated there are documents available to give them the guidelines as to what is required and how to meet that requirement.

4.8 OBJECTIVE 6. TO MAKE RECOMMENDATIONS ABOUT HOW THE UTILISATION OF THE CLINICAL SKILLS LABORATORY AS A LEARNING SPACE CAN BE STRENGTHENED.

The objective presents data from interviews and focus group discussions.

4.8.1 Interviews: Theme 6. Resources

The theme resources emerged with two sub-themes; human resource (6.1) and material resource (6.2). The objective this theme sought to accomplish was to make recommendations about how the utilisation of the clinical skills laboratory as a learning space can be strengthened.

a. Sub-theme 6.1 Human resource

All the participants interviewed held the opinion that there is a shortage as far as human resource is concern. Students plan before they come, but if there is someone there always students can come anytime they are free to practice. Participants used words like 'mess', 'struggle' and 'shortage' to describe the inadequacy of human resource with clinical facilitators and human resource used interchangeable. They stated that:

I can say that human resource is not enough because sometimes you can have a lot of students to practice and the staff are not enough (CF1).

'With regards to the human resource I have seen a struggle a lot....There is inadequate human resource to cater for this huge number of students...The human resource there is a need because I think during practice students need support so they can perfect skills because you cannot just allow the students with the paper and expect them to be proficient' (CF2).

'There is a shortage of both human resource and that is what I have observed' (CF6).

'Human resource is a mess, actually, there are inadequate clinical facilitators, that is why the university is using the postgraduate students to assist' (CF3).

'The human resources, I think sometimes is difficult just to have one person in the skills laboratory because the number of students we are seeing now is greatly increased...I do know there is a shortage of human resource' (CF4).

'When it comes to the number of clinical facilitators, we are really short... we don't have enough clinical facilitators, it would be nice if the number of clinical facilitators is increased for us to spend more time with the students' (CF5).

The participants noted some strategies kept in place regarding the issues relating to human resource shortage. They believed the move to use the postgraduate education students to assist in the clinical skills laboratory is a recommendable idea, however, asserted that this post graduate students only work for some number of hours after which they are not available as clinical facilitators.

'I can say, they tried to use postgraduate education students to help with the human resource aspect' (CF1).

'the students rely on the postgraduate nursing education students and they do have their own requirement as students' (CF2).

The findings also indicated there are limitations as to how much the facilitators can help because each student is entitled to a minimum of three procedures per day and they can't do more than that. Participants noted students prefer to come together to the skills laboratory at the same time making the place congested and posing a limitation to the already stretched human resource.

'They need some intense information coming to the practicality while they are practising so that at the end we produce nurses that can relate' (CF4).

'The reason is most details things are not reflecting on the documents which they are practising with but, someone with experience next by explaining whiles such a step is done, what is not included to broaden their knowledge will be the best' (CF2).

b. Sub-theme 6.2 Material resource

The findings revealed that the material resources are inadequate. There is the need for more because the clinical areas use some things that are not available in the clinical skills laboratory. They stated that the few that are available some are a bit outdated but with consumables like syringes and gloves, expiry is not regarded because the students don't really do anything that is harmful. If the students would mention that they would check expiry date to see if the supply is expired is allowed. However, maintained that with regards to logistics a lot of improvement is needed.

'The institution is required to change some material so that practice can be fruitful' (CF1).

'The material resources yes, it is there, it is available although need some addition because of the size of the school...The way the students utilise the clinical skills laboratory I think the resource should be a bit increased' (CF2).

'For instance, they practice of opening of sterile packs that are already opened, but there are so many students that if you want to open new packs all the time you can imagine how many packs you will open' (CF5).

Innovations according to the findings are evident with regards to equipment and mannequins, the clinical facilitators believe the clinical skills laboratory has some excellent mannequins that are in a very good condition. They, however, stated that some of the mannequins especially the high-fidelity simulators are used by only fourth year midwifery students.

'We even have a high-fidelity simulation mannequin, although is not use in the first year and third years...We have very good mannequins ranging from high, medium and low fidelity mannequins and the high-fidelity is only introduced in the fourth year for midwifery students' (CF4).

4.8.2 Focus Group Discussion: Theme 6. Changing the trends

The theme, changing the trends emerged to describe how the utilisation of the clinical skills laboratory as a learning space can be strengthened. This theme looked at what participants believed can be done to strengthen the clinical skills laboratory. This emerged with issues including; demonstration, faculty collaboration, duration of practice, material and human resource. All the participants agreed that first among the lot was a demonstration of the procedures in the clinical skills laboratory before practice. They stated that:

'demonstration I think is vital because as you heard we all like to watch each other and from our basic school it was not self-directed and so is difficult to just adjust and adapt to the situation without guidance... if there is a way they can give some orientation or demonstration to the first years on how these competencies are done at least for a number of competence before allowing them to go on, then they would have gained some confidence to direct their own learning' (TYNS).

'So the demonstration to the first years might be important at least' (FINALS).

'they should demonstrate the procedure in class or in the clinical skills laboratory at least before the student tries to perform it' (FYNS).

'We go there reading papers as we said, a student demonstrated a procedure and the facilitator asked what about this as a nurse, what will you do and the student said all that was on the paper and the facilitator said you have failed go and read and no one actually demonstrated for us to understand' (SYNS).

The participants think collaboration of the faculty members especially the clinical facilitators and the lecturers were paramount to give the lecturers the idea of what equipment is available in the clinical skills laboratory. A participant stated;

'I think also that the collaboration between the lecturers and the clinical facilitators is bad because I remember that I had to practice for CPR only to get here and realised that the equipment is not there but the lecturer didn't know' (FYNS).

Students stated the videos they accessed on 'YouTube' use equipment that is not available in the clinical skills laboratory, which makes practice difficult to comprehend. They also believe charts and manuals are necessary for the clinical skills laboratory to display normal ranges of some test results for learning purposes.

'I think they must be equipment because the equipment from YouTube and here are not the same, and they are totally different so we not sure and it's confusing. We need a facilitator who will tell us what is this and that' (TYNS)
'Like some other things, e.g. urinalysis you can't find it on google scholar. I was doing urinalysis and facilitator asked what does +3 means and I had no idea' (SYNS).

Regarding technological advances, a participant stated that;

'I think also that we have to grow with technology because here we have beds that cannot be adjusted at all yet, most of the private hospital we meet beds that are adjustable and we get confused' (TYNS).

The analysis also indicated that regarding the duration for practice and the availability of material for practice were both not enough. They stated that the duration and the number of days allocated for them to access the clinical skills laboratory were not enough to cover the number of hours required.

'This doesn't make sense to me if there are only 2 facilitators and 30 of us, we come here at 8 am and need to leave at 10 am, when I have done nothing for those 2 hours, what is the use of me coming here, because it becomes a thing of hours, I have done 2 hours I need to go that, how I feel' (FYNS).

'Also this thing of we only allowed to do three competencies in a day, sometimes you fail two competencies leaving only one and when you are trying to do the one that is left, you will be told to go for other students to come because you have spent your 2 hours' (FINALS).

'The materials, I don't think they are enough...when we do bed making or like wound dressing is not everyone that gets the material. We sometimes need to wait until someone is done before you can get the opportunity to also

practice' (FYNS).

'we were meant to do competencies on how to open a sterile pack and the problem is, they always give us the same opened pack so it difficult opening something that is already opened' (SYNS).

The findings also revealed that participants are comfortable if there could be a computer or a video room to reduce the disturbances that are noticed when someone is practising and another desire to watch the videos on YouTube.

4.8.3 Convergent Validation of Suggested views of how the clinical skills laboratory can be strengthened.

From the findings, various views emerged from both the students and the clinical facilitators. They both stated human resource, material resource were the key things that should be looked at to strengthen the learning space in the clinical skills laboratory. Besides the findings also complimented with regards to a demonstration of the procedures at least for the first years during clinical practice in the clinical skills laboratory. Others included a control mechanism to prevent the congestions and to allow all the undergraduate nursing students the opportunity to use the high-fidelity simulators. The Table 4.25 and 4.26 indicate the findings.

Table 4.25 Comparison of qualitative themes of objective 6

Item	Theme	Sub-theme
Interviews	Resources	Human resource
		Material resource
Focus group discussion	Changing the trends	Demonstration
		Faculty collaboration
		Duration of practice
		Material and human resource

Table 4.26 Data triangulation of recommendations to strengthen the clinical skills laboratory

Quantitative data	Qualitative data	
	Staff Interviews	Student Focus Groups Discussion
none	<ul style="list-style-type: none"> • More human resource needed • More material resource needed • Allow undergraduates to use high-fidelity simulators • Demonstrate to students • Some participants suggested control measures to prevent congestion in the clinical skills laboratory 	<ul style="list-style-type: none"> • They require more clinical facilitators • Some think some logistics are outdated • They want to interact with the mannequin during practice • All contend that demonstrating the procedures to them before practice is preferred. • They want there to be to control of the interference and overcrowding in the clinical skills laboratory.

4.9 SYNOPSIS OF CHAPTER 4

This chapter presented the results and findings of the study according to the six objectives of the study. Each of the three results are outlined indicating what findings emerged after analyses under a specific objective. These findings are then triangulated (convergent validation) to corroborate the data. Interestingly the comparison between the two main qualitative data; interviews and the focus group discussion, emerged with different themes for some objectives. This might be because each category had participants who had a different world view of the situation. The clinical facilitators might have seen things with lenses of the management and would be considerate with demands whereas the students would want their needs to be met without cognizance of the difficulties that management might be passing through. However, in conclusion, the data corroborated each other. Results from quantitative and findings from the qualitative complimented. The qualitative might have emerged with themes that are explicitly different for some objectives, but implicitly they pursued similar ideas and answered the same research questions. The next chapter will present the discussion section of the results and findings of this study.

CHAPTER FIVE

Discussion of the Results and Findings

CHAPTER 5

DISCUSSION OF FINDINGS

5.1 INTRODUCTION

Chapter 4 presented the results regarding the utilisation of the self-directed clinical skills laboratory by undergraduate nursing students and staff in a selected higher educational institution. This chapter considers the findings from the analysis reported in qualitative and quantitative data and reflects on the extent to which the overall aim of study has been met. The discussion will assist in making recommendation regarding how the CSL can be strengthen as a learning space in nursing. A review of the literature indicated there was insufficient knowledge, especially in Africa, regarding learning in the self-directed clinical skills laboratory.

The presentation of the discussion and interpretation of the results and findings are based on the study objectives. Based on the literature reviewed and the conceptual framework, the six objectives were: (1) to describe the utilisation of clinical skills laboratory in line with self-directed learning principles; (2) to explore undergraduate nursing students' views regarding clinical skills laboratory as a learning environment; (3) to explore the academic self-perception of undergraduate nursing students learning experience in the clinical skills laboratory; (4) to describe the undergraduates nursing students' perceptions of learning in the clinical skills laboratory; (5) to explore the utilisation of the clinical skills laboratory in line with the South African Nursing council's requirements, and (6) to make recommendations about how the utilisation of the clinical skills laboratory as a learning space can be strengthened.

5.2 OBJECTIVE 1. THE UTILISATION OF CLINICAL SKILLS LABORATORY IN LINE WITH SELF-DIRECTED LEARNING PRINCIPLES

This section focused on the results related to the principles of the self-directed learning in the clinical skills laboratory, specifically motivation, planning, peer collaboration, and monitoring and evaluation. The study suggested that the students applied the principles of self-directed learning in the clinical skills laboratory and are motivated to learning in the learning space, with 70.3% (n=83) of the students agreeing that they think of what they want to get in their studies to keep their work well focused. This findings is similar to a study by Akaike et al (Akaike *et al.*, 2012:28) which states that early clinical exposure for health students in the clinical skills laboratory enhances their motivation for learning basic clinical procedures. There is also evidence which suggests that motivation is increased as the quality of students clinical learning environment improves (Aktas & Karabulut, 2016:124).

In relation to principle of planning before coming to the clinical skills laboratory, the findings appear to show students plan their activities before they come. Few individuals 10% (n=12) were in the habit of walking into the CSL to practice without planning. Planning was seen by the number of students that booked to practice on the daily basis. The findings indicated peer collaboration was largely applied, with 92.5% (n=109) asking their colleagues during practice in the clinical skills laboratory for assistance. Students used techniques such as group discussions and consulting colleagues for help when they had problems in areas they felt other students could assist with. A principle that was not well used by the students was monitoring their studies to established what was learnt, and linking the material learnt to other modules. More than half of the students (60%, n=71) agreed that when they finished a piece of work they checked to see it meets the requirement, with 74.5% (n=88) indicating that they have to integrate each course to their practical work.

The findings above agree with other findings that contend that peer support and favourable communication with peers are key tools in the learning environment of students, and have a positive imprint on students learning (Sercekus & Baskale, 2016:134). This is in line with the collaborative model of learning, which is based on the

notion that learning is most successful when small groups of students share and discuss information. This states that interaction with peers provides participants with the synergy and motivation to excel, and that through task-oriented and socio-emotional interactions, students obtain the resources and support necessary to succeed in their learning environment (Arbaugh & Benbunan-Fich, 2009:853). It is expected that students may derive knowledge from interactions with peers in learning environment, and that the sense of belonging that emerges from participation in group activities with peers particularly contributes to the development and formation of an academic identity. This is that it helps students to understand the learning environment and teaches them to successfully navigate the clinical environment. Consistent with this is a body of work which suggests that students inherit academic knowledge from being in the learning environment and having social interactions with their fellow students (Scanlon *et al.*, 2009:223). The study also confirms the findings that interactive and real-life experiences as teaching methodologies are the preferred methods of nursing students (Frantz & Mthembu, 2014:1814).

With regards to evaluation of their studies, half of the students (50.8%, n=60) agreed that they mindfully summarised what they learnt on the daily bases. Students noted that there was so much work to do and there is no time to cross check what was practiced in a day. The findings in this study therefore suggest that the undergraduate nursing students in the selected institution apply self-directed learning principles such as motivation to learn, to plan their learning activities, for peer collaboration, and to monitor and evaluate their studies. The findings did indicate that a few students had contrary views to the above.

Main finding, objective 1: *Self-directed learning principles are moderately applied in the self-directed clinical skills laboratory of the selected educational institution.*

5.3 OBJECTIVE 2. VIEWS OF CLINICAL SKILLS LABORATORY AS A LEARNING ENVIRONMENT

The findings show that participants had a positive perception regarding the learning space of the clinical skills laboratory. They indicated the environment is one of the best places for learning clinical skills. In addition, they felt that it was neat, well ventilated, friendly, conducive to learning and well arranged in such a way that it simulated the real clinical areas. They noted that the arrangement of beds and mannequins resembled the real hospital environment where real sick patients seek treatment. This finding confirms the study by Abdallah et al, that CSL is designed to resemble a hospital ward to optimise the simulation of clinical learning situations. Besides the ordinary interior and layout of a patient room, toilets, medical supply room, etc. An auditorium in the CSL seats a good number of students for demonstration and reflection. They considered the CSL to be equipped with all necessary reusable and stationary medical equipment. Single supplies, such as nasal cannulas, wound dressings and syringes, are distributed to each student in a free equipment kit at the beginning of the course. All these are made to simulate the hospital as much as possible (Abdallah *et al.*, 2014:427).

The findings indicated that 82% (n=97) of the students agreed that CSL learning space is relaxed during practice and that the atmosphere is conducive during teaching. A total of 71% (n=84) agreed that the atmosphere in the clinical skills laboratory motivates them to learn. The findings suggested that students appreciated learning in the clinical skills laboratory and preferred to practice than go for lectures because they believe it gives them the opportunity to develop their interpersonal skills in nursing. This finding is in line with another study that reported creating an authentic environment, facilitating motivation, and providing resources for multiple methods and repetitions within clinical skills training are all important for improving CSL learning environments from the student perspective (Haraldseid *et al.*, 2015c:1).

Participants in this study noted that the learning space is technologically competent and that the items students need are provided. They noted the availability of computers with internet connectivity that aid students to watch procedures on YouTube videos to assist in their practice. This finding was relevant, as it is in line with Aktas and Karabulut's study,

which indicated that nursing students need a good clinical practice environment to apply their knowledge and skills, as the clinical practice settings play an important role in the nursing profession (Aktas & Karabulut, 2016:124). Similarly, according to Hooven, the clinical learning environment makes an important impression on students learning, and a positive learning environment increases undergraduate students learning (Hooven, 2015:421).

However, some students noted they were not satisfied with the inadequacy with the supplies of some logistics for learning in the clinical skills laboratory. Those students saw it as a limitation to their progress of practical knowledge acquisition in the clinical skills laboratory. This is noted that, as with Papastavrou et al, undergraduate nursing students' satisfaction in a learning environment is considered an important factor in contributing to any potential reforms to optimise the learning activities and achievements within clinical settings. This is because satisfaction could be used as an important factor to developing clinical learning environments to satisfy the needs and expectations of students (Papastavrou *et al.*, 2016:44). In addition, inadequate environments affect students achieving their learning outcomes, their preparation for practice and their satisfaction with the nursing profession.

Providing clarity of clinical learning space for nursing education will assist in identifying antecedents, attributes and consequences affecting nursing student transition to practice (Flott & Linden, 2016:501). A study in Taiwan revealed that learning outcomes were significantly better when students' perceptions of their instructional activities were congruent with their preferred learning environment (Yeh *et al.*, 2016:1). Therefore, the clinical learning environment is a key component to training nurses, with technology not replacing its role in training (Salamonson *et al.*, 2015:206).

A few students 39% (n=46) indicated that the learning space was disappointing, due to issues such as noise and congestion in the clinical skills laboratory. They noted that for the current arrangement, the computers are kept by the beds, where one student may be performing a procedure while another is watching YouTube as a means of instruction, is a nuisance. The findings indicated that this affects the students' concentration during the procedures. While this was not the majority, there is some evidence to suggest that the

perceived educational environment is significantly associated with approaches to learning, and this linked to the need to maintain a conducive learning environment and hence a need to improve the management of learning activities that reflect the use of student-centred learning (Rochmawati *et al.*, 2014:729). Similarly, Haraldseid *et al.* noted that the environment in the CSL is designed to simulate the real clinical learning space and is defined as a practicum environment where students apply a theory to practice (Haraldseid *et al.*, 2015b:1). Harmonising the clinical learning environment is therefore important for students to be able to achieve desired learning outcomes (Wells & Dellinger, 2011:409).

The male students, with a mean of 34.09 (n=33) and a standard deviation of 5.27, had a higher opinion of the clinical skills laboratory learning space than their female colleagues, with a mean of 33.01 (n=85) and a standard deviation of 6.36. Although this might seem statistical insignificant, it is clinically worth noting that males had a more positive perception of the learning space compare to the females. Another finding that is of interest was the means of the year per groups, which indicated no statistical significance between them, yet clinically there is a possible difference between the 1-year and 3-years as against 2-year and 4-years.

This finding goes contrary to those of Kao *et al.*, who stated that self-directed learning, desire of learning and self-control in 2-year nursing students was significantly higher than in those in fourth year (Kao *et al.*, 2013:53). However, the finding in this study suggests that the desire for self-directed learning might be higher in 1-year and 3-year groups, as they rated this environment marginally higher compared to the 2-year and 4-years groups. The findings confirms that young students are more likely to positively perceive their learning space (Sindi, 2011:162).

Main findings, objective 2: *The clinical skills laboratory is neat, conducive and friendly for learning and is providing an authentic learning environment and resources, with the appropriate use of teaching and learning strategies for nursing students. It is crucial and effective that links between educators and clinical staff are established and maintained.*

5.4 OBJECTIVE 3. THE ACADEMIC SELF-PERCEPTION OF UNDERGRADUATE NURSING STUDENTS LEARNING EXPERIENCES IN THE CLINICAL SKILLS LABORATORY

The study suggests the nursing students feel more positive about their academic self-perception in the clinical skills laboratory. The findings revealed that significant number of students (89%, n=104) agreed they were confident they would pass the year, and many (79.3%, n=94) agreed that they were being well prepared in the profession. The majority of students (82%, n=97) noted their problem-solving skills were improving in the clinical skills environment, and that this was preparing them for the future in the profession. They noted that what they learnt seemed relevant to their profession. This finding is consistent with a previous study, which suggested that how nurses evaluate their problem-solving skills is important for improving these skills (Cevik & Olgun, 2015:90). Probably talking about their problem-solving skills may make them notice their problem-solving skill that needs attention. Similarly, Eom et al found that the teaching methods using the self-directed learning approach was more effective than the traditional methods to improve junior nursing students' competence and problem-solving skills (Eom *et al.*, 2010:151).

In addition, the findings in this study are congruent to those that students believed both theoretical and practical training were the prerequisite for the real professional work environment. However, clinical placements were considered essential to confer sense to the theory and to shape their identity as student nurses, which helped them to experience their future professional reality and to associate what they had been taught in theoretical and academic classes. For students, both theory and practice are vital to nursing education and constructing a professional identity (Arreciado Maranon & Isla Pera, 2015:859).

Similarly, a study by Bisholt et al noted that the atmosphere of the clinical setting made it difficult for students to achieve their learning objectives, hence when planning the practical learning, attention must be paid to whether the setting offers the student a meaningful learning situation where the appropriate learning result may be achieved (Sundler *et al.*, 2014:661). This confirms why the students had a positive perception of their academics and indicates a well-planned learning space. Similarly, positive learning

experiences during clinical practice influence not only learning outcomes but also how students reason to their future career choices (Carlson & Idvall, 2014:1130).

The participants also noted that the institution was keeping all records regarding the hours they practice in the clinical skills laboratory. Students however noted that for them to confidently believe in their academic performances, planning and monitoring by their facilitators would empower them to progress. The students stated that links and meetings between facilitators to discuss what is relevant and to harmonise the way the skills laboratory operates is required. Harmonising the operation will increase the moral and boost the confidence of the students.

Some participants had concerns regarding situations that bring uncertainties to their learning. Mentions were made of performing procedures on the low fidelity mannequins that do not react. Students doubted and worried of how the real patient in the situation would have felt. They were uncertain as to whether this would be the same way the patient would receive their care. There was also an issue with some equipment that were either operated differently in hospital or seldom used because they are out of date. These findings were also found in a study where the students clearly stated that they felt uncertain in the CSL when equipment was old, reused or unavailable (Ringel *et al.*, 2015:288). A possible consideration in this regards would have been the use of a high-fidelity mannequins that would allow some responses after a task, and to calibrate the results for them to read, record and interpret. This is in line with the findings by Johnson, that the reason that students need reliability might be to create an environment in which students perceive the realism of the situation and understand its relevance for clinical practice (Johnson, 2009:180).

Interestingly, the findings indicated that the 1-year group had a more positive perception of their academics compared to the other three groups (Table 4.6), with the 4-year students scoring the lowest mean. Whereas the 1-years had a mean of 24.66 with a standard deviation of 3.97, the 4-year scored a mean of 22.94 with a standard deviation of 6.05. This indicated that the academic perception of the students marginally declined as they progress with their studies.

Another point worth noting was the fact that the males showed more positive academic self-perception compared to their female colleagues. Although this is not statistically significant, clinically, the means indicate 25.27 for male and 23.24 for the female (Table 4.5). Whilst this finding is not conclusive, there is some evidence that female students have a lower perception of their academic environment. A study by Sindi, using the DREEM questionnaire in Saudi, indicated that males significantly perceive their academic environment more positive than the female (Sindi, 2011:162).

Main findings, objective 3: *The study suggested a significant increase in the students' academic self-perception because students are feeling more on the positive side, however, female had a lower self-perception of their academics as compared to their male counterparts. Students believed their problem-solving skills are greatly increased.*

5.5 OBJECTIVE 4. THE UNDERGRADUATE NURSING STUDENTS' PERCEPTIONS OF LEARNING IN THE CLINICAL SKILLS LABORATORY

The findings show that there was a more positive perception of learning in the clinical skills laboratory. The Majority of the students (83.4%, n=99) agreed that learning in the clinical skills laboratory is stimulating, whereas 84.7% (n=100) agreed that they were encouraged to participate while procedures were being conducted. This finding is similar to a study that suggests self-directed learning in nursing education has revealed its superiority over the traditional learning methods of students' academic performance, assisted with the development of positive attitudes to the learning process by both students and educators, and that students' academic performances increased when they engage in self-directed learning (Yuan *et al.*, 2012:427).

The findings also indicated that 83.8% (n=99) agreed that teachings in the clinical skills laboratory is student centred. Student believe they are given the opportunity to participate in getting information during their practice. It was also noted that teaching is well focused in the clinical skills laboratory because, with 79.6% (n=94) agreeing to the assertion that teaching progresses as expected. The clinical facilitators however believed that faculty collaboration would assist the students to acquire the necessary knowledge in the clinical skills laboratory. The clinical facilitators saw collaboration as a key area that could change the way students acquire their knowledge, the reason being that this would harmonise the procedures and make it easy for students to learn.

This is relevant because, according to Haraldseid *et al.*, they found that students perceived a discrepancy in the information that they received from clinical facilitators, giving them the impression that the faculty was unprepared. Their study noted that to have access to the faculty was difficult, and that although the students desired more time to practice, there was no opportunity for that (Haraldseid *et al.*, 2015b:1). This study finding is also in line with a finding that the supervisory relationship has the greatest effect on how student nurses experience the clinical learning in an environment in nursing. It is therefore of utmost importance that collaborative activities, between educational and clinical settings, supporting the work of preceptors are established and maintained (Carlson & Idvall, 2014:1130). The findings in this study suggested that meetings, and periodic brief

discussions among the facilitators, or even including the preceptors in the hospitals, will help harmonise issues that will make learning in clinical skills laboratory better for the learners. There is also evidence to suggest that when student are trained in a non-collaborated learning environment, it often lead to frustration and diminished satisfaction among students (Wellard *et al.*, 2009:228).

The students consider the learning in the clinical skills laboratory as an area that gives them the opportunity to develop their competence and increase their confidence. A total of 83.8% (n=99) agreed that the teaching helps them to develop their competence, whereas 79.6% (n=94) agreed teaching helps them to develop their confidence in the clinical skills laboratory. The findings suggest that students perceive the learning in the clinical skills laboratory as opportunity for them to make mistakes with the mannequins and to correct themselves before moving to perform the same procedures on the real patient. These findings are congruent with a finding that clinical skills laboratory are there to allow students to make mistakes in a safe environment, learn from those mistakes and achieve proficiency by attaining predefined benchmarks (Wilt & King, 2012:103).

Similarly, assisting nursing students in self-directed learning is a major goal of the self-directed clinical skills laboratory. Through repetitive practice, students can gain expertise in motor skills, and thereby integrate them into clinical practice eventually (Zhang *et al.*, 2012). Teaching traditional clinical skills in most nursing schools has been based on the perspective that clinical practice makes perfect, and that after spending two to four hours a week on skills training, students can use the CSL to perfect their clinical skills on their own schedule (Lin, 2013:546). However, the nursing faculty are not required to relinquish their authority, administer content-free courses, decrease their faculty roles, present students with more responsibility than they can handle, or allow students to assign their own grades (Allen, 2010:33). In other word, students must still be guided to make the right decisions concerning their learning, and cultivate in themselves the self-directed learning principles and lifelong learning concepts.

The findings also indicated that male nursing students perceived learning as more positive in the clinical skills laboratory than the female students. Whereas the males scored a mean of 34.60 with a standard deviation of 5.11, their female counterparts

scored 33.34 with 6.69 as a standard deviation. Clinically, males seem to be more positive about learning than female, although this might not be statistically insignificant. The findings with regards to the year groups indicated that there was no pattern of increases or decreases with regards to the mean. However, the 3-year group indicated a more positive perception of their learning (Table 4.6). This finding seems to contradict the findings by Sindi, that the higher the academic year the lower the mean score of perception of learning (Sindi, 2011:162). It is possible that the learning environment might account for these contradictions or alternatively, that professional orientation of the students, as her study used dental students.

Main findings, objective 4: *There is a more positive perception of learning in the clinical skills laboratory with male having a clinically significant increase in perception of learning than female. The findings tend to show that faculty collaboration will assist students to acquire knowledge in the clinical skills laboratory.*

5.6 OBJECTIVE 5. THE UTILISATION OF THE CLINICAL SKILLS LABORATORY IN LINE WITH THE SOUTH AFRICAN NURSING COUNCIL'S REQUIREMENTS

The findings indicated that the clinical skills laboratory is used by the nursing students in line with South African Nursing Council's requirement: The South Africa Nursing Council (SANC). The clinical facilitators contended that the space is operated based on the SANC guidelines and the institution's internal management policies. This results agreed with the findings that, a defining feature of adapting content to learners' needs is the institution's ability to transform content knowledge systematically to students' varied abilities and backgrounds (Ayvazo & Ward, 2011:675).

The clinical facilitators stated that equipment accessibility is a key factor that is needed to promote the continuous pursuance of the regulations laid by the regulatory body, stating that the clinical skills laboratory is one of the units that is needed within every health training institutions to facilitate learning. As students are taught theory in the classroom, after which they proceed to the CSL to practice the practical. They however blamed the resources as one key challenge that faces the learning space and limits its ability to fully operate. This links to a finding that suggests that time constraints and limited faculty and material resources interfere with students' acquisition of clinical skills (Bisholt *et al.*, 2014:304).

The findings indicated that the students considered it mandatory for them to study according to the guidelines set by the South African Nursing Council and the institution. The students stated that without due diligence to the regulations, they could not guarantee completing their study, and that securing a license from the South African Nursing Council might be questioned. The majority of students stated that the institution plans each year to enable them to meet the requirement of the semester to make it easier for them to learn and makes sure every required area is covered before completion. This is in harmony with a finding that suggests that the ultimate goal of faculty is to help their students develop and mature academically (Bryan *et al.*, 2015:141). The reason is that educational institutions and practice fields have a joint responsibility regarding facilitating a learning environment for the nursing students that provide learning outcomes in accordance with

the Nursing Curriculum provided by the regulatory body (Struksnes & Ingeborg Engelién, 2016:125). In addition, the students' construction of a nursing identity is grounded in social interactions with faculty, and is shaped by values and norms learned in both the formal and informal curriculum (Del Prato, 2013:286).

The findings also indicated that students believed that following the South African Nursing Council's requirement makes things safer for them, and that they are legally secure if they do things the correct way. This is similar to a finding that, as nursing practice changes, its education needs to adapt to accommodate the new ways and to train graduates who will hold the practical knowledge relevant to the patient in the clinical environment (Aarabi *et al.*, 2015:161).

The finding again revealed that clinical facilitators intervened in most cases to assist students to understand the rationale of the procedures. In clinical skills practice, the reason why a procedure is performed is as relevant as performing the procedure itself. For students to understand and relate the theory to practice, the clinical facilitators saw it as their duty to intervene, and in some cases to correct the students, and to make them understand the reasons why they do what they are doing. The findings indicated that most of the students did not practice with that rationale in mind, they did the procedures to have their hours counted to meet the requirement set for that semester. For this reason, a clinical facilitator is needed to probe students and remind them there is a reason for every procedure, and to decrease the robotic performance of clinical procedures.

Other researchers have reported similar results, with Aarabi *et al.* noting that since nursing education had been transferred to nursing faculties, degree nurses often have been castigated for deficiency in performing procedures that improve the quality of patient care (Aarabi *et al.*, 2015:161). Their findings indicate that robotic performance of nursing care is often rendered to clients. Other authors suggest that transferring theoretical knowledge to practice in a real clinical setting is an important reason for nursing education, and that despite improvements in nursing academic educational development, nurses' behaviour is still based mostly on traditional approaches (Cheraghi, Salsali & Safari, 2010a:155). This might be because the education in nursing does not reinforce specialised nursing

knowledge; rather, it simply conveys medical knowledge and hence the rational for procedures is not reinforced (Aarabi *et al.*, 2015:161).

Main findings, objective 5: *The finding suggested the clinical skills laboratory is perceived to be used in line with the South African Nursing council requirement with challenges on equipment accessibility and interventions from the clinical facilitators.*

5.7 OBJECTIVE 6. RECOMMENDATIONS ABOUT HOW THE UTILISATION OF THE CLINICAL SKILLS LABORATORY AS A LEARNING SPACE CAN BE STRENGTHENED

The findings for this objective suggest several possible areas that can be adjusted to make the clinical skills laboratory a good place for students to practice. The clinical facilitators believed human resources were one area that need to be considered to strengthen the clinical skills laboratory for the students. Participants noted the strategies kept in place by the institution to curb the staff shortage situation where education students as part of their course must complete some hours in the clinical skills laboratory supervising undergraduate nursing students is good. However, the challenge of these, is because they come when they are free and are not kept on schedule to supervise. In addition, when they cover their hours, they no longer come to the clinical skills laboratory. So, human resource shortage was an area they noted need immediate attention from the institution

This is in line with the finding that, nursing is transforming and there is a demand for training more resulting from the global shortage, with same resources that were used centuries ago; hence, being ready to incorporate developing innovations into practice and educational settings are paramount (Hain, 2013:1).

The shortage of human resource is a global issue in that other studies have noted similar findings. According to Peyser *et al*, the anticipated health care workforce shortages worldwide has prompted many institutions to expand their health professions educational programs and enrolment. Part of this expansion has been driven by the foreseen need for an increased number of primary care providers, resulting from changes in population growth and ageing. Coincident with this expansion of programs has been an increased demand for sites of instruction outside the traditional hospital setting, putting pressure on the nursing faculty (Peyser *et al.*, 2014:359). The literature indicates that time constraints and limited faculty resources in educational institutions is evident (Bisholt *et al.*, 2014:304).

The findings in addition, reveal that material resources were a challenge, with both the clinical facilitators and undergraduate nursing students noting the need to increase the supplies and change equipment that are out of date. Participants indicated that because of the numbers, most students must wait during practice to use the equipment in turn, which frustrate them in the clinical skills laboratory. This finding is congruent to another study where students noted they felt uncertain in the clinical skills laboratory when equipment was old, reused or unavailable (Ringel *et al.*, 2015:288). The students claimed that inadequate equipment and supplies in the clinical skills laboratory creates disparities in what they learn. Using equipment that is no longer used in the clinical area duplicates the learning process because if they master a procedure with a wrong tool, when they get to the clinical area they have to learn again with the right tool. It might help if the institution harmonises their equipment with the hospitals to make leaning easier.

Students noted a good relationship between clinical facilitators and students as important, as that gives them the confident to approach the staff for help. Faculty collaboration and meetings with the lecturers and the clinical facilitators was also suggested, to brief each other on the state of the clinical skills laboratory and the equipment that are not available, as this will prevent contradictions between what the lecturers and the clinical facilitators say. This is because the inconsistent direction and differences in procedures leaves the students confused during procedures. A study by Haraldseid and colleagues ascertained that when students perceive a discrepancy in the information they received from clinical facilitators, it gives them the impression that the faculty is unprepared (Haraldseid *et al.*, 2015b:1). For the faculty to not seem to be prepared, and to prevent confusing the students, there should be scheduled meetings to discuss relevant issues with regards to the students practice in the clinical skills laboratory.

The organisation and availability of manuals and charts also came out the findings from the students, who indicated that charts in the clinical skills laboratory with relevant test results would facilitate learning. The duration of time spent in the clinical skills laboratory was noted by students to be too short and inadequate, and hence believed that giving them more time to practice would be a good opportunity for them. Similarly, literature suggests that students in a clinical skills laboratory generally request more time to

practice. A study by Haraldseid and colleagues recorded that their participants in the study stated that access to the faculty was difficult, and that although the students desired more time to practice in clinical skills laboratory there was no opportunity for this to occur (Haraldseid *et al.*, 2015b:1). Some studies suggested that as changes in health care continue, the resource utilisation is expected to increase, and the role of nurse educators are expected to broaden in scope, responsibility and recognition (Omisakin & Ncama, 2010:435). The nurse educators are expected to maintain clinical credibility and competence, besides teaching and conducting research. They should have an educational background and the clinical expertise to organise and coordinate services, and have the resources to meet the student nurses care needs in a cost-effective and efficient manner.

The findings also revealed that issues regarding demonstrating procedures before practice was important to the students in the clinical skills laboratory. Some clinical facilitators did agree that students, especially the first years, should be given a demonstration before allowing them to practice on their own. Interestingly, according to Allen, a nursing faculty is not required to relinquish authority, administer content-free courses, diminish faculty roles, present students with more responsibility than they can handle, or allow students to assign their own grades in the name of self-directed learning (Allen, 2010:33). In other word, students must still be guided to make the right decisions concerning their learning, and to cultivate the self-directed learning principles and lifelong learning concepts.

While there is evidence that nursing faculty and students are often challenged with an overload of content to teach or to learn, faculty members often struggle with determining the best delivery method for the diverse scope, depth, and breadth of concepts that students need to learn (Byrne, 2016:20). This presents educators with a temptation of thinking of theoretical learning as being more relevant to the students, especially in the higher education institutions. However, as nursing is known as a practice-based discipline, clinical education is the most important component of any nursing education program (Henderson & Tyler, 2011:288). In other words, nurse educators ought to bridge the gap between theory and practice, because clinical education programmes that

provide clinical experiences can prepare students for real-world conditions (Hickey, 2010:35).

The findings did indicate that both nursing students and clinical facilitators agreed that having an area where feedback and sensitive information can be given to the students is paramount. This will give clinical facilitators the opportunity to indicate corrections and allow students to accept the feedback without guilt and intimidation. The clinical facilitators believed providing protective wear for the students during the practice of procedures would facilitate their desire to use those protective wears at the clinical areas, which will enable them to get use to how to work with them before working in a clinical setting. Some clinical facilitators also noted that for the clinical skills laboratory to truly simulate the clinical areas or the hospitals, students must be encouraged not to bring mobile phones to the clinical skills laboratory. Although this might not be conclusive, it was noted that some students come to the learning space and remain on their phones instead of spending hours to practice procedures.

Main findings, Objective 6: *The findings suggested several possible areas that can be altered to strengthen the clinical skills laboratory in the selected educational institution. The suggested areas included; human resource improvement, material resource improvement, demonstration of procedures for the students, no mobile phone during practice and getting an in-house clinical facilitator to mention few.*

5.8 SYNOPSIS OF CHAPTER 5

This chapter presented the discussion of results and findings of the study. The results from the quantitative and the findings from qualitative were discussed and linked to relevant literature of previous studies in this field.

The first four objectives were discussed using data from both quantitative and qualitative components whereas the last two objectives were discussed using findings from qualitative; interviews using clinical facilitators and focus group discussions from undergraduate nursing students.

It is without reservation that even in self-directed learning guidance from the educators to learners are supreme to promote knowledge acquisition.

The next chapter will present conclusion of this study, recommendations and limitations of the study.

CHAPTER SIX

Recommendations and Limitations of the Study

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 INTRODUCTION

This chapter indicates the extent to which the Aim was met by reviewing the findings from the six objectives, and presents the study limitations, recommendations, and general conclusions.

With regard to Objective 1, the findings indicated that the students in the clinical laboratory apply the self-directed learning principles for their learning in the learning space, regarding motivation, planning, peer collaboration, monitoring and evaluation of their studies. The findings suggested students are motivated to some extent to practice and some do plan their studies before coming to the self-directed clinical skills laboratory. The study also suggested peer collaboration is pursued to a large extent in the learning space not only by coming together to practice but also to plan together to discuss before performing the procedures.

Objective 2, revealed that participants had a positive perception regarding the learning space. The space was noted to be learner friendly, conducive and welcoming during practical sessions where students agreed it provided the basic resources for their learning. Very few students and clinical facilitators, however, had issues regarding the arrangement of practice areas and the interference encountered during assessment of students caused by their colleagues.

The findings indicated with regards to objective 3, that students were feeling more on the positive side of their academic self-perception with male students scoring a mean higher than their female colleagues. Students indicated their problem-solving skills are developing as they continue to practice and that the clinical facilitators in the learning space are preparing them for the future of the nursing profession.

With regards to objective 4, the study shows that there is an indication of positive perception of learning in the clinical skills laboratory by the students. Students believe learning is much progressing in the self-directed clinical skills laboratory learning space. Male students were more positive than their female colleagues with indications that

faculty collaboration might facilitate acquisition of knowledge in the self-directed clinical skills laboratory.

Findings for objective 5, indicates that both the clinical facilitators and the students believe the self-directed clinical skills laboratory was perceived to be operated in line with the regulatory body (SANC) requirement and guidelines. The findings revealed that the selected institution has kept in place guidelines and directives that lead and guide students to practices based on the requirement of the regulatory body.

Regarding objective 6, some recommendations were agreed on that greatly boarded on the human and material resources. Few other areas that were of concern included technology and privacy during feedback. Both the students and the clinical facilitators agreed that the facility is a state of the art but that some adjustment with regards to it operations will improve its current status.

6.2 LIMITATIONS OF THE STUDY

A number of limitations are noted as possibly having affected the study findings, specifically that only six clinical facilitators of the staff members participated in the interviews, this being only about 15% of the total number of staff in the Department. This may have limited the breadth of opinions in the programme. Information was not obtained from the staff members regarding whether they had practiced as a nurse or always been in academia, as this may have affected their understanding of the differences between what was taught in the laboratory and what was expected in the clinical environment. Student participation was voluntary, and those who did not make use of the laboratory for self-directed learning opportunities may have decided not to participate in the study.

6.3 RECOMMENDATIONS

This study has revealed several interesting areas in the self-directed clinical skills laboratory and in order to gain a better understanding this should be explored further. Based on the findings in this study the researcher wish to make the following recommendations:

Restriction of cell phones: the clinical facilitators suggested that cell phones should not be allowed in the practice area as part of the student's learning that the device is prohibited in the clinical setting.

Clinical and faculty collaboration: both the students and clinical facilitators agreed that there should be opportunities for the clinical facilitators, clinicians and other nurse educators to discuss matters relating to students practice, specifically to reduce the discrepancies between practices taught in the clinical skills laboratory and what happens in the clinical settings.

Use of protective wear during practice: The clinical facilitators suggested students should be made to use protective wear, such as apron and masks and gloves anytime they are in the clinical skills laboratory to enable them to get used to working with them before getting to the hospital.

Use of high-fidelity mannequins: both clinical facilitators and the undergraduate nursing students agreed that having an opportunity to use the high-fidelity mannequins will

facilitate learning. Students believed getting some response from the mannequins would increase their competence when caring for the real patients in the hospital.

Demonstration: The students suggested it will facilitate knowledge acquisition if the clinical facilitators would always do an initial demonstration of the procedures before allowing them practice. Using self-directed learning where they are left all alone to search for the way the procedures are done is frustrating, and they generally find different ways of doing the same procedure, which is confusing.

Privacy during feedback: The clinical facilitators suggested practice area should be demarcated to provide privacy for students during practice to receive their feedback. Students sometimes feel embarrassed when feedback about their performances is given in the present of their colleagues. However, as addressing problems can be beneficial to all students, the facilitators need to be more encouraging in their feedback in terms of the way that corrections are indicated.

Human resource improvement: Both the clinical facilitators and the students agreed that human resource were inadequate, and suggested that there should be three clinical facilitators available every day to assist the number of students who come for practice.

Correct procedure practices: Some clinical facilitators noted that having an in-house clinical facilitator who is trained and can connect with the hospitals to get current practice trends would upgrade the learning space and reduce the discrepancies that are seen in the procedures between the hospital and the self-directed clinical skills laboratory.

Material resource upgrading: both students and the clinical facilitators suggested an increase in the equipment and supplies to reduce the waiting time that is currently been experienced. Students sometimes need to wait a while, as the equipment are not able to cater for the numbers wanting to use it in the self-directed clinical skills laboratory.

Identifying items for procedures: most of the students suggested that the learning space should give them the opportunity to set out the materials they need to use for the procedures and that it should not be arranged for them. Students believed this will acquaint them the need to obtain for the various procedures, which they will be required to do in the hospital setting.

For further research: the clinical skills laboratory environment is crucial for training nurses, as substantial teaching and learning is conducted in this environment. Further research is therefore needed to assess this learning space to facilitate better opportunities for practice and contribute to a student-centred approach of learning.

6.4 CONCLUSION

This study produced a valuable information about the self-directed clinical skills laboratories, from which the researcher made recommendations that might benefit the University of KwaZulu-Natal if its utilised. The seriousness to which theoretical teaching is perceived in the learning environment of nursing in the higher education is worth noting and should be replicated in the clinical skills laboratories. The findings revealed that the learning space is adequately managed and gives students the opportunities to practice on mannequins before getting to the real patient. Nursing as a practical based profession need good collaboration between the educational and the practice institutions to team up and train nurses that can relate well with regards to patient care and will continue to learning after graduation.

Students should be allowed to self-direct their learning, however, resources that are needed for this learning to take place should be made available to the learner by continuous supplies of material resources and adequate human resource to facilitate learning. Self-directed clinical skills laboratories might be a good learning space to facilitates lifelong learning in nursing.

This study might be significant in several areas including, curriculum development as it will guide higher educational institutions to link best practices from the hospitals to the self-directed clinical skills laboratory to facilitate learning for students. This might lead to a better service delivery as it will provide guideline to prepare nurses for lifelong learning before they graduate. Regarding policy changes, implications and system improvement the study is significant as it gives the necessary data relating to how student perceive the self-directed clinical skills laboratory and what is needed to improve the knowledge acquisition in the learning space.

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8.0 ANNEXURES

ANNEXURE 1: INFORMATION FOR PARTICIPANTS



UNIVERSITY OF
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INYUVESI
YAKWAZULU-NATALI

INFORMATION TO PARTICIPANTS

INFORMATION SHEET

Study title: ANALYSING UTILISATION OF SELF-DIRECTED CLINICAL SKILLS LABORATORY BY UNDERGRADUATE NURSING STUDENTS IN HIGHER EDUCATION: A MIXED METHODS DESIGN.

Dear Respondent,

This study comprises of an investigation that is intending to explore and analyse the self-directed clinical skills laboratory as teaching and learning resource to improve undergraduate nursing students' practical skills in order to formulate recommendations that will enhance the way forward. It will consider whether the CSL is used in line with Self-Directed Learning principles and in conformity with the South African Nursing Council's requirements.

As such, your involvement, cooperation and commitment as a participant in this research are of utmost significance to the investigator. Therefore, the purpose of this document is to provide information on the nature of the research, procedures, benefits, precautions, the expectations of the researcher and ethical considerations, providing grounds for you to make a voluntary, informed decision before participating in this research.

What is involve?

If you agree we will invite you, and you will simply be asked to answer few questions candidly and you might also be asked to tell your opinion regarding self-directed clinical skill laboratory utilisation and possibly might be called for a focus group discussion (FGD) about this topic.

Directions

The study shall either ask you to complete a questionnaire, which you will be required to complete by selecting a Likert scale of 0-4 in increasing order of significance that will take about 15 to 25 minutes and or Focus Group Discussion (FGD) including open-ended interview which might not last more than 60minutes and 45minutes respectively, where you will be required to give a details answers to some sections. The potential respondents/participants are the undergraduate nursing students and clinical facilitators in School of Nursing and public health of Howard College Campus of UKZN. You will be required to complete it by being as honest and sincere as possible in order to make the findings useful. There are no right or wrong answers. This study has an Ethical approval with reference number HSS/1383/016M from the University of KwaZulu-Natal.

Benefits

There might be no direct benefits to both potential and actual participants in this research. However, this research is supposed to contribute to the stock of research conducted on nursing education specifically teaching and learning in clinical skills laboratories. The findings are to help inform policy makers and implementers to initiate measures to strengthened CSL and ensure well plan resource utilisation in the training of nurses and service delivery at health facilities.

Confidentiality

your name or any other data that can be traced to you will not be used at any point in time during the data collection or in the written report. Your identity as a participant will not be disclosed.

Withdrawal from project

Your participation in this research is voluntary, and as such, you have the right to withdraw from this research at any point in time, for any reason and without prejudice.

Costs for participation

You will incur no costs for participating in this research. You will also not be paid for participation in this research. In the light of the above, I would be grateful if you would fill the informed consent form below, as a testimony to your voluntary participation in this research.

Rights, Complaints, and Questions

Any questions concerning the research project, participants can call Mr. Luke Laari Tel no: +27632125993. Questions regarding any rights issues as a person in this research project and in the case of problem due to the project should be directed to the Howard College Campus of University of KwaZulu-Natal, Durban, South Africa.

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ANNEXURE 2: QUESTIONNAIRE



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Questionnaire on Utilisation of Self-Directed Clinical Skills Laboratory Analysis.

Instructions:

This questionnaire is a sequence of statements about, utilisation of Self-Directed Clinical Skills Laboratory. Each heading has sub statements which you are required to either agree or disagree. There is no right or wrong answer, indicate your candid personal feeling by ticking (✓) one of the numbers 0 to 4 that best describe your belief. Please be truthful, this is anonymous and results will be compile as a group and not individuals. Do not write your name or student number on this questionnaire.

A: Demographics

Complete questions 1 to 5 by fill the necessary data

1. **Gender:** Male Female Others
2. **Age:** <19years 20years 21years 22years >22years
3. **Year of Study:** 1st year 2nd year 3rd year 4th year
4. **Race:** Black White Indian Others
5. **Religion:**

The Self-Directed Clinical Skills Laboratory (SDCSL)

Key

- 0 = Strongly Disagree. (SD)
- 1 = Disagree. (D)
- 2 = Uncertain. (U)
- 3 = Agree. (A)
- 4 = Strongly Agree. (SA)

A: Students' perception of learning		0 (SD)	1 (D)	2 (U)	3 (A)	4 (SA)
1	I am encouraged to participate in skills lab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	The teaching is often stimulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	The teaching is student centred	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	The teaching helps to develop my competence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	The teaching is well focused	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	The teaching helps to develop my confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	The teaching time is put to good use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	The teaching over-emphasizes factual learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	I am clear about the learning objectives of the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	The teaching encourages me to be an active learner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	Long-term learning is emphasized over short term learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	The teaching is too teacher-centred	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B. Students' academic self-perceptions		0 (SD)	1 (D)	2 (U)	3 (A)	4 (SA)
13	Learning strategies which worked for me before continue to work for me now	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	I am confident about passing this year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	I feel I am being well prepared for my profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	Last year's work has been a good preparation for this year's work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	I am able to memorize all I need	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18	I have learned a lot about empathy in my profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19	My problem-solving skills are being well developed here	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	Much of what I have to learn seems relevant to a career in healthcare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

C. Students' perceptions of CSL space		0 (SD)	1 (D)	2 (U)	3 (A)	4 (SA)
21	The atmosphere is relaxed during the CSL teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22	This skill lab is well timetabled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23	Cleanliness is a problem in this skills lab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24	The atmosphere is relaxed during lectures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25	There are opportunities for me to develop interpersonal skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26	I feel comfortable in class socially	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27	The atmosphere is relaxed during seminars/tutorials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28	I find the experience disappointing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29	I am able to concentrate well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30	The enjoyment outweighs the stress of studying nursing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31	The atmosphere motivates me as a learner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32	I feel able to ask the questions I want	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Key

1=Agree (A)
 2=Agree Somewhat (AS)
 3=Disagree Somewhat (DS)
 4=Disagree (D)

D. Self-directed Learning Principles		1 (A)	2 (AS)	3 (DS)	4 (D)
33	When I've finished a piece of work, I check to see it really meets the requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34	I think about what I want to get out of my studies so as to keep my work well focused.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35	If I'm not understanding things well enough when I'm studying, I try a different approach.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36	I go over the work I've done to check my reasoning and see that it makes sense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37	I pay careful attention to any advice or feedback I'm given, and try to improve my understanding.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38	Mentally I processed what I already knew and what I needed to know about the procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

39	I Mindfully summarised what I have learnt day in, day out, in my studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40	I try to find better ways of tracking down relevant information in my procedure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41	I'm pretty good at getting down to work whenever I need to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42	I carefully prioritise my time to make sure I can fit everything in.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43	I organise my study time carefully to make the best use of it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44	I work steadily during the course, rather than just leaving things until the last minute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45	I'm quite good at preparing for classes in advance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46	On the whole, I'm quite systematic and organised in my studying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47	I constructively self-assessed my work as a learner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48	I have usually set out to understand for myself the meaning of what we had to learn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49	In making sense of new ideas, I have often related them to practical or real life contexts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50	On the whole, I've been quite systematic and organised in my studying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51	I've looked at the evidence carefully to reach my own conclusion about what I'm studying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52	I've organised my study time carefully to make the best use of it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53	I do evaluate previously studied procedures before planning new procedure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54	Integrated all topics in a course with each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55	If I've not understood things well enough when studying, I've tried and asked colleagues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56	I do carefully plan my learning tasks before going to CSL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57	I do talk with my colleagues about learning and methods of study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for taking the time to answer this questionnaire.

ANNEXURE 3 INFORMED CONSENT FOR QUESTIONNAIRE
INFORMED CONSENT FORM FOR QUESTIONNAIRE
CONSENT FORM

I, confirm that I have read and been briefed on the nature of the research and my role as a participant. I understand that the researcher is a Masters student at the School of Nursing and Public Health in Howard College Campus at the University of KwaZulu-Natal, Durban in South Africa and this research is the student's dissertation.

I therefore freely and voluntarily give my consent for the use of my answers in this research, with the knowledge that I have the right to withdraw from this research at any point in time without explanations and prejudice.

I permit the School of Nursing and Public Health, the University of KwaZulu-Natal to use the findings from this research as they deem fit with the provision that my name will be disentangled from the results.

You may contact Mr. Luke Laari on +27632125993, Email: 214585158@stu.ukzn.ac.za, anytime if you have any question about the research, or

The researcher's supervisors- Mrs. Barbara M. Dube - contact number +27 31 2602497, Email: dubeb@ukzn.ac.za

You may also contact HSSREC Research office- Mariette Snyman contact number 031-2608350, Email: snymanm@ukzn.ac.za

Signature of Respondent.....Date.....

ANNEXURE 4: INTERVIEW GUIDE



UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

Personal Interview Guide

Introduction

Thank you for the opportunity. Before we start I would like to remind you that there are no right or wrong answers in this discussion. I am very much interested in knowing what you think, so please feel free, to be frank, and to share your point of view. It is very important that I hear your opinion. This is about utilization Self-Directed Clinical Skills Laboratory by undergraduate nursing students in a higher education I am using a digital recorder. You will not be identified by name in my written report. Your identity will only be known to me. Approval has been granted by the ethics committee of the Health and Social Sciences Research Ethics Committee of UKZN with a reference number of **HSS/1383/016M**

1. How do you think the CSL is used in line with SDL principles? Motivation to learn, Planning, peer collaboration, monitoring and evaluation of their studies?
2. What can you say about the learning environment of the clinical skills laboratory in relation to students practice?
3. What are the strategies used here for teaching and learning in order to ensure students adhere to the South African Nursing Council's requirement?
4. How do the students use CSL in relation to the South African Nursing Council's requirements?
5. What can be done to strengthened SDCSL as a learning space for Undergraduates nursing students?
6. Do you think the resources both human and material are enough in the CSL? Explain
7. How do you think the SDCSL is utilized fully and for it intended purposes?

Conclusion

Let's summarize some of the key points from our discussion.

Is there anything else you would like to add to what we have talked about which you have not mentioned?

Do you have any questions?

Thank you for taking time from your busy schedule to talk to me, I am most grateful.

ANNEXURE 5: INFORMED CONSENT FORM FOR INTERVIEW



UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

INFORMED CONSENT FORM FOR INTERVIEWS CONSENT FORM

I, confirm that I have been briefed on the nature of the research and my role as a participant. I understand that the researcher is a Masters student at the School of Nursing and Public Health in Howard College Campus at the University of KwaZulu-Natal, Durban in South Africa and this research is the student's thesis.

I therefore freely and voluntarily give my consent for the use of my answers in this research, with the knowledge that I have the right to withdraw from this research at any point in time without explanations and prejudice.

I permit the School of Nursing and Public Health, the University of KwaZulu-Natal to use the findings from this research as they deem fit with the provision that my name will be disentangled from the results.

You may contact Mr. Luke Laari on +27632125993, Email: 214585158@stu.ukzn.ac.za, anytime if you have any question about the research, or

The researcher's supervisors- Mrs. Barbara M. Dube - contact number +27 31 2602497, Email: dubeb@ukzn.ac.za

You may also contact HSSREC Research office- Mariette Snyman contact number 031-2608350, Email: snymanm@ukzn.ac.za

Signature of Participant.....Date.....

ANNEXURE 6: FOCUS GROUP DISCUSSION GUIDE



UNIVERSITY OF
KWAZULU-NATAL

INYUVESI
YAKWAZULU-NATALI

Focus Group Discussion

Welcome

Thanks for agreeing to be part of the focus group. The researcher appreciates your willingness to participate in this discussion.

Introductions

Moderator; assistant moderator

Purpose of focus group

The purpose we are having these focus groups is to find out your opinions about the utilisation of self-directed clinical skills laboratory. We need your input and want you to share your honest and open thoughts with us.

Ground rules

1. We want you to do the talking, we would like everyone to participate and I may call on you if I haven't heard from you in a while.
 2. There are no right or wrong answers and every person's experiences and opinions are important. Speak up whether you agree or disagree, because we desire to hear a wide range of opinions.
 3. What is said in this room stays here. We want everyone to feel comfortable sharing when sensitive issues come up.
 4. We will be tape recording the group. We want to capture everything you have to say; however, we don't identify anyone by name in our report. You will remain anonymous.
- The discussion will last at least 60minutes

5. you will fill a short demographics form for us before we start

Questions for a Focus Group Discussion on utilisation of clinical skills laboratory resources

Engagement question

Let's start the discussion by talking about what you understand by Self-Directed clinical skills laboratory in nursing?

Exploration Questions

1. With regards to the principles of SDL such as Motivation, Planning, Peer collaboration, monitoring and evaluation. What can you say about each, linking it to your learning in the clinical skills laboratory?
2. What are your views about the learning environment in the self-directed clinical skills laboratory?
3. How do you perceive yourself academically anytime you are in the clinical skill laboratory regarding your ability as a student nurse?
4. How do you perceive learning in the clinical skills laboratory?
5. How is the clinical skills laboratory used with regards to the South African Nursing Council's requirement?
6. What will you suggest on how the clinical skills laboratory can be strengthened
7. What is your idea about the resources and their utilisation both human and material?

Exit question

Is there anything else you would like to say about the SDCSL utilisation?

Thank you very much for your time.

ANNEXURE 7: INFORMED CONSENT FORM FGD



UNIVERSITY OF
KWAZULU-NATAL
—
INYUVESI
YAKWAZULU-NATALI

INFORMED CONSENT FORM FOR FGD CONSENT FORM

Thank you for agreeing to participate. The researcher is very much interested to hear your valuable opinion on how the self-directed clinical skills laboratory is used by the undergraduate nursing students in the university of KwaZulu-Natal. The purpose of this explorative descriptive study is to discover and analyse the self-directed clinical skills laboratory by undergraduate nursing students in a selected higher educational institution in KwaZulu-Natal. The study is intending to describe the types of resources needed and their availability in the clinical skills laboratory as teaching and learning resource to improve undergraduate nursing students' practical skills and to determine if the principles of Self-Directed Learning are adhered to.

The information you give the researcher is completely confidential, and we will not associate your name with anything you say in the focus group. The researcher would like to tape the focus groups so that he can make sure to capture the thoughts, opinions, and ideas that is heard from the group. No names will be attached to the focus groups and the tapes will be destroyed as soon as they are transcribed.

You may refuse to answer any question or withdraw from the study at any time. The researcher understands how important it is that this information is kept private and confidential. I wish to ask participants to respect each other's confidentiality.

If you have any questions now or after you have completed the questionnaire, you can always contact Mr. Luke Laari on +27632125993, Email: 214585158@stu.ukzn.ac.za, anytime, or

The researcher's supervisors- Mrs. Barbara M. Dube - contact number +27 31 2602497,
Email: dubeb@ukzn.ac.za. You may also contact HSSREC Research office- Mariette
Snyman contact number 031- 2608350, Email: snymanm@ukzn.ac.za

Signature of Participant.....Date.....

ANNEXURE 8: LIST OF UNDERGRADUTE NURSING STUDENTS



Bachelor of Nursing Students Numbers -2016

Level of study	Student No's
Fundamental Nursing Science 2 NURS112H2	78
Preventative and Promotive Health NURS230H0	62
Nursing 302 NURS331H2	63
Midwifery	17
Psychiatric Nursing	20
Total Number of students	240

We have ± 15 student from 1st to 4th year floating in the system completing other modules.

**Undergraduate Administration
School of Nursing & Public Health
UNIVERSITY OF KWAZULU-NATAL
DURBAN SOUTH AFRICA, 4041
KWAZULU-NATAL
FAX: 031 260 1543 TEL: 031 260 2499**

**School of Nursing and Public Health
Howard College Campus**
Postal Address: Private Bag X54001, Durban 4000, South Africa
Telephone: +27 (0) 31 260 2499 Facsimile: +27 (0) 31 260 1543 Website: www.ukzn.ac.za

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INSPIRING GREATNESS

ANNEXURE 9: REQUEST FOR GATE KEEPER PERMISSION



**UNIVERSITY OF
KWAZULU-NATAL**

**INYUVESI
YAKWAZULU-NATALI**

University of KwaZulu-Natal
Howard College Campus
School of Nursing and Public Health
Durban
SOUTH AFRICA
17th June, 2016

The Registrar
University of KwaZulu-Natal
South Africa.

Dear Sir/Madam,

REQUEST FOR GATE KEEPER PERMISSION

I am a Masters student of the School of Nursing and Public Health in Howard College Campus at University of KwaZulu-Natal, Durban in South Africa. As requirement for studies, I am supposed to carry out research project. I therefore wish to request for permission to use the undergraduates nursing students in your institution as participants to conduct this Research.

This research is the student's research project and is for academic purpose and is entitled: **Analysing Utilisation of a Self-directed Clinical Skills Laboratory by undergraduate nursing students in Higher Education: A mixed methods design**

Interested students, who volunteer to participate, will be given a consent form to be signed. If approval is granted, student participants will complete the questionnaire in a classroom or other quiet setting on the campus. (First week of August, 2016 at lunch time break) permission for the use of this venue as well. The process should take no longer than 20minutes, no costs will be incurred by either your institutions or the individual participants. You may contact me for any clarification at my email: laariluke@yahoo.com or 214585158@stu.ukzn.ac.za

If you agree, kindly submit a signed letter of permission on your institution's letterhead acknowledging your consent and permission for me to conduct this study at your institution to assist get ethical clearance.

Yours sincerely

A handwritten signature in cursive script that reads "Laari Luke".

Laari Luke (214585158)

ANNEXURE 10: GATE KEEPER PERMISSION



28 June 2016

Mr Laari Luke (SN 214585158)
School of Nursing and Public Health
College of Health Sciences
Howard College Campus
UKZN
Email: 214585158@stu.ukzn.ac.za

Dear Mr Luke

RE: PERMISSION TO CONDUCT RESEARCH

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal (UKZN), towards your postgraduate studies, provided Ethical clearance has been obtained. We note the title of your research project is:

"Analysing Utilisation of a Self-directed Clinical Skills Laboratory by undergraduate nursing students in Higher Education: A mixed methods design".

It is noted that you will be constituting your sample by handing out questionnaires to undergraduate nursing students from the College of Humanities on the Howard College campus.

Please ensure that the following appears on your questionnaire/attached to your notice:

- Ethical clearance number;
- Research title and details of the research, the researcher and the supervisor;
- Consent form is attached to the notice/questionnaire and to be signed by user before he/she fills in questionnaire;
- gatekeepers approval by the Registrar.

Data collected must be treated with due confidentiality and anonymity.

Yours sincerely



MR S.S. MOKOENA
REGISTRAR






Office of the Registrar

Postal Address: Private Bag X54001, Durban, South Africa

Telephone: +27 (0) 31 260 8005/2206 Facsimile: +27 (0) 31 260 7824/2204 Email: registrar@ukzn.ac.za

Website: www.ukzn.ac.za

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ANNEXURE 11: APPROVAL FROM DEPARTMENT OF NURSING



05 September 2016

Student No: 214585158

Dear Mr Laari,

MASTER OF NURSING (Full Research)

Title: "Analyzing Utilization of a Self-directed clinical skills Laboratory by Undergraduate nursing students in higher education: A Mixed Methods Design."

Supervisor: Ms M Dube

Co-supervisor: -

The above-mentioned ethics application was considered and the protocol has been approved for the Master of Nursing coursework degree by a Committee member of the Research and Higher Degrees Committee, School of Nursing and Public Health. The ethics application together with the protocol has been forwarded to the Humanities and Social Sciences Research Ethics Committee for review.

Please note:

- The study may not begin without the full approval of the Humanities and Social Sciences Research Ethics Committee.

Yours sincerely

Carol Dhanraj
School of Nursing and Public Health
Postgraduate Administration

cc: Ms C Ngcobo
Mrs Dube

School of Nursing and Public Health

Postal Address: University of KwaZulu-Natal, School of Nursing and Public Health, Howard Campus, Private Bag X 54001, Durban, 4000

Telephone: +27 (0) 31 2602499 **Facsimile:** +27 (0) 31 2601543 **Website:** www.ukzn.ac.za



Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

ANNEXURE 12: REQUEST FOR PERMISSION FROM ACADEMIC HEAD

University of KwaZulu-Natal

Howard College Campus

Discipline of Nursing

Durban

+27632125993

laariluke@yahoo.com

19th September, 2016.

The Academic Head

Department of Nursing and Public Health

Howard College Campus, University of KwaZulu-Natal

Durban.

Dear Sir/Madam,

REQUEST FOR PERMISSION TO CONDUCT A RESEARCH STUDY

I am Laari Luke (214585158) a Masters in Nursing Education students in the department of Nursing and Public Health. As a requirement, I am to conduct a research study with a title; **Analysing Utilisation of a Self-Directed Clinical Skills Laboratory by Undergraduate Nursing Students in Higher Education: A Mixed Methods Design.** I therefore, wish to request for permission to sample from the undergraduate nursing students and clinical facilitators of the Howard College Campus for my studies.

Gatekeeper letter and ethical clearance are secured and copies attached and therefore, wish to start data collection immediately I get approval from your office. I count on your assistance.

Your faithfully



Laari Luke (214585158).

Cc:

Supervisor: Mrs. Barbara M. Dube

Howard College Campus

School of Nursing and public Health 4th Floor, Desmond Clarence Building 4041
Durban.

ANNEXURE 13: APPROVAL FROM ACADMIC HEAD (NURSING)



Date: 20 September 2016

Re: GATE KEEPER LETTER FOR RESEARCH PROPOSAL

We are pleased to provide this letter of support for the research study proposed by Mr. Laari Luke, student No: 214585158 at the university of Kwazulu Natal, School of Nursing and Public health.

Our understanding is that the research proposal titled "**Analyzing utilization of a self-directed Clinical skills laboratory by undergraduate Nursing students in higher education: A mixed method design**" will involve collection of data from Undergraduate Bachelor of Nursing Students and clinical facilitators.

This letter serves as a gatekeeper permission letter to grant provisional support for these planned activities and to support the student's application to the relevant ethics Committee.

Yours sincerely

Professor GG Mchunu

Academic Leader: Nursing

School of Nursing and Public Health

Postal Address: University of KwaZulu-Natal, School of Nursing and Public Health, Howard Campus, Private Bag X 54001, Durban, 4000

Telephone: +27 (0) 31 2602499 **Facsimile:** +27 (0) 31 2601543 **Website:** www.ukzn.ac.za

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ANNEXURE 14: ETHICAL CLARENCE



8 September 2016

Mr Luke Laari 214585158
School of Nursing & Public Health
Howard College Campus

Dear Mr Laari

Protocol reference number: HSS/1383/016M
Project Title: Analysing utilisation of a self-directed Clinical Skills Laboratory by Undergraduate Nursing students in Higher Education: A mixed methods design

Full Approval – Expedited Application

In response to your application received 19 August 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Dr Shamila Naidoo (Deputy Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

Cc Supervisor: Mrs M Dube
Cc Academic Leader Research: Professor M Mars
Cc School Administrator: Ms Caroline Dhanraj

Humanities & Social Sciences Research Ethics Committee

Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ximbap@ukzn.ac.za / snymanm@ukzn.ac.za / mohunp@ukzn.ac.za

Website: www.ukzn.ac.za



Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

ANNEXURE 15: LETTER FORM EDITOR



28 November 2016

To whom it may concern

Editing of manuscript

I am employed as the Editor for the School of Health Science, University of KwaZulu-Natal, and have edited the following Nursing Masters thesis:

Title: Analysing Utilisation of a Self-Directed Clinical Skills Laboratory by Undergraduate Nursing Students in Higher Education: A Mixed Methods Design

Student: Luke Laari (214585158)

Supervisor: Barbara M. Dube

My edits are provided as track changes in Microsoft Word, with the final content being decided by the authors.

Regards

A handwritten signature in black ink, appearing to read 'Carrin Martin'.

Carrin Martin
MSocSci, PGDipPH
Editor
School of Health Science
College of Health Science
University of KwaZulu-Natal
Westville Campus
South Africa

ANNEXURE 16: DREEM QUESTIONNAIRE GUIDE

A practical guide to using the Dundee Ready Education Environment Measure (DREEM)

Sean McAleer and Sue Roff

The DREEM

The DREEM contains 50 statements relating to a range of topics directly relevant to educational climate. The inventory can be administered by postal survey or face-to-face in the classroom. Students are asked to read each statement carefully and to respond using a 5 point Likert-type scale ranging from strongly agree to strongly disagree. It is important that each student applies the items to his/her own current learning situation and responds to all 50.

Scoring the DREEM

Items should be scored as follows:

- 4 Strongly Agree 3 Agree
- 2 Uncertain
- 1 Disagree
- 0 Strongly Disagree

However, 9 of the 50 items (numbers 4, 8, 9, 17, 25, 35, 39, 48, and 50) are negative statements and should be scored:

- 0 Strongly Agree
- 1 Agree
- 2 Uncertain
- 3 Disagree
- 4 Strongly Disagree

The 50-item DREEM has a maximum score of 200 indicating the ideal educational environment as perceived by the student. A score of 0 is the minimum and would be a very worrying result for any medical educator.

The following is an approximate guide to interpreting the overall score:

0-50 very poor

51-100 plenty of problems

101-150 more positive than negative

151-200 excellent

Interpret a score of 100 as an environment which is viewed with considerable ambivalence by the students and as such needs to be improved. As well as the total DREEM score there are five subscales:

- Students „perceptions of learning
- Students“ perceptions of teachers
- Students“ academic self-perceptions
- Students“ perception of atmosphere
- Students“ social self-perceptions.

The items within each subscale:

The DREEM - items grouped by subscale (negative items in italics).

Students' perception of learning:

1 I am encouraged to participate in class

7 The teaching is often stimulating

13 The teaching is student centered

16 The teaching helps to develop my competence

20 The teaching is well focused

22 The teaching helps to develop my confidence

24 The teaching time is put to good use

25 *The teaching over-emphasizes factual learning*

38 I am clear about the learning objectives of the course

44 The teaching encourages me to be an active learner

47 Long-term learning is emphasized over short term learning

48 *The teaching is too teacher-centered*

i.e. 12 items/max score 48 for this subscale

Students' perceptions of teachers:

2 The teachers are knowledgeable

6 The teachers are patient with patients

8 *The teachers ridicule the students*

9 *The teachers are authoritarian*

18 The teachers have good communications skills with patients

29 The teachers are good at providing feedback to students

32 The teachers provide constructive criticism here

37 The teachers give clear examples

39 *The teachers get angry in class*

40 The teachers are well prepared for their classes

50 The students irritate the teachers

i.e. 11 items/max score 44 for this subscale

Students' academic self-perceptions:

5 Learning strategies which worked for me before continue to work for me now

10 I am confident about passing this year

21 I feel I am being well prepared for my profession

26 Last year's work has been a good preparation for this year's work

27 I am able to memorize all I need

31 I have learned a lot about empathy in my profession

41 My problem-solving skills are being well developed here

45 Much of what I have to learn seems relevant to a career in healthcare

i.e. 8 items/max score 32 for this subscale

Students' perceptions of atmosphere:

11 The atmosphere is relaxed during the ward teaching

- 12 This school is well timetabled
- 17 *Cheating is a problem in this school*
- 23 The atmosphere is relaxed during lectures
- 30 There are opportunities for me to develop interpersonal skills
- 33 I feel comfortable in class socially
- 34 The atmosphere is relaxed during seminars/tutorials
- 35 *I find the experience disappointing*
- 36 I am able to concentrate well
- 42 The enjoyment outweighs the stress of studying medicine
- 43 The atmosphere motivates me as a learner
- 49 I feel able to ask the questions I want

i.e. 12 items/max score 48 for this subscale

Students' social self-perceptions:

- 3 There is a good support system for students who get stressed
- 4 *I am too tired to enjoy this course*
- 14 I am rarely bored on this course
- 15 I have good friends in this school
- 19 My social life is good
- 28 I seldom feel lonely
- 46 My accommodation is pleasant

i.e. 7 items/max score 28 for this subscale

An approximate guide to interpreting the subscales is shown below.

Students' Perception of Learning

- 0-12 Very Poor
- 13-24 Teaching is viewed negatively
- 25-36 A more positive perception
- 37-48 Teaching highly thought of

Students' Perception of Teachers

- 0-11 Abysmal
- 12-22 In need of some retraining
- 23-33 Moving in the right direction
- 34-44 Model Teachers

Students' academic self-perceptions

- 0-8 Feelings of total failure
- 9-16 Many negative aspects
- 17-24 Feeling more on the positive side
- 25-32 Confident

Students' perception of atmosphere

- 0-12 A terrible environment
- 13-24 There are many issues which need changing
- 25-36 A more positive atmosphere
- 37-48 A good feeling overall

Students' social self-perceptions

- 0-7 Miserable
- 8-14 Not a nice place
- 15-21 Not too bad
- 22-28 Very good socially

ANNEXURE 17: SAMPLE OF TRANSCRIPTS (CF5)

1. How do you think the clinical skills laboratory is used in line with the self-directed learning principles? Such as motivation to learn, planning, peer collaboration, monitoring and evaluation of their studies.

Students come to take the competency home. They would say they are going to practice in their rooms and others would practice here. I am not sure of what actually goes into what they are doing but you find out that they will go according to what the competence form says but what actually is done in reality. Other when performing a procedure will say I am going to record or document and then do medical asepsis when you ask them why because the form says it but, in reality what should you actually do.

For instance, you want to give intramuscular injection, you may know all the principles of administration intramuscular injection but, for me it is also important to tell me what type drug you want to administer. You should be able to tell the type of drug, it is scheduled, how it is kept. But you find out that the student doesn't come with that in mind. The only information they mention is the one relevant to the competence form, so for me it is like there is a separation of what is done in the clinical area and what is done in the clinical skills laboratory. They practice in isolation; students need to know that you will not be only assigned to administer an injection. They should be able to link the activities and how each is done. The competencies are separated here yet in the clinical area they could be 5 competencies in one.

from my observation peer collaboration, doesn't happen all the time, few will go out their way to assist their colleagues.

2. what can you say about the learning environment of the clinical skills laboratory in relation to the students practice?

I think the clinical skills laboratory is a good idea, coming from a practical clinical environment where students normally practice on patients. Also, I find out that students are so comfortable in this environment. They are able to practice on their own and when they feel they are confident to be able to perform a procedure on their own they ask to be assessed on that competency.

Regarding the arrangement, I don't think that is a suitable setup, I believe that when a student does competence or perform procedures, there should be some degree of privacy, which is not allowed in this setup because is an open place. Even with the screen student will screen for privacy but that doesn't allow privacy of the student. the student screening for privacy for the "patient" but there is no privacy for her as a student and there is no privacy for me as facilitator to be able to feel free to give her feedback. I mean an instance where a student is a little bit embrace because you say, you know what I feel that you not competent we gonna take this as a practice, continue practising and perhaps before you leave you can be reassessed to see if you are competent. You have other students around you and then the student will not want to practice she rather leave to come back another day. For me is not conducive in that respect to allowing for privacy you as a facilitator to feel free to give feedback and also for the student to accept the feedback without been embraced.

for you what do you suggest as a facilitator that can be done in this situation

You know in the ward setting students to get assessed for competency right, so students assessed at the patient bedside but what happened you will assess him for competency at the bedside maybe they are doing dressing, maybe BP. and you are able to take them and then take them to a dressing room where you will go through the relevant theories with them and then you give them the feedback on their own performance. Either that or if possible if we could have a room where you will do this. In a meantime, we got an area where students are able to access information on YouTube and also you are able to assess a student away from their colleagues. There have been times I am assessing a student and I have to tell the other students you know what, this assessment is between me and the student and that doesn't include you. This is because they end up standing there and watching you assess their colleagues and this can be intimidating to the student been assessed and also the one watching learning what not to do when it comes to your turn.

3. Do you think the resources both human and material are enough in the clinical skills laboratory? Explain

When it comes to the human resource I don't think, there is enough, so the university makes use of education students, and basically for them to complete hours. So far my experience the students that come here to complete their hours are fine they are not just here for the hours they actually work as clinical facilitators. We speak the same language so that the student no that they are not just education students but clinical facilitators when they are here. When it comes to manpower we not short in that respect because of the student who assist in making up their hours but then what happens is when they complete their hours. When it comes to the number clinical facilitators we are really short we don't have enough clinical facilitators, it would be nice if the number of clinical facilitators was increased for us to be able to spend more time with the students, or for students that having difficulty or students that you feel need more time spent. When it comes to a material, also I think that we need more and we need more because in the clinical area they use some of the things that we don't have and therefore have to make do with what we have here. In light of material, I think that we can improve.

One of the things is administration medications even if we are able to get expired medication so that when we are demonstrating to make the teaching real, this will bring part of the real life situation into the clinical skills laboratory.

There are times where we run out of consumables, and I will always tell the students things that can be recycled if it is it not torn, they are taught how to recycle it and use again even though that is not the best practice and should not be done.

Is the same when you doing the opening of the sterile pack we got so many students. They practice of opening of a sterile pack that are already opened, but there so many students that if you want to open new packs all the time you can imagine how many packs you will open and that is why we recycling most of the material.

4.How do you think the self-directed clinical skills laboratory is utilized fully and for it intended purposes?

It supposed to serve it purpose, I will think so. Is not often that I come here and students don't book. You get the odd time that maybe the students have booked but they wouldn't come. Also, maybe they are preparing for something else like a test. what I do is the student that I see especially the third year, I will continue whether they are ok and also do tell them to book on this date so that when I come I can see you.

With the booking system, when a student doesn't book, in the first semester we are lineate with them but is not so in subsequent semesters. Also, students that are lacking behind we do allow them to book or come when there are free.

First year they do 6 competencies in the whole year, the third year does 20 in each semester and the fourth year do 25 hours by practising some procedures to cover their hours

For me, I think is important that when students come to the clinical skills laboratory, they should come with the relevant theory because like I said students will come here and the focus is only on the competency form. They are not thinking out the competence form and what is the procedure on this mannequin or actual real patient. You know something like identifying the patient, how would you identify the patient treat that mannequin-like you would in the real patient.

5.what are the strategies used here for teaching and learning in order to ensure students adhere to the South African Nursing Council's requirement?

I think it depends on the facilitator, however we all do sometime sacrifice our lunch in order to make sure we attend to students for them to meet their hours. For me what I always do is to identify those students that are lacking behind and then tell them to book again on this date so I can see to it that they are able to grasp what they were struggling with.

That is for me other might use other methods. All I can say is we do our best to make sure students meet the South African Nursing Council's requirement in the skills

laboratory. So, that is what I can say but I do know the South African Nursing Council's requirements are taken serious and we make sure students achieve that.

6.How do the students use clinical skills laboratory in relation to the South African Nursing Council's requirements?

Some of them are coming here to learn and some are coming just to get their competencies complete. That is a concern for us and that is why I will not force anybody through when I feel they are not competent. I will reinforce what they are doing. Those who come here just to complete their competencies are those that you ask them questions outside the competency form and it throws them out. This is because their focus is only on the competency form and not what they are doing because when I go to the ward I will have to do.

I know the clinical skills laboratory is provided for the student to practice to achieve their competencies but I still have a concern when they go into the clinical area. Performing on a mannequin is not the same as performing on a life patient. It will be nice to have the clinical facilitator standing by when the student is doing his first injection for instance but unfortunately, this is not so. We are depending on the registered nurses and the truth is performing an injection on the mannequin is different when performing it on a real-life patient.

6.What can be done to strengthened the self-directed clinical skills laboratory as a learning space for undergraduate nursing students?

For me, I think it will help if there have and in-house clinical skill facilitator in the skill laboratory. I mean you look at those baskets need to be attended to, this fellow will know what should be in the basket and what is relevant and she will know what is used in the clinical area. she will pay more attention to the basket and the students.

Also, ideally, it will be right if we should have a dressing room set up, because in the real life we got the duty room and dressing room setup. For teaching purposes, you could have an area where you have cupboards, where you have medicine trolley. It will be ideal to have all these arranged well for students but once again it will require someone in the field to manage that properly.