THE LEARNING PROCESSES THAT BEST SUPPORT THE DEVELOPMENT OF COMPETENCE AMONG NURSING STUDENTS IN PRACTICE

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DECLARATION

I, Takaedza Munangatire, declare that this thesis is my own, unaided work. It is being submitted for the degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination at this or any other University.

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Takaedza Munangatire

20 August 2019

I dedicate this thesis to my wife, Nyarai, my son Austin and my daughter Michaela. You were and are the pillar of my strength.

May this thesis fill you with inspiration, not necessarily to emulate this but to reach the pinnacle of your chosen dreams and pathways. Everything you set your mind to is attainable; pursue your goals no matter what. The only obstacle to reaching your goals is stopping to pursue them because failure doesn't exist.

To my late mother, I did this for you, you believed in me when it was not possible to do so; you told me it is not about what you have but what you do with what you have. Surely, I did put all I had into this and today am sure you did be proud.

To my uncle, you taught me the power of will, you have survived when everyone else declared you dead, not once, not twice but three times. When I felt I could not do it, you inspired me. It's sad you could not live to see this day.

ABSTRACT

The development of competence among student nurses is important to nurse educators, nursing regulatory bodies, employers and patients. Several teaching and learning strategies have been developed to support the development of competence among student nurses but the level of competence at the point of graduation remains below expected standards. This study explored students' experiences of the learning processes that support the development of competence in nursing practice in Namibia. Gaining an understanding of learning from the student's perspective can strengthen the current teaching and learning strategies, hence improve the development of competence.

The qualitative phenomenographic study that investigated the learning processes that best support the development of competence was conducted in Namibia at a nursing college. Forty- nine (49) participants (lecturers, clinical instructors, nurses and student nurses) were purposively sampled to take part in the study. Data were collected through in-depth interviews and focus group discussions. The analysis of data was managed through ATLAS. ti 8.1 and followed the process of familiarisation, condensation, comparison, grouping, articulating labelling and contrasting of excerpts in order to generate the outcome space. Ethical principles were applied to ensure that the study complied with ethical requirements set by institutions and international guidelines.

Five categories of description emerged and showed that the development of competence involves students increasing their understanding of what competence is, hence changing their learning strategies to meet the level of competence as they understood it. In order of hierarchy from the lowest, the categories of description were; competence is understood as task completion; competence is understood as passing assessments /satisfying facilitators; competence is understood as applying theory to practice; competence is understood as performance of nursing according to clinical standards/guidelines; competence is understood as performance that yields positive health outcomes*.*

An analysis of the outcome space culminated in a proposed model for the development of competence, which shows that the development of competence among student nurses is influenced directly and indirectly by the students' understanding of competence. Students with a shallow understanding of competence adopt superficial learning approaches. As students progress in their education and are exposed to real practice settings, their understanding of competence deepens and they shift their learning strategies to deep approaches.

Key words- development of competence, learning process, phenomenography, student nurses

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ABBREVIATIONS AND ACRONYMS

ABS	Applied Biological Science
AC	Abstract Conceptualisation
AE	Active Experimentation
CBE	Competence-based education
CE	Concrete Experience
CNS	Community Nursing Science
DNMS	Diploma in Nursing and Midwifery Science
GNS	General Nursing Science
ICN	International Council of Nurses
MNS	Midwifery Nursing Science
MoHSS	Ministry of Health and Social Services
NHTN	National Health Training Network
NMC	Nursing and Midwifery Council
NNC	Nursing Council of Namibia
OSCE	Objective structured clinical examination
RNTP	Registered Nurse Training Project
RO	Reflective Observation
UK	United Kingdom
USA	United States of America
WHO	World Health Organisation

CHAPTER 1: BACKGROUND AND INTRODUCTION TO THE STUDY

1.1 Background

Competence is the desired outcome of both competency-based curricula and traditional educational programmes across the world (Blažun, Kokol and Vošner, 2015; World Health Organisation (WHO), 2013). With the shortage of nurses globally, expectations are that nurses are ready for practice upon graduation without the need for enrolling them into formalised induction programmes (Goode et.al., 2009). However, evidence shows that both nursing diplomates and graduates are not competent to practice upon graduation (Liou et al., 2013). The ongoing transformation of traditional nursing education to competence-based education implies that graduating nurses will be competent, although there is insufficient evidence to support this claim (Frenk et al., 2010). In addition, the lack of data to identify key learning processes that support the development of competence among nursing students (in this study the terms learners and students will be used interchangeably) can compromise the success of nursing education (Russell, 2006).

While many studies have looked at learning that promotes the development of competence, the focus has been on learning processes affecting specific competencies such as cultural competence and critical thinking (Garneau and Pepin, 2015). There is little investigation into the combined effect of learning processes and their influence on the achievement of overall competence of student nurses. Identifying the learning processes that student nurses find effective in the development of competence is critical in structuring nursing education programmes to produce competent nurses. It is also important for all who are involved in the development of competence (student nurses, nurse lecturers, clinical instructors and registered nurses) to have an understanding of competence and the processes through which it can be developed (Sedgwick, Kellett and Kalischuck, 2014). Therefore, this study aimed to identify and categorise the learning processes critical to the development of competence. Furthermore, the study sought to integrate the roles of those involved in the development of competence processes and present this in a theoretical proposition for the development of competence in nursing education.

The issues identified above have significant implications for the Diploma in General Nursing and Midwifery (DGNM) programmes in Namibia where government seeks to create a competent workforce for the country. The success of this initiative depends on educational processes that can facilitate the development of competence among the students.

1.2 Development of competence

Understanding the development of competence is impossible without defining it. It is the understanding of what competence is that forms the basis of its development among students and those who support students' learning. The way one understands competence shapes the way one chooses to develop it. The lack of an agreed upon definition of competence, can be one of the factors that hinder the development of competence among professionals (Liou et al., 2013). The definition of competence is based on two philosophical approaches; the rationalistic and the interpretivistic. The rationalists' definition is more objective and dependent on independent observation while the interpretivists' definition is less objective and based on the individual whose competence is under study (Redfern et al., 2002).

Rationally, competence is an integration of skills required to perform given tasks. The way internationally recognised institutions define competence supports this rational explanation of competence. Among these international institutions are the International Council of Nurses (ICN), American Academy of Ambulatory Care Nursing, Nursing and Midwifery Council (NMC) of the United Kingdom (UK) and the Nursing and Midwifery Board of Australia. The ICN (2009) defines competence as the application of a combination of knowledge, skills and attitudes demonstrated by an individual in daily practice or job performance. Writing in the American Academy of Ambulatory Care Nursing guide, Laughlin (2013) defined competence as the ability to show technical, critical and interpersonal skills needed to accomplish a job while the UK describes competence as an integration of knowledge, skills and attitudes required to practice safely without supervision (Gebru, Ghiyasvandian and Mohammodi, 2015; Nursing and Midwifery Council (NMC), 2010). The Nursing and Midwifery Board of Australia (2006)

defines competence as a combination of skills, knowledge, attitudes, values, and abilities that underpin effective performance in a professional area.

While the above definitions are more holistic, some rationalistic perspectives believe in the behavioural way of describing competence, defining it in terms of general observable attributes, critical for one to perform a given task (Liou et al., 2013). On the other hand, the interpretivistic approach defines competence as the nurse's conception of knowledge, skills and attitudes in relation to nursing roles performed (Benner, 1984; Sandberg, 2000).This lack of consensus in defining competence is a weakness in competency-based education which can hinder success in attaining competence (Blažun et al., 2015; Liou et al., 2013).

The current trend suggests an objective definition of competence, as observed in an individual's performance or capability (Bvumbwe and Mtshali 2018; Nilsson et al., 2014; Eraut, 1998). For example Takase et al. (2014) defined competence as the capability of a nurse to display a combination of knowledge, skills and attitudes needed to complete nursing professional duties. This definition is close to the expectations of health care institutions who anticipate that upon graduation the student nurse can carry out professional duties according to the set standards with positive health care outcomes for patients. The term 'set standards' brings the concept of competence under scrutiny as set standards vary from place to place, making what people observe as competent, subjective. A nurse can be competent in one country and incompetent in another country due to variations in the standard operating procedures and protocols as well as resources used. Due to the variations in the definition of competence, this study will look at competence holistically with a bias towards the interpretivistic definition as it suits the tenets of competence, which include it being conceptualised differently in different contexts (Garside and Nhemachena, 2013).

The description of competence in Namibia is not clear although the term 'competence' appears within documents of the Nursing Council of Namibia (NCN), which is the custodian of the quality of nurses registered and licensed to practice in the country. The NCN specifies the scope of practice and performance standards for nursing practice. This specification is a sign that there is a certain required level of skill for practice, which

in today's world is competence. Therefore, it is competence that nursing education programmes are expected to develop in their students.

The findings of this study are important in improving a holistic understanding of the development of competence among nursing students. Past studies on competence have focused on its development among registered nurses (Benner, Tanner and Chesla, 2009), or the development of part-competence, (Sedgwick et al., 2014), and the assessment of competence (Yanhua and Watson, 2011). This study looked at the development of competence in a holistic perspective, focusing on the learning activities that are effective in the development of competence and how it develops as students progress from one level to another in their education. The findings of this study supplement the current understanding of how students develop competence including the best strategies to develop it.

1.3 Forces behind the transformation of nursing education in Namibia

Improvement in health care indicators in Namibia is not yet considered adequate to attain the goal of improved health status for Namibians (Government of the Republic of Namibia, 2016). This goal is under threat because of staff shortages, particularly in the rural areas and a limited (but growing) capacity to educate healthcare workers (Ministry of Health and Social Services, 2013). This has prompted Namibia to depend heavily on expatriate health care workers; a situation that creates uncertainties about retention, a high turn-over rate and is unsustainable in the long term.

Against this background, the Government of Namibia engaged in an exercise to restructure the Ministry of Health and Social Services (MoHSS), with one of the aims being to create a skilled workforce by supporting local healthcare education institutions (Ministry of Health and Social Services, 2013). This resulted in the launch of the Registered Nurse Training Project (RNTP) in 2013 to educate registered nurses in the country with a focus on producing enough competent nurses for the country. The following section outlines the background to nursing education in Namibia and an explanation of the RNTP.

1.4 Nurse education in Namibia

Namibia is a vast, middle-upper income country, one of the biggest in Africa with a population of just over two million people distributed over the various regions. The country's health care system is delivered through the Primary Health Care approach in several health facilities, which include at least 46 hospitals across the country (Ministry of Health and Social Services, 2013). The vastness of the country and its health care system demands that there be competent health professionals in every region who can comprehensively manage patients within the regions to reduce costly transfer of patients without increasing risk.

Basic nursing education in Namibia is offered at two levels: diploma and degree levels at government institutions and private universities respectively. Government institutions include the National Health Training Centre in the capital city Windhoek and Regional Health Training Centres in Rundu and in Keetmanshoop. These institutions fall under the jurisdiction of the MoHSS. Private institutions include three universities, the University of Namibia, Wilwetchia University and the International University of Management, which are all located in Windhoek but have campuses throughout the country.

The nursing education programmes offer basic sciences, social sciences, information technology and nursing sciences, community and midwifery courses from year one through to the completion of the programme. This means that although students study non-clinical courses in year one, they are exposed to clinical learning from year one of their education. Simulation based learning is also implemented before students get to the clinical workplace. Theoretical and simulation based learning occurs at the school or university, while practical or clinical learning occurs during clinical placements in community sites, clinics and hospitals. Lecturers and clinical instructors, who have qualifications in nursing education, facilitate theoretical and simulated learning at the education facility while clinical learning is facilitated by registered nurses and clinical instructors in the workplace. The delivery may differ from institution to institution; therefore, it was important for the sake of this study to focus on the Diploma in Nursing

and Midwifery Science offered by the RNTP as most of the nurses in education programmes and in practice are in the diploma category.

1.5 Registered Nurse Training Programme in Namibia

The National Health Training Network (NHTC) division of the Ministry of Health and Social Services through the RNTP offers the Diploma in Nursing and Midwifery Science (DNMS). The programme takes three and half years to complete; the first three years focus on both theoretical and practical education and the last six months are dedicated to practical education (internship in midwifery). Entry requirements into the programme are: Namibian citizen with Grade 12 Certificate, at least 24 points in five subjects including Biology/Physical Science/Mathematics, with a D or higher in English or be an Enrolled Nurse/Midwife/Accoucheur with the Nursing Council of Namibia with proof of current enrollment (Ministry of Health and Social Services, 2013).

1.6 DNMS Curriculum

Although the type of curriculum for the DNMS is not stated, an analysis of the curriculum reveals that it is close to the traditional curriculum. Firstly, the learning outcomes focus on what students should know rather than what they should be able to do. Secondly, the recommended teaching and learning methods are not different from strategies that are found in traditional content-based curricula. Thirdly, the organisation of the curriculum, although it has some aspects of integration, still separates knowledge aspects from practical aspects. Lastly, the assessment approaches lack integration, even though objective structured clinical examinations are used. The DNMS curriculum cannot be equated to traditional curricula that tend to list content, but falls short of being a competency- based curriculum.

The DNMS curriculum consists of four major courses offered in year one, two and three. The four courses are General Nursing Science (GNS), Community Nursing Science (CNS), Midwifery Nursing Science (MNS) and Applied Biological Science (ABS), which is a combination of Pharmacology and Microbiology and Parasitology. A student cannot progress from one year of study to another unless all the requirements of these major courses are meet. The other courses are referred to as core courses and a student can

carry forward these courses. This is an unusual use of the term core course because core normally refers to those courses that are important in a programme of study and cannot be carried forward.

With regard to the teaching and learning strategy, the curriculum recommends a learner centered strategy without specifying how this will be achieved. A variety of teaching and learning methods are listed but there are no details as to how they should be utilised, leaving a possibility of their use being open to individual facilitators' interpretation and preference. The use of a block format system where students attend classes and simulation sessions followed by clinical learning in accredited health care institutions is the most common approach to delivering the course.

1.7 Facilitation of learning

Lecturers, clinical instructors and registered nurses are the key implementers of the DNMS curriculum. Lecturers facilitate learning in the classroom, clinical instructors partly in the classroom but mainly in simulation and clinical areas, while registered nurses facilitate clinical learning only. The main teaching strategies include lectures, demonstrations, role-play, simulation, group work and clinical learning among many other strategies recommended in the curriculum. Students' learning begins in the classroom, proceeds to simulation before going to the clinical area. Three major courses, GNS, CNS and MNS share clinical learning time based on the stipulated required hours. For their GNS clinical learning experience students rotate through various departments of the major hospitals, for MNS clinical learning experience students spend time in maternity units of major hospitals in the country, while for CNS students work in the clinics. The activities above are important for students to learn and develop competence.

1.8 Student learning

The emphasis is on students taking responsibility for their learning through engaging in various activities initiated by either the facilitators or self. Facilitators of learning give students tasks and assignments to complete. In addition, students should engage in self-study to enhance their understanding of the course material. The timetable makes

provision for one to two hours per week for library use, all the other time is allocated to activities mainly facilitated by the lecturers or clinical instructors. Simulation rooms are rarely utilised by students in the absence of the facilitator. Logbooks for each of the three major courses, guide students in terms of what has to be learnt in the clinical areas. However, the clinical area accommodates patients' needs first, so students have to adapt their learning to the patients' needs.

1.9 Logbooks

Each of the three major courses has a logbook, which outlines the number of specific procedures, or competencies students must complete in each year of study. The logbooks act as a monitoring tool and evidence of the student's development of competence in various nursing skills. The clinical instructor or the lecturer initially demonstrates the procedure to the students and gives them a chance to return demonstrate. The clinical instructor or lecturer signs for these activities. The demonstration can occur in the simulation or the clinical area. However due to the fact that clinical instructors and lecturers are not always available in the clinical area and cannot be available for all students, the registered nurses in the clinical area become a key component in student clinical learning. The registered nurses demonstrate and observe students perform procedures, give them feedback on their practice and in turn sign their logbooks as an indication that the student has performed the procedure. Unfortunately, the signed procedure does not tell if the student has performed the procedure competently or not. The assumption is that if a student has obtained all the signatures required for a particular procedure, then the student is competent in that particular procedure.

1.10 Assessment

The DNMS uses theoretical and practical assessments to measure the level of students' competence at the end of each academic year. The practical assessments are in the form of an objective structured clinical examination (OSCE), which is conducted in the simulation area. The outcome of the assessment gives an indication of the likelihood of the student's ability to perform competently in real practice. However, with the pass mark set at 50%, it can be argued whether this mark is consistent with the concept of

competence. The biggest challenge with the OSCE is that it focuses on a maximum of two isolated procedures only out of more than 20 possible procedures. It is therefore difficult to establish the students' competence based on examinations of this nature.

On successful completion of the diploma, the NCN registers the diplomates from the programme as Registered Nurse/Midwives. Once registered, the Registered Nurse /Midwife is expected to assume full professional responsibly according to the nursing regulations and the policies and guidelines of the Ministry of Health and Social Services (Nursing Act, 2004). As new professional nurses, some of the tasks they are expected to perform might be beyond their capabilities because they may lack the clinical skills and judgement required to provide safe, competent care (Dyess and Sherman, 2009; Clipper and Cherry, 2015).

1.11 Study setting

The study was conducted in Windhoek at the Windhoek Training Centre and in the two central hospitals, Katutura Hospital and Windhoek Central Hospital (both tertiary health care services). These sites were selected because they provide access to the range of participants needed for the study, and allowed for the iterative process of data collection and analysis.

1.12 Problem statement

Like many nursing programmes, the DNMS at the RNTP, seeks to produce competent nurses. However, there is a lack of complete understanding of the learning processes that support the development of competence. Studies on the development of competence to date have focused on the stages/ patterns of the development of competence without revealing the actual learning processes that students adopt in attaining competence in nursing (Dall'Alba and Sandberg, 2006). The process of developing competence in student nurses involves students themselves, lecturers, clinical instructors and nurses. Therefore, it is important for all of them to have a similar understanding of competence and the learning processes that best support its development as well as their roles in the development of competence. Unfortunately, there is no common understanding of the learning processes that best support the

development of competence (Blažun et al., 2015; Liou et al., 2013) and the roles and responsibilities of those involved are not clearly defined (Kristofferzon et al., 2013). A continuous change in nursing education systems without a significant change in the level of competence among student nurses at the point of graduation is evidence to show how difficult the pursuit of competence is (Blažun et al., 2015; Liou et al., 2013). Consequently, it is necessary to examine the learning processes that are pertinent to the development of competence among student nurses and the views of those involved in the process. The findings from this study are important in improving nursing education in the RNTP through the adoption of learning strategies that best promote learning and approximate the roles of those involved in the development of competence in student nurses.

1.13 Purpose of the study

The purpose of this study was to explore learning processes that best support the development of competence among nursing students in Namibia as well as to describe the views of those involved in the process and develop a learning model for the development of competence holistically.

1.14 Research questions

1. What learning processes best support the development of competence among nursing students in Namibia?

1.15 Objectives of the study

1. To identify and explore learning processes that best support the development of competence among nursing students in Namibia.
2. To explore the views of the students as to what they see as the role of lecturers and clinical instructors in the learning processes that best support the development of competence
3. To explore the nurses' in practice views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia.

4. To explore the lecturers' and clinical instructors' views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia

5. To develop an outcome space (model) on the development of competence in student nurses and to validate the model with a group of experts in nursing and the field of health professions education.

1.16 Research outcome

The analysis and subsequent interpretation of the data produced a model for the development of competence.

1.17 Significance of the study

Exploring the development of competence as a whole in nursing students and obtaining the views of clinical instructors, lecturers and nurses contributed to the understanding of the learning processes utilised in developing competence. This expanded the body of knowledge on the development of competence in nursing.

1.18 Role of the researcher

The researcher joined the RNTP in 2016 as a clinical instructor. This was three years after the start of the project and the first group of students was already in their third year of study. The researcher's main responsibility was to facilitate simulation and clinical learning of students in the community health nursing course. What motivated the researcher to embark on this study was to get an overall understanding of the activities that produce the best learning opportunities for students and how the involvement of many stakeholders in helping students, affects the development of competence.

1.19 Thesis structure

There are six chapters in this thesis. Chapter 1 gives the background and introduction to the study, details about the study setting and the DNMS programme in Namibia at Windhoek Health Training Centre. In chapter 2, an extensive literature review on competence and learning is presented with a focus on definitions and components of competence, its process of development including the learning theories and learning strategies critical to the development of competence as well as assessment of

competence. Moving to chapter 3, a detailed explanation of the methods applied in investigating the learning processes that best support the development of competence among nursing students are described. The concept of phenomenography is discussed and justifications for its use are elucidated. Furthermore, information on sampling, data collection and analysis are also described. The findings of this study are presented in chapter 4, giving an analysis of the learning processes critical to the development of competence and the roles of key players in facilitating the development of competence in students. These findings are consolidated and discussed in chapter 5, giving further scrutiny and interpretation to gain a deeper understanding of the development of competence in nursing students and a model for the development of competence is presented. Lastly, in chapter 6 the practical implications of the findings, application of recommendations and the conclusions are explained.

1.20 Conclusion

This chapter provided the reader with the background and introduction to the study. The concepts of competence and competence development are briefly explained and the activities that facilitate the development of competence in the DNMS programme at Windhoek Health Training Centre are highlighted. The chapter ends by looking at the study setting, problem statement, research objectives and significance of the study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The literature review for this study was conducted through a search of three databases, Science Direct, PubMed and the Cumulative Index to Nursing and Allied Health Literature. The search terms used were nursing, competence, learning processes, learning styles, learning theories, learning support and students.

The development of competence is complicated as many variables influence it. The objective of this chapter was to highlight the importance of the learning processes in supporting the development of competence among nursing students and ascertain an area where a new contribution to the development of competence in nursing could be made.

The main argument presented in this chapter is that the development of competence among nursing students cannot be understood clearly without explaining the learning processes that occur. Marouchou (2012) argues that the learning processes can be best understood from students' own experiences. The way students conceptualise learning is important in designing successful learning programmes because there is a strong link between students' conceptions of learning and the quality of the learning outcomes (Norton and Crowley, 1995). However, previous studies have focused on the stages of the development of competence without revealing the learning processes that occur at each stage. In addition, the major studies in this literature used professional nurses as participants and not students. No information could be found on the development of competence among nursing students and the learning processes that support the development from the perspective of the student. The continued call for nursing education to produce competent nurses globally is evidence that nursing programmes face challenges in facilitating learning that yields competent graduates. Therefore, this literature review will focus on the present evidence around the learning processes, with reference to students.

Firstly, the literature on learning is discussed in detail. This is followed by a discussion on competence, which is the goal of learning in nursing education. Then the content of

learning in nursing is discussed focusing on the domains of learning or components of competence. An overview of the learning theories and learning styles is presented to give a picture of how they influence the learning process. The learning environments associated with the learning process in nursing with an emphasis on the simulation laboratory and the clinical area will be reviewed. The review will then discuss some models that explain the development of competence in professional nurses. Lastly, the assessment of competence will be examined and the role it plays in determining the level of competence in the learning process.

2.2 What is learning?

Learning is dominantly understood as a product, which is observed as a change in behaviour resulting from an accumulation of knowledge and skills or experience (Gagné, 1982; Selwyn, 2016). This definition conceals the complicated process that learning is. Rogers, (2003) states that to say that 'learning is change' is too simple. Not all change is learning. What we usually mean by 'learning' are those more or less permanent changes, and reinforcements brought about voluntarily in one's patterns of acting, thinking and/or feeling (Rogers, 2003).

Viewing learning as a product is ignoring the process that brings the change. Biggs (1999) argues that acquiring knowledge cannot cause change in a learner, but how the learner thinks and arranges knowledge can cause change in a learner. Looking at learning as a product is associated with a focus on results or grades as a measure of the quality of education. In response to the understanding of learning as a product, there is an expanding line of thinking, which is considering learning as a process (Ambrose et al., 2010). Kolb and Kolb (2005) define learning as a process of knowledge creation brought about by changes in experience. Learning is an experience involving making sense of the world and relating parts of the subject matter to each other (Säljö, 1979). Therefore, learning is a way of experiencing the world, which changes our conceptions/experiences about something (Biggs, 1999). Because of this experience/participation in the learning process, the learner changes behaviour. Merriam and Caffarella (2012) urge that learning is both a process and a product. Their statement overlooked the fact that the process and its products are not the same even

though they are related. A better explanation could be that learning is a process directed towards an outcome/product.

There are many reasons why some authors view learning as a process. According to Smith (2018:5),

> 'Exploring learning as a process is attractive in many ways. It takes us to the ways we make sense of our thoughts, feelings and experiences, appreciates what might be going on for others, and understand the world in which we live. For us as educators, the attraction is obvious. The more we know about what activities are involved in 'making sense' and if, and how, they can be sequenced, the better we can help learners.'

Selwyn (2016) further urges that considering learning as a process directs attention to the quality of the learning experience and the context in which learning occurs. Looking at learning as a process suited this study because the focus was on students' experiences and it is through the learning processes that students experience learning. It may be argued that the way students experience learning contributes in determining the extent to which they develop competence.

2.3 Learning in nursing

In nursing, for a student to perform, learning for the development of competence must take place. The student should acquire knowledge, and skills in psychomotor activities, critical thinking, clinical reasoning, and clinical judgment. Critical thinking and clinical reasoning skills are essential in the integration and application of basic nursing knowledge, skills and values in caring for patients with various health problems (Takase et al., 2014). There is a trend in nursing education of facilitating learning in an integrated manner contrary to traditional ways where teaching was fragmented (Roh et al., 2014). While learning in this way can improve the development of competence, the clinical area remains the learning environment critical to the development of competence (Papastavrou et al., 2010).

Boud, Cohen and Walker (1993) urge that when the domains of learning are separated, the holistic nature of learning is rendered useless. Similarly, nursing competence is

defined as an integrated whole, but there is little integration in the learning of these domains. An example is a simple task of measuring blood pressure, which requires psychomotor skills, attitudes, knowledge, critical thinking, clinical reasoning and decision-making. Students may learn the skills of measuring blood pressure separately from learning the interpretation of the normal values and the action required. Not all students may get the chance to integrate these in practice, but, when they become professional nurses, they are expected to put all these together (Casey et al., 2011). This is challenging for students who learn in a disintegrated manner but should perform tasks that require integration.

 When students start in the clinical area, they possess the knowledge and skills acquired in class and the simulation laboratory. In the clinical area students may meet situations that are challenging, unfamiliar and thought-provoking. The more challenges students face, the more they can engage in experiential learning and reflective practice, which can improve the application of theory to practice. This kind of learning allows students to experience more aspects of the clinical situation and this constitutes learning (Marton and Booth, 1998)

At the point of completing their nursing education, students are expected to be competent to practice as professional nurses (Satu et al., 2013). However, student competence in the learning programme is mainly measured by assessment standards, which do not necessarily match practice standards. On the other hand, at the point of graduation, nurses' competence is measured against practice standards, professional standards, patient safety and the quality of nursing care (WHO, 2009). This creates a gap between the level of competence students attain in a learning programme and the level of competence they are expected to demonstrate in practice. Studies have shown that student nurses are not aware of the level of competence or responsibility required of them in the workplace; hence, students have self-reported higher levels of competence than practicing nurses at the point of graduating (Wangensteen et al., 2008).

There are several reasons to explain these discrepancies in the levels of competence. Firstly, students based on their success in assessments generally meet nursing education curriculum standards (Kajander-Unkuri et al., 2014). Secondly, students practice in the clinical area for learning purposes so they are under supervision and this masks the full scope of responsibility expected of the students. The implication of this is that there is a gap in the process of the development of competence. The level of competence measured by assessments is lower than the clinical practice level of competence (Kajander-Unkuri et al., 2016). The students strive to pass assessments before they consider practice, so students may not attain a practice level of competence before they become professional nurses.

2.4 Competence: the learning outcome

This study did not focus on competence or competence-based education (CBE). The study was concerned with the learning processes students used to develop competence. Competence-based education is not the mode of nursing education used in Namibia. However, it was essential to review competence because it is the goal of any nursing program globally to guarantee that graduates are competent (ready for professional practice) (Garside and Nhemachena, 2013; Zieber and Sedgewick, 2018). This section reviewed competence as the outcome of the learning processes starting by reviewing the history of competence, and then competence-based education and ended by looking at the significance of competence in nursing education.

2.4.1 History of competence

The 20th century saw the Flexnerian revolution in medical education (nursing included) which resulted in the emergence of science-based curricula (Carraccio et al., 2002; Frenk et al., 2010). At the turn of the century, we saw the introduction of problem-based learning. Now in the 21st century, there is sufficient evidence to conclude that we are currently in the middle of a competence-based education transformation hence the word competence has become a significant part of nursing education and practice (Clark et al., 2016). Following the landmark Lancet report of Frenk et al. (2010) calling for the transformation of education for health professionals, WHO has since developed a universal prototype competence-based education curriculum (WHO, 2013).

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The idea of competence began near the end of the 1960s in the United States of America (USA). Benjamin Bloom and Robert Mager's research on objectives and taxonomy of learning objectives influenced the adoption of ideas of competence. Aligning what students were learning with professional practice motivated their research (Dela Cruz and Ortega-Dela Cruz, 2017). In the 1970s, Alverno College became the frontrunner in initiating a "Competence-Based Learning" program in the USA. Despite these early developments, the term competence in nursing only became prominent in the 1980s.

In the beginning of the 1980s, various nursing boards in the USA commenced considering the idea of competencies for graduating nurses (Tilley, 2008). The nursing boards began to set expected competencies for nursing students completing a nursing education program. Similar developments followed in the United Kingdom when they launched project 2000 and successively Canada, Australia and New Zealand (Cowan, Norman and Coopamah, 2005). These developments among others promoted the movement of nursing education from the apprenticeship hospital-based to higher education institutions (Watkins, 2000). In Africa, reforms focusing on competence began about 20 years ago and are still in their infancy as compared to other continents (WHO Regional Office for Africa, 2016; Muraraneza, Mtshali and Mukamana, 2017).

Significant studies on the development of competence started in the 1980s. The landmark study of the Dreyfus brothers in 1980 is the most notable as they developed a Model of Skills Acquisition based on sporting activities and piloting (Dreyfus, 2011). Then in 1984, Benner applied the Model of Skills Acquisition to study the development of competence in nursing and produced the Novice to Expert model. In those studies, competence was not the ultimate level of performance but a level of performance between being a novice and being an expert. However, today competent performance is considered the acceptable performance and is the expected outcome of nursing education.

Following the early studies of Benner and Dreyfus, further work on competence has generated a vast body of evidence. The evidence has served to elevate the importance

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of the word in both nursing education and practice. Today competence is the currency for acceptable standards of practice and entry level into a professional nursing career (McHugh and Lake, 2010). On the contrary, the findings of Benner (1984), indicated that students are between novices and an advanced beginner when they enter professional practice. Students become competent after some years on the actual job (Benner, 1984). Current practice has negated the findings by Benner, and its goal is to ensure that student nurses are competent at the point of graduation (Fukada, 2018). Therefore, it is important to look at some of the measures being taken to produce students who are competent by the time they graduate. One such intervention is the introduction of competence-based education.

2.4.2 Competence-based education

Although competence and competence-based education (CBE) are not synonymous, it is important to look briefly at competence-based education as the results of this study may have implications for CBE. Competence- based education is defined as,

> " … an outcome-based approach to education that incorporates modes of instructional delivery and assessment efforts designed to evaluate mastery of learning by students through their demonstration of the knowledge, attitudes, values, skills, and behaviours required for the degree sought" (Gervais, 2016: 99).

The definition above reveals some critical aspects of CBE, but it also hides some critical principles guiding CBE. Four significant principles guide the design and implementation of CBE, namely,

• An indication of what students will be able to do at the end,

• Alignment of competencies with the professional expectations,

• Learner centered approach in teaching and learning,

• Progression in the course of learning is determined by attainment of competencies rather than a lapse of time.

The goal of CBE is to ensure that students achieve preset competencies rather than accumulate a certain number of hours to complete a learning programme (Gibson, 2013). The healthcare needs and requirements of real practice should inform the competencies (Carraccio et al., 2002). Competencies clearly state what the student will be able to do and are used as a standard to measure student progress. Therefore, competence is achieved by facilitating learning that promotes the development of competence in all domains of nursing practice (Voorhees, 2001).

An array of modern learning theories inform teaching and learning in CBE. Most of the theories are inclined to self-directed learning, a characteristic of an adult learner (Bolhuis, 2003). CBE advocates for a student-centered approach to learning which may allow students to learn at their own pace and hence reach competence at different times (McLaughlin et al., 2014). The duration of the learning programme is flexible; some students may complete studies earlier than others. Instead of considering hours and clinical rotations completed, emphasis should be put on abilities students have attained (Frank et al., 2010). Book (2014) proposes that the level of performance of a learner should be measurable and explicitly assessed. While this sounds theoretically possible, it has remained practically challenging to determine the level of competence students attain in the learning programme.

2.4.3 Significance of competence

Critical stakeholders in nursing practice have invested much faith in competence making it challenging to view competence as average performance. Educators of nurses aim to produce competent diplomates and graduates (Stedman, 1985; Blažun et al., 2015). Competent nurses are fit for purpose and can function in the real clinical practice environment with minimum need for further training (Meretoja and Leino-Kilpi, 2003). However, educators do not share the same understanding of what is meant by a competent nurse. Some believe that their graduates and diplomates are beginners who are ready to engage in lifelong learning rather than practice competently (Numminen et al., 2014). Educators with this sentiment accept that nursing education goals are at odds with the expectation of regulatory bodies and patients.

Nursing regulatory bodies, employers, and patients expect that nurses are competent by the time they enter professional practice. Nursing regulatory bodies register graduating nurses on the premise that they are competent and expect them to provide quality nursing care to patients (Nursing and Midwifery Board of Ireland, 2014; Garside and Nhemachena, 2013; McHugh and Lake, 2010). As employers hire the nurses, they expect them to be capable of working without any need for significant guidance (Ulrich et al., 2010). Besides the employers, patients as the recipients of care trust nurses to be able to provide safe and competent care (Bathish, Wilson and Potempa, 2018). Therefore, the importance of competence cannot be overemphasised.

While it is understandable for employers, patients and regulatory bodies to demand immediate competence, some nurse educators' position that graduates are not practice ready is also reasonable. The view by nurse educators that students are not competent at the point of graduation reflects the reality of current practice. Referring back to Benner (1984), conducted her study at a time when nursing students spent more time in practice than they do today, yet could not fit the description of competence until two years of on the job experience. Today, the duration of students' exposure in clinical practice is limited, and there is a dearth of evidence to prove that the quality of learning has improved to achieve different results from those of Benner in 1984.

Recent evidence indicating a positive relationship between competent practices and nursing care outcomes is exerting pressure on nurse educators to find ways to produce competent practitioners. In some studies, healthcare facilities with competent nurses experienced low mortality rates and safe practices (Aiken et al., 2017; Kendall-Gallagher and Blegen, 2009). Similarly, other researchers argue that there is an association between competence and quality nursing care (Theander et al., 2016; Takase et al., 2014; McHugh and Lake, 2010). Furthermore, Eng and Pai (2015) affirmed that promoting competence before students complete nursing studies could improve the quality of nursing care. On the contrary, lack of competence is associated with medical errors and poor patient outcomes (Rebueno et al., 2017).

The studies above were conducted on experienced professional nurses who could have developed competence, so the results cannot be applied to recent graduates or diplomates. However, the positive outcome in those studies strengthens calls for producing competent nurses (Levine and Johnson, 2014). There is hope that learning programmes can produce competent nurses because evidence suggests a positive association between level of education and healthcare outcomes (Aiken et al., 2011, 2014; Blegen et al., 2013; Kutney-Lee, Sloane and Aiken, 2013; Van den Heede et al., 2009). Maybe educating nurses at a higher level could be a start in producing nurses with a higher degree of competence.

Despite the promises, available evidence strongly suggests that nursing education is not sufficiently equipping nurses to meet the needs of the public (Tilley, 2008). During their learning programmes, students may not fully understand nurses' responsibilities until they become nurses. Hence, they miss learning critical elements required by a professional nurse (Wangesteen et al., 2008). Consequently, the students do not learn some of their professional responsibilities until after graduation (Garside and Nhemachena, 2013).

As nurses are the cornerstone of the health care delivery system, failure to perform nursing care competently can negatively affect health outcomes (WHO, 2009). The situation is worse in Africa where nurses and midwives constitute more than 50% of the healthcare workers and provide almost 90% of the health services (WHO, 2006). With the increasing demand for accountability and improvement in nursing care, there is an obvious need to improve the education of nurses (Bathish, Wilson and Potempa, 2018).

2.5 Learning content- domains of competence

Learning content in nursing includes knowledge, attitudes, and skills. These are the domains of learning which will be discussed as the components of competence in this section.

2.5.1 Definition of competence

The definition of the term competence has proved problematic, causing disagreements and confusion in the nursing profession. A prediction was made by Bradshaw (2000)

that the defining standards of competence in nursing was going to be an essential subject in the 21st century. Several authors have reviewed the term competence but none have proposed a definition that is universally acceptable to date (Blažun et al., 2015; Cowan et al., 2005; Watson et al., 2002; Garside and Nhemachena, 2013; Pijl-Zieber et al., 2014; Yanhua and Watson, 2011). However, despite the confusion around the definition of competence, van Klink and Boon (2003) concede that it as a 'useful term, linking learning and work requisites'. Cowan et al. (2005) further support this by arguing that competence is unavoidable in nursing education and hence the need to clear the confusion surrounding its definition. Regrettably, a decade after Cowan's call, the understanding of the term competence remains diverse and enshrouded in confusion (Blažun et al., 2015).

Clarity around the understanding of competence can facilitate the development of better strategies for nursing education. Without a clear understanding of competence, there is a risk of running into Meno's paradox:

> 'How will you look for something when you do not in the least know what it is? How on earth are you going to set up something you don't know as the object of your search? To put it in another way, even if you come up against it, how will you know that what you have found is the thing you didn't know?' (Welbourne, 1986: 236).

To avoid Meno's paradox, a new understanding of competence with some degree of consensus is emerging. Based on this understanding competence is defined under three philosophical orientations, behaviourist, the generic and the holistic. In the generic approach, competence refers to one's characteristics that enable competent performance. Behaviourists define competence as the ability to perform required skills (Fukada, 2018). The holistic approach defines competence as an integration of knowledge, skills, values, and attributes needed for competent performance (Hager, Gonczi and Athanasou, 1994; Watson et al., 2002). Although not perfect, these descriptions have enlightened the comprehension of competence. The holistic approach definition of competence was used in this review because it encompasses both the behaviourist and the generic approach.

2.5.2 Holistic definition of competence

The holistic definition of competence captures most of the critical aspects that constitute competent practice. Competence has a cognitive function, an integrative function, a relational function, and an affective/moral function (Epstein and Hundert, 2002). Meretoja and Leino-Kilpi (2003) acknowledge that competence is context dependent. Holistically, competence has been defined as encompassing theoretical and clinical knowledge, values and attitudes, psychomotor and problem-solving skills in providing safe patient care (Wu et al., 2015; NMC, 2010). In the same way, the Nursing and Midwifery Board of Australia (2006) described competence as an amalgamation of skills, knowledge, attitudes, values, and abilities that promote up to standard performance in the clinical area or area of work (Takase and Teraoka, 2011). The International Council of Nurses (ICN) added the dimension of the effective use of knowledge, skill and judgment (ICN, 2009). Zabalegui et al. (2006) highlight that competence is fluid, as one has to transform their knowledge, skills and values to a specific clinical problem. Further understanding of competence brings clinical reasoning and critical thinking to the fore. Botma (2014) contends that a competent nurse uses critical thinking and clinical reasoning to make valid clinical judgements.

The holistic definition of competence is comprehensive but makes the understanding of competence complicated while fragmented definitions given by generalists and behaviourists are easy to comprehend; they mask the complicated nature of the word competence. Therefore, without attempting to provide disjointed definitions of competence, the holistic definition can be disintegrated, and each component of competence described. Each component is explained concerning how it forms the building block of competence rather than appear as a stand-alone definition.

2.5.3 Components of competence

Competent practice requires one to possess all the necessary components of competence and be able to apply them in performing nursing care. Firstly, one should possess the required knowledge, skills, values, and attitudes (Blažun et al., 2015; Cowan et al., 2005; Dlamini, Mtshali, and Dlamini, 2014; O'Connor et al., 2009). A competent nurse's knowledge must be evidence-based and up to date with changes in

nursing care (Mackey and Bassendowski, 2017). The knowledge, skills and values are integrated before they are applied in any given clinical situation. Secondly, one must possess clinical reasoning skills, which include problem-solving, critical thinking and clinical judgment (Nilsson et al., 2014). In clinical reasoning, one engages in the process of problem-solving and critical thinking resulting in clinical judgment (Kajander-Unkuri et al., 2014). Critical thinking skills enable one to integrate knowledge, skills, and values during the process of clinical reasoning (Potter et al., 2016). These components are not separate entities that constitute competence but are a complex combination, which nurses simultaneously apply in a given situation (O'Connor et al., 2009).

2.5.4 Critical thinking

Critical thinking is a process of engaging in analysis, interpretation, evaluation, and reflection to make a judgment (Facione et al., 1995). According to Facione and Facione, (2008:2)

> 'Critical thinking is the process we use to make a judgment about what to believe and what to do about the symptoms our patient is presenting for diagnosis and treatment. '

It is a cognitive process of thinking which relies on evidence-based knowledge, skills, and values of a subject matter or profession (Benner, 1984). According to Alfaro-LeFevre, (2013) critical thinking promotes the integration of knowledge, skills, and values in creative thinking and reflection. In general, critical thinking is a generic skill, which is not particular to nursing or healthcare (Victor-Chmil, 2013). One can demonstrate the ability to think critically through action in nursing practice (Rubenfeld and Scheffer, 2010). Critical thinking is required in nursing to apply appropriately theory to practice because the practice area is complicated (Pucer, Trobec and Žvanut, 2014). Evidence strongly suggests that critical thinking improves nurses' competence and ultimately healthcare outcomes (Castledine, 2010; Zori et al., 2010) and helps to bridge the theory-practice gap (Popil, 2011). Subsequently developing critical thinking skills among nursing students should be a significant part of the development of competence (Carter, Creedy and Sidebotham, 2016).

2.5.5 Problem solving

Closely related to critical thinking is problem-solving. Just like critical thinking, problem-solving is a cognitive process involved in clinical reasoning (Edwards, 2003; Facione and Facione, 2008). Problem-solving focuses on finding a solution to a clinical problem while, critical thinking goes beyond problem solving; it evaluates several solutions on their merits and demerits (Simpson and Courteny, 2008).

2.5.6 Clinical reasoning

Clinical reasoning is the use of critical thinking to make decisions on nursing interventions that can result in positive patient outcomes (Potter et al., 2016). It is a process of decision making through evaluation of all alternatives, judging their worth against evidence and selecting the best possible solution (Tanner, 2006). Levett-Jones (2013:4) asserts that clinical reasoning is

> '…the process by which nurses collect cues, process the information, come to an understanding of a patient problem or situation, plan and implement interventions, evaluate outcomes, and reflect on and learn from the process '.

Clinical reasoning differs from critical thinking in that it is specific to clinical situations and it applies critical thinking skills in clinical situations, so it is more advanced than critical thinking (Botma, 2014; Merisier, Larue and Boyer, 2018). A nurse cannot apply clinical reasoning if he/she lacks critical thinking skills and problem-solving skills. While critical thinking and problem solving involves cognitive skills only, clinical reasoning requires both cognitive and metacognitive skills (Victor-Chmil, 2013). Hence, in clinical reasoning, there is the use of critical thinking, problem-solving and reflective thinking (Banning, 2008). Clinical reasoning in practice encompasses prioritising care, responding to changes in the patient's condition, taking appropriate action, reflecting on the action as well as evaluation of patient response to interventions (Benner et al., 2010).

2.5.7 Clinical judgement

In the end, a competent nurse should make a decision and take action based on the decision made, a process referred to as clinical decision-making / clinical judgement (Benner and Tanner, 1987; Chang et al., 2011; Standing, 2007; Tanner, 2006; Torunn

Bjørk, Tøien and Lene Sørensen, 2013). Clinical judgement is produced by the complex processes of problem-solving and critical thinking. The process involves the amalgamation of knowledge, skills and attitude (Andreou, Papastavrou and Merkouris, 2014; Martyn et al., 2014) and helps the students to become competent practitioners in the clinical setting (Vacek, 2009). Clinical judgement is observable and can be seen in the action of the nurse in patient care. The observed actions of the nurse give insight into the level of their cognitive processes (critical thinking and clinical reasoning), the psychomotor skills and affective skills (Mariani et al., 2013). The observed actions constitute performance, and it is through performance that competence is inferred (Eruat, 1994).

2.5.8 New definition of competence

The components of competence elaborated above should not be viewed in isolation but as a holistic set of skills that students should develop in real practice settings (Warner and Burton, 2009). Competence is not the sum of the different parts, but it is the whole; the whole is greater than the sum of its parts. For example, students can possess some of the necessary components of competence, but if they lack integrative skills to perform at the required level in real practice, they are not competent (Sedgwick, Oosterbroek and Ponomar, 2014). An attempt to isolate these components in the teaching and learning process culminates in failure to develop competence before the process even begins.

2.6 Learning theories

Students' learning experiences should support the acquisition of the knowledge and skills mentioned above in an integrated manner. The knowledge and skills (learning content) that students need to learn provide the basis for the development of teaching and learning strategies. In designing teaching and learning activities, the learning theories and learning styles significantly influence the teachers' decisions. Therefore, students' learning experiences cannot be understood or explained without referring to learning theories or learning styles. The passages below will discuss the learning theories followed by the learning styles. Theories of behaviourism, cognitivism,

humanism, adult learning theory, self-directed learning theory, experiential learning theory and the theory of learning according to phenomenography are reviewed.

2.6.1 Behaviourism

Behaviourism is a teacher-centered approach based on manipulation of the environment to bring about desirable changes in behaviour in the student (Torre et al., 2006. The critical tenets in behaviourism are the use of reinforcement in the learning process. Reinforcement is used as a manipulator of the environment with the aim of changing student behaviour (Skinner, 1998). The theory is mainly applicable in the learning of psychomotor skills where students deliberately engage in repetitive practice to master, firstly step by step, a skill and then the skill as a whole (Ertmer and Newby, 1993). Reinforcement is used to promote the desired behaviour. In nursing, psychomotor skills are an essential component of nursing competence hence behaviourism plays a significant role in the teaching and learning process. Nevertheless, behaviourism seems to disregard the cognitive aspects that direct the psychomotor skills making it an incomplete model to support learning (Bjark, 1997). Thorndike proposed a trial and error type of learning in which one would explore many solutions to a problem (Shabani, 2000). In the process, one will discover the solution that best suits the problem and in similar situations will repeat the same solution (Sobhaninejad, 2005).

In learning clinical skills, the teacher will demonstrate to the students how to perform the required skill. The students act as passive observers with the aim of imitating the demonstrated behaviour. The teacher acts as a supervisor reinforcing correct behaviours and discouraging unwanted behaviour when the students are performing the skills. The teacher performs this role in both the simulation laboratory and clinical practice with real patients.

Despite its shortfall, behaviourism remains a fundamental learning theory because ultimately it is through the student behaviour in performing clinical skills that one can tell the level of competence of the student. In nursing education, the teachers are interested in what the student can do or perform at the end. Therefore, learning outcomes in

competence-based education are behavioural and performance based. It is through observation of student performance, which is the demonstration of behaviour that teachers can tell the level of competence of the student (Torre et al., 2006). However, observed performance in nursing is a product of several skills, such as knowledge and critical thinking among others, which one cannot see. Because one is not able to see specific skills, Skinner disregarded the mind in his theory of learning (Jonassen, 1991).

2.6.2 Cognitivism

The failure of behaviourism to account for how the mind works in the learning process gave rise to cognitivism (Yilmaz, 2011). The focus of cognitivism is cognition, which includes information processing, memory and other internal mental and psychological processes (Taylor and Hamdy, 2013). Contrary to some writers' submission that cognitivism rejects behaviourism, cognitivists argue that behaviour is an indication of the cognitive learning process (Cooper, 1993). Cognitive learning is not directly observable; it is associated with the change in capacity and capability of the person to behave in a certain way but does not instantly modify the behaviour. Therefore, by observing behaviour, it is possible to get an insight into internal cognitive processes (Aliakbari et al., 2015).

The aim of learning is developing the student's ability to attain knowledge, process it and transform understanding as well as storing it in memory for future use. Learning is an active internal process where memory and thinking are involved in learning (Ally, 2004). Jeffery-Clay (1998) argues that meaningful learning occurs if preexisting knowledge is related to new knowledge through the linking of concepts. The linking is made possible through cognitive structures in which information is stored and processed (Good and Brophy, 1990). The learner is actively involved in acquiring, storing and linking information (Merriam and Caffarella, 1999) making this process possible. The cognitive process aids the development of critical thinking through reflection (Torre et al., 2006).

Cognitivism is a product of many theories, but of major interest is Piaget's theory of cognitive development and Vygotsky's theory of social cognitive growth or zone of proximal development. These will be discussed briefly.

Piaget's (1964) theory of cognitive development occurs through a process of equilibrium. The equilibrium exists in what Piaget called the schema that refers to an imaginary mental structure for organizing and representing knowledge kept in the mind or simply building blocks of knowledge. In learning, one relies on pre-existing knowledge to make sense of the new information (Gillani, 2003). In case the new information cannot be understood in the context of the current knowledge, the equilibrium in the cognitive structures/schemata is disturbed (Palincsar, 1998). Piaget, (1977) contested that the mind will respond to restore equilibrium in the mental schemata through a process of assimilation and accommodation. Assimilation is a cognitive process of incorporating new information into an existing schema and understanding and accommodation is a process of adapting existing cognitive structures in response to a new situation.

According to Piaget's (1952) theory, teaching should occur in stages depending on the readiness of the learners, starting from the simple to the complex. During the learning process, the learner must be an active participant because there are mental competencies such as problem solving that cannot be taught, but are discovered (Inhelder and Piaget, 1958). The learning process must be centered on the students and the role of the teacher becomes that of a facilitator. It becomes the responsibility of the teacher to focus on the learning process and not the product, to create learning activities that promote active learning and to evaluate the development of students. Active learning resonates well with the development of competence as students can engage in real life situations.

2.6.3 Social Cognitivism

The focus of Vygotsky's theory was on how social interactions influence cognitive development. It meant that social aspects such as culture play a role in cognitive development, (Vygotsky, 1978). Vygotsky contends that learning is necessary for

development while Piaget claimed that development should occur before learning could take place. Learning according to social cognitivism theory occurs through interaction between the learner and the teacher. The teacher acts as a role model to the learner and in turn, the learner processes the teacher's behaviour. The processing helps the student to develop own knowledge which the student can use in their performance.

Two important principles of Vygotsky's theory are the 'more knowledgeable other' and the 'zone of proximal development'. The 'more knowledgeable other' usually refers to the teacher but can be any other source of learning that can guide students. According to Vygotsky, (1978:86)

> '…the zone of proximal development is the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers.'

It is at the zone of proximal development that Vygotsky saw the role of the teacher because this is when the student needs help to develop skills. Either the teacher or other capable students can give guidance to the less capable students to help them develop. The support, called scaffolding, is the guidance given to students when they have reached their zone of proximal development (Vygotsky, 1978). The scaffold is slowly withdrawn or altered as the student progresses or as the zone of proximal development narrows down (Dennen and Burner, 2007).

Social cognitivism can be useful in developing competence in nursing. In general, learning occurs in a social context and for students who are exposed to the clinical area as early as the first year, they may face nursing problems beyond their capability. The clinical area becomes a social environment that challenges the students and triggers a desire to learn Additionally, the senior students, registered nurses, clinical instructors and lecturers act as the more knowledgeable other to help the junior students.

The teacher should establish the students' zone of proximal development by assessing students' prior level of knowledge. The student's level of competence should be measured against the expected learning outcome. By doing this, it allows the teacher

and the student to direct their teaching and learning efforts to where there is a need. The teacher should challenge students to reach their zone of proximal development (Vygotsky, 1978). The teacher can facilitate student learning to achieve the learning outcomes through successive cycles of encouraging the student and scaffolding. Learning material can be structured from simple, disintegrated to complex, and integrated with the teacher providing support as needed (Van Merriënboer, Kirschner and Kester, 2003).

2.6.4 Constructivism

Constructivism is not a theory but a combination of many learning theories. Ideas of educational theorists such as John Dewey, Jean Piaget, Lev Vygotsky and many others are incorporated in constructivism. Constructivists are of the view that students learn through an active process of knowledge construction based on how they interpret their reality (Jonassen, 1991; Bruner, 1966). The interpretation is made possible by schemata and the more sophisticated the schemata the deeper the comprehension of reality (Brown, 2004). Upon encountering new information, there is an attempt to integrate it into the prevailing schemata resulting in either an alteration in the schemata or failure of integration and the schemata remains unchanged (Jarvis, Holford and Griffin, 2003). The schemata can also be referred to as the frame of reference, which can undergo transformation through the process of knowledge construction (Gravett, 2004).

The implication for teaching and learning is that the teacher needs to assess and activate students' existing schemata so that the mind is ready for learning (Brown, 2004).Teaching and learning activities should promote students active participation as well as challenge students to think and reflect on the learning process. Student discussion should be encouraged as they reveal students' understanding and the kind of knowledge students are constructing. This helps the teacher to support students in knowledge construction, which align with learning outcomes.

In terms of the development of competence, teachers should acknowledge that students construct their own knowledge and make their own meaning from learning experiences.

This is important because competence, while it can be viewed subjectively, in reality is an objective entity. For instance, a competent nurse should be able to perform at a certain level, meaning nurse education programmes intend to drive students towards that minimum level. While students can see their level of performance and understanding as competent based on their knowledge construction, the teacher has to support the student to transform their experience of reality from where it may be below the required level to reach the point of competence.

2.6.5 Humanism

Humanism as a learning theory purports that humans are driven by the need to be the best they can be. According to Maslow (1943), a human being has a hierarchy of needs, starting from the basic needs, progressing up a hierarchy to self-actualisation. The needs act as a motivation or drive for human behaviour. For example, a person cannot act to achieve a certain need unless there is a drive within them to attain that need (Rogers, 2003).This framework is the basis for the promotion of self-directed leaning in students.

In learning, students will not make an effort to learn unless they see or feel the need to do so. It is the role of the teacher to create the leaning need with the student at first and later to help the student to be able to realise the need to learn. At this point, the student will become self-directed and can plan, implement and assess own learning to see if it meets the desired level of competence (Driscoll, 2002). In the development of competence, it is imperative that students are aware of the expected end of their learning. Therefore, in creating the need for learning the teacher should ensure that the need for learning aligns with the required learning outcome. This has to be done in stages, where the teacher takes the students through the various stages of competence development until they become competent.

2.6.6 Adult learner

In his theory of adult learning Malcolm Knowles presented what is known as the andragogical model in which the characteristics of an adult leaner are outlined (Knowles, 1970; Knowles, 1980). According to this theory adult learners are

independent and self-directed, meaning they can learn on their own if given the minimum necessary support. In addition, the adult learner brings a wealth of knowledge and life experience into any learning programme. Understanding their past knowledge is important in designing how the new knowledge and experiences will fit into their existing frame of reference. An adult learner is goal oriented, therefore, it is important to know the purpose of learning beforehand and they want justification of why they have to learn certain things. Lastly, an adult learner is a practical learner who wants to concentrate on those aspects that are useful in their work setting.

Application of this theory to learning requires a number of assumptions to be made. Senyuva and Kaya (2014) found that most nursing learners are not self-directed when they enter the learning programme. Similarly, the study by Fisher, King and Tague, (2001) showed that less than half of the students were ready for self-directed learning. Therefore, facilitation of acquiring skills for self-directed learning in nursing students is essential if students are to develop competence (Yang and Jiang, 2014). Another assumption is that the knowledge learners bring into nursing can easily link with nursing knowledge. Evidence shows that today students enrolling into nursing programmes come from diverse backgrounds with wide ranges of experience (Seldomridge and DiBartolo, 2007). All students have prior knowledge and experience, but not all experience and knowledge is relevant in nursing. Failure to recognise this may cause dissonance among students especially when they are just starting their nursing studies.

The other aspects highlighted in the androgogical model align to the development of competence. Nursing education is making efforts to ensure that learning is relevant to practice and that the goals of learning are outlined beforehand (Albanese et al., 2008; Johnstone and Soares, 2014). These aspects can facilitate learning and likely improve the development of competence among nursing students.

2.6.7 Self-directed learning

Self-directed learning refers to the extent to which the learner takes responsibility for learning, deciding what, when, where and how to learn (Fisher, King and Tague, 2007). It emanates from the androgogical model in which Knowles (1975) described it as a

process in which the learner takes control of the learning process. The individuals identify their learning needs, set targets, choose and use apt learning strategies and self-assess the outcomes (Knowles, Holton and Swanson, 2012). Self-directed learning can only happen if the learner is prepared to learn. In self-directed learning environment learners, learn based on their interests and at a rate that satisfies their goals (Gervais, 2016). Self-directed learning does not mean absence of the teacher, but the teacher acts as a facilitator assisting the students with their learning. Clark (1983) supports this by saying that students identify material that meets their learning needs if they are allowed to learn in situations with good support. Effective approaches to teaching put learning in the control of the student and hence promote self-directedness (Yang and Jiang, 2014).

2.6.8 Reflective learning

Reflection is a form of learning normally associated with a deep approach to learning. It is defined as actively thinking about one's actions before, during or after one's actions. Reflection is an approach to thinking applied to resolve a situation that may be confusing or that lacks clarity to make it clear (Dewey, 1933). During reflection, students scrutinise their actions and this improves the understanding of the activity under reflection (Knipfer et al., 2013). Hayward et al. (2016) states that reflection accounts for most of the learning by nurses at the work place and this has been found to promote the development of competence among nurses (Takase et al., 2014).

Reflection is important in the application of theory to practice as it helps students to see the bigger picture of clinical practice, identify more about their learning approach and improve their clinical judgement skills (Chong, 2009). By engaging in reflection, students can actually become aware of the transformation that occurs in their understanding and way of practice, thus becoming consciously aware of their learning process (Bulman, Lathlean and Gobbi, 2014). Therefore, reflection can enable students to develop clinical reasoning and possibly have positive bearing on patient care outcomes (Caldwell, 2013). Reflection is critical to transformation because it enables students to self-reflect and identify areas of weakness that need improvement (Andersson and Edberg, 2012; Pai, 2016).

2.6.9 Experiential Learning

Learning is a process grounded in experience (Pai, 2016). Early studies on the development of competence show that movement along the novice to expert continuum was associated with experience in a similar environment (Benner, 1984; Dreyfus and Dreyfus, 1980). In nursing education where clinical competence is the ultimate goal, experience is invaluable to the learning process (Boud, Cohen and Walker, 1993). Kolb is the proponent of the experiential learning theory, and the theory will be briefly discussed here.

Learning is the process of knowledge synthesis using transformative experiences (Kolb, 1984). According to Kolb (1984), learning is the acquisition of abstract concepts that can be used in a number of circumstances. The experiential learning theory identifies four stages of learning and four styles of learning. In this theory, learning is seen as an internal cognitive process with less focus on outcomes.

Four stages of learning
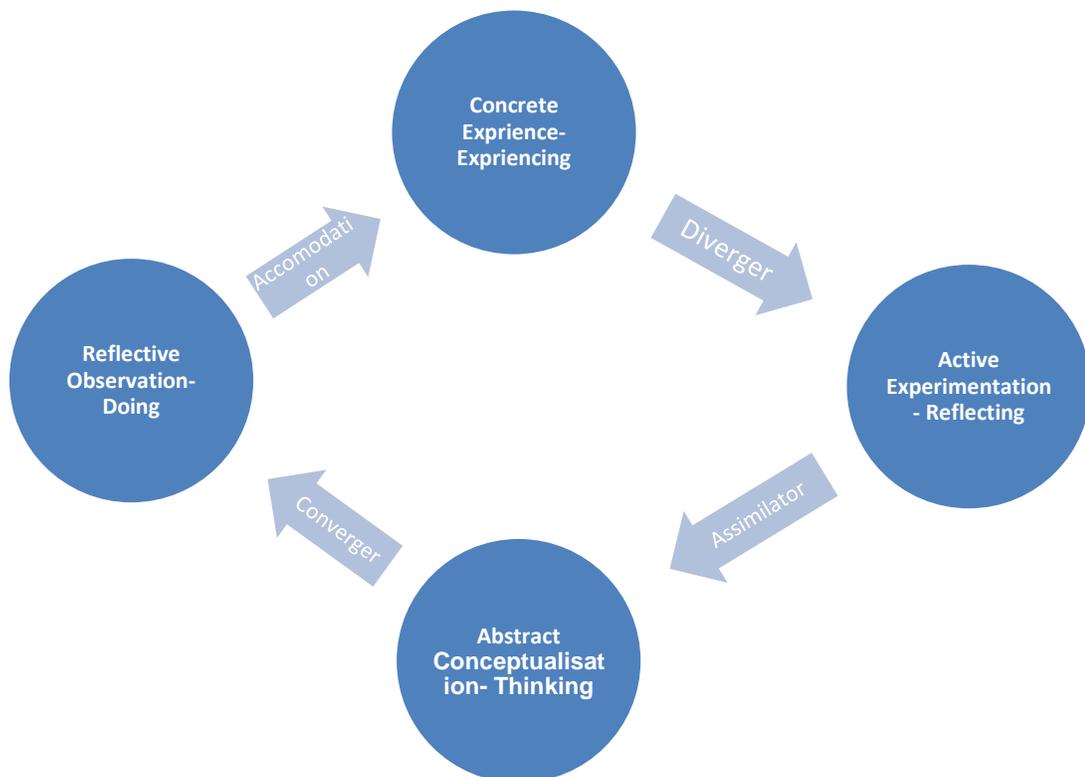
Figure 2-1: Kolb experiential learning model (adapted from Kolb, 1984).

According to Kolb (1984), there are four stages necessary for experiential learning to take place in a cyclic manner; the concrete experience (feeling), reflective observation (watching), abstract conceptualization (thinking), and active experimentation (doing). Learning takes place following the cycle, of experiencing something new, and then reflectively observes on the experience culminating in the conceptualization of new concepts and conclusions. The new understanding is applied in future situations creating new experiences. According to Kolb, (1984) learning is amalgamated into the four stages, which depend on each and follow a circle. Learning can start and end at any point in the circle making learning a cohesive and continuous process. This kind of learning has been found to make it possible for students to learn integration, (de Oliveira Neto et al., 2015), improve decision-making skills (Kolb and Kolb, 2005) and improve self-confidence (Kimhi et al., 2016).

The concrete experience is an indication that for one to learn there is the need for active rather than passive engagement. The student should focus on certain elements of the experience at hand in what Kolb called reflective observation. Recognition of different elements of an experience leads the student into abstract conceptualization where the student analyses, predicts and integrates various elements of the experience creating new understanding. Then students apply their new understanding to practice.

In general one's learning style is a combination of two adjacent stages in the experiential learning cycle. There are four learning styles: Diverger (CE and RO), Assimilator (RO and AC), Converger (AC and AE), and Accommodator (AE and CE). While individuals prefer one of the four learning styles, in effective learning one makes use of all the four learning styles. Accommodators are doers who act intuitively while assimilators are creative, abstract in their thinking and pursue inductive reasoning. Divergers are highly imaginative and always consider multiple perspectives while convergers are practical, stable emotionally and think deductively.

Effective learning depends on exchanges within four learning types: concrete-experience (CE-feeling), abstract-conceptualization (AC-thinking), reflective-observation (RO-watching) and active experimentation (AE-doing) (Kolb and Kolb, 2005). A combination of the four learning types shapes one's learning style. The more dominant

type of learning defines the students' learning style. However, Kolb (1983) urges that effective learning occurs when one uses all the four types of learning. This makes the learning process active and allows for adaptation and profound understanding of knowledge (Kolb and Kolb, 2005). Therefore, learning should follow the circle starting from encountering a situation, self-reflect on it, develop insights and then put it into action.

2.6.10 Transformative learning

Transformative learning theory can help answer questions related to learning processes supporting the development of competence. According to IIIeris (2009) in transformative learning the form that transforms for learning to take place must be known to the student. If competence is to be developed , then competence must be known, an argument put forward by Dall'Alba and Sandberg (2006). However, currently competence is understood differently as highlighted earlier in this chapter. A first year student may understand competence differently from a third year student or a professional nurse. This understanding of competence may be referred to as transformation and the process of transforming is what transformative learning is all about (Mezirow, 1991). Below transformative learning is briefly discussed, looking at its origins and its basic tenets. The developmental changes of the theory are not discussed.

What is transformative learning?

Transformative learning was defined as a changing process in which one's way of thinking, feeling and actions shift from one way to another (Mezirow, 1991). Mezirow (1995) later described transformative learning as a process of changing the frame of reference. It is this frame of reference that is at the core of understanding the expanded theory of transformative learning. Illeris (2009) differentiated transformative learning from informative learning; informative learning is the adding of more knowledge and skills to attain the same learning outcome and this type of learning changes what we know and not how we know. On the other hand, transformative learning challenges what we know and how we know it. To illustrate this, a student can study in order to be successful in examinations, but when examinations are no longer their challenge, but

has shifted to performance in real life, the student will study to improve how they perform their job. In both cases, the student increases his/her knowledge and skills but in the first example s/he thinks that the purpose of learning is passing the examination and in the second example the purpose of learning becomes improving performance.

Origins of transformative learning theory

Transformative learning theory was developed by John Mezirow around 1978. He carried out a study on women who were returning to work after a long time away. For the women to fit into the world of work again they had to experience a transformation which occurred in ten phases (Mezirow, 1978). The ten phases are:

1. A disorientating dilemma

2. Self-examination with feelings of fear, anger, guilt or shame

3. A critical assessment of assumptions

4. Recognition that one's discontent and the process of transformation is shared

5. Exploration of options for new roles, relationships and actions

6. Planning a course of action

7. Acquiring knowledge and skills for implementing one's plans

8. Provisional trying of new roles

9. Building competence and self confidence in new roles and relationships

10. A reintegration into one's life on the basis of conditions dictated by one's new perspective.

These phases were then applied to the adult learner in the early stages of the transformative learning theory.An explanation of this theory is discussed briefly.

1. Disorientating dilemma

For learning to occur the student should experience a disorienting dilemma which makes one aware that their current set of skills, knowledge, beliefs or attitudes is no longer relevant. Howie and Bagnall (2013) described a disorienting dilemma as encounters that are beyond one's existing beliefs of the world and force one to rethink their beliefs. For example, a nursing student who watches a video on catheterising a patient may think that just watching a video without practicing in simulation makes

him/her capable of catheterising a patient, but when h/she fails to catheterise the patient, that serves as a disorienting dilemma. The student will consider doing more learning before attempting the catheterisation to gain more knowledge and skill to meet the challenge.

2. Self-examination

Upon realising that the current set of skills, knowledge and beliefs is not relevant, the student becomes unsettled and can experience anxiety and stress and begin to question the self..

3. Critical assessment

At this stage the teacher or other students' support may be required to guide the student in identifying ways of critical self -assessment and reassessment of their set of skills, knowledge and beliefs.

4. Recognition that one's discontent and the process of transformation is shared

Engaging in a discourse with other students and the teacher helps the student realise that the anxiety and stress is also being experienced by others and provides some reassurance.

5. Exploration of options for new roles, relationships and actions

The student starts looking for new relevant options and considers how these will affect their new way of being.

6. Committing to a course of action

At this stage the student makes a plan of action to put into practice the chosen new option making sure that the nature of interactions with others is a reflection of the new self.

7. Preparing to act and provisional testing of knowledge

The student examines the plan and the consequences of the new way of thinking before putting the plan into action. This is achieved through acting out the plan, identifying any weaknesses in terms of knowledge and skill level and develops the self if need be. This is equated to deliberate practice in simulation until a certain level of proficiency is reached.

8. Confidence and fluency

The student can start to build confidence and efficiency if s/he engages in the opportunities of using knowledge and skills and responds to different unforeseen circumstances.

9. Reintegration of knowledge

At this stage the student consolidates the new knowledge and skills into his/her own habits and practices. The student becomes conscious of the transformation and easily applies the new knowledge, skills and ways of thinking logically to new challenges. According to Wilock (1998) the student has 'become'.

Critical aspects of transformative learning

While transformative learning has undergone revisions over the years, only the significant principles of the theory are discussed here. The key to understanding transformative theory is knowing the form that transforms during the learning process (Illeris, 2009). This form is made up of the frame of reference, habits of mind and the points of view. The frame of reference or the meaning perspective are habitual ways of thinking and doing and shape one's interpretation (Mizerow, 1994). The frame of reference is influenced by several factors such as geopolitical, socioeconomic and psychological among others. One doesn't easily accept ideas or ways outside of one's frame of reference, they tend to reject them (Mezirow, 1995). It is this frame of reference that get transformed during the learning process.

The frame of reference has two dimensions.The habit of mind and points of view. The habit of mind is a set of immediate specific expectations, beliefs, feelings, attitudes and

judgements (Mezirow, 2000:18). Habits of mind operate subconsciously and are automated in response, unless one critically reflects. The habit of mind is made up of different perspectives that are expressed as points of view (Mezirow, 2000). Points of view are aspects that shape the habit of mind and ultimately the frame of reference. The examples given below on the learning processes in transformative learning help differentiate between the frame of reference, habit of mind and points of view.

The learning processes in transformative learning

It is the transformation of the frame of reference that Mizerow (2000) described as learning and occurs through four types of learning; elaboration of existing frame of reference, learning a new frame of reference, transforming points of view and transforming the habit of mind. Key to these types of learning is the learning process of critical reflection (Mezirow, 1995).

Elaborating an existing frame of reference

If a student believes that learning is memorisation (habit of mind) and encounters situations that strengthen this thinking or belief (frame of reference) it is referred to as elaborating upon an existing frame of reference. A teacher who promotes surface learning approaches and examinations that require memorisation (points of view) justifies the student's way of thinking. Mezirow (1995) described this learning process as content reflection where learning occurs within the existing frame of reference.

Learning a new frame of reference or establishing new points of view

This is learning in which the student who believes that learning is memorisation, develops better strategies (new points of view) to enhance or improve memorisation. The student can encounter some disorienting dilemmas such as failing an examination before realising that the current memorisation strategies are not adequate.This results in a need for new strategies to improve memorisation. This type of learning was described as process reflection (Mezirow, 1995). The student's habit of mind and/ or frame of reference remains the same.

Transform the point of view

As the student continues to meet learning situations that challenge memorisation style (habit of   mind), the student can start to question the application of memorisation as learning in every situation. By critically reflecting, the student may realise that not all learning situations are suited to memorisation; others may require learning that is deeper than memorisation such as understanding and application. So for situations that requiredeep learning the student starts to apply deep learning strategies (new points of view). With further exposure to more and more situations that require deep learning the student's points of view begin to change and become more aligned to deep learning as opposed to memorisation. At this point the student's changed points of view lead to a change in habit of   mind and ultimately frame of reference. Such transformation is said to have occurred by accretion or be cumulative (Mezirow, 1985). Ultimately the student's frame of reference is changed from learning as memorisation to learning as understanding or application.

Transformation of the habit of mind

 In this type of learning Mezirow (1998) described the transformation of the habit of mind that occurs rapidly and suddenly . The student may transform their memorisation as learning (habit of mind) when the student realises that this surface learning approach is not adequate. The student engages in critical reflection of the learning approach and changes the approach to deeper or better learning approaches within a short space of time and without several changes in points of view. Mezirow (2000) described such transformations as epochal; they are difficult and do not always happen. His argument was that learners do not transform the learning approachs unless they are no longer serving them well.

2.6.11 Phenomenography

Learning according to the theory of phenomenography rests on variation. Students learn if they can recognise differences in the critical aspects of the subject they are studying (Marton and Pang, 2006). If there is no variation in the content, students will not be able to see any differences and hence they are unable to learn (Bowden and Marton, 1998).

The students' experience of variation of content or object of learning is not stable, it changes. Accordingly learning is the

> '…change in the ways in which one is capable of experiencing some aspect of the world…' (Booth, 1997:135).

For students to learn or experience any variation, their current way of thinking or knowing should be challenged by a new way of thinking or knowing the subject matter or object of learning. Consequently, the students will embark on a process of reconciling the old and new way of knowing, bringing a different experience and understanding of the object of learning (Entwistle, Hounsell and Marton, 1984). Furthermore, Marton, Runesson, and Tsui (2004) are of the premise that the best learning experience occurs when the student can experience variation in many different aspects of the content of learning simultaneously.

If students' experience variation in many aspects of a phenomenon, they develop a complex structure of awareness of the phenomenon, and their learning becomes deep. Nevertheless, for students to expand their focus of awareness, they should have the capability to do so. The process by which the students expand their focus on awareness through experiences can be described as learning.

There is another way of thinking, challenging the premise that only experiencing variation results in learning. Some argue that understanding of the context of learning is also vital for learning to take place (Linder, 1993; Marton and Pong, 2005). The comprehension of the context is made possible by reflection in action as described by Donald Schön. Reflective learning is the examination of the object (the content) of learning through a deliberate and active process of learning (Linder, 2003). If learners come across a problem or new information, they need to have an experience that allows discernment of as many critical aspects of the phenomenon so they can understand and solve the problem. Reflection plays a significant role in this process.
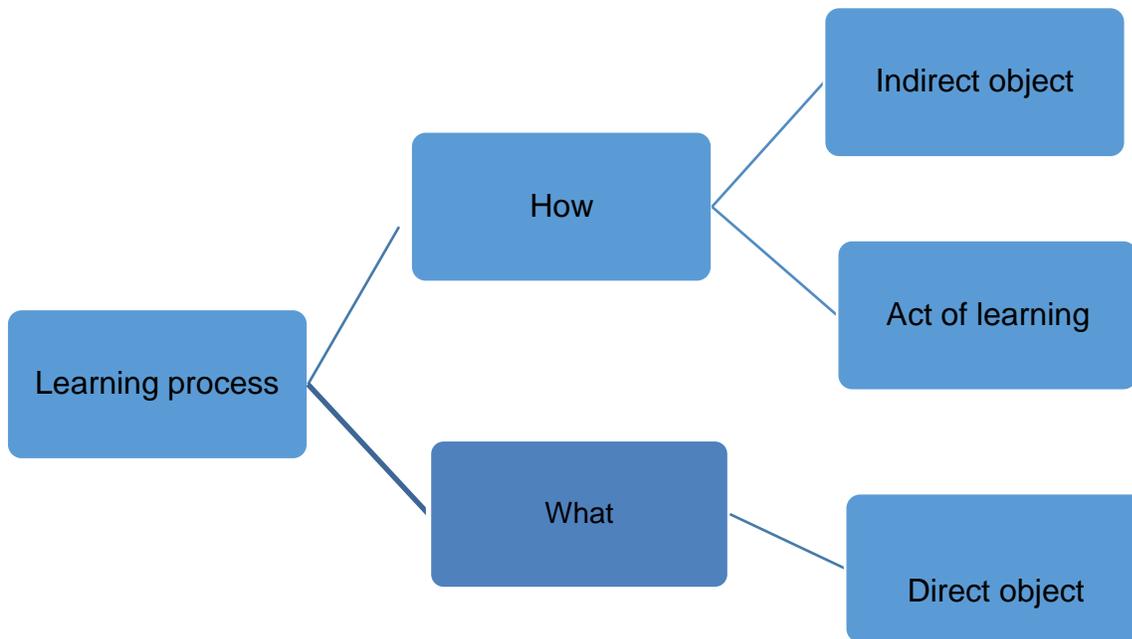
Figure 2-2: Learning in phenomenography (adapted from Marton and Booth, 1997:85)

Marton and Booth, (1997) further described learning according to phenomenography using the diagram above to clarify their meaning. For learning to occur, there should be the content to be learnt, referred to as the object of learning. Besides the object, there should be a goal for learning or the competencies one needs to attain, referred to as the indirect object and then the approach one chooses to adopt to learn the content known as the act of learning. The way students choose to go about their learning is based on their intended aim of learning and these learning approaches tend to differ among students.

In the teaching and learning process, it is important that the teacher facilitate the learning process by helping students experience the desired level of competence and have as many different conceptions of the learning object. These experiences should then influence the student learning approach. Changes in the way students experience the object of learning and the learning outcome challenges students to change their conceptions of learning. Ultimately, student conceptions of the "how" and "what" of learning undergo transformation. This transformation is considered learning in

phenomenography. Any phenomenographic research should at least reveal one or all three conceptions on the direct object, indirect object and the act of learning.

> 'An alternative way of thinking about learning is to realize that what is learned (the outcome or the result) and how it is learned (the act or the process) are two inseparable aspects of learning '(Marton, 1988:33).

2.6.12 Learning Oriented Teaching Model- learning process

According to this model, the learning process is composed of learning and the level of guidance students require to learn. The components of learning include cognition (what to learn), affect (why learn), and metacognition (how to learn). Cognitively students ask the question, "what should be learned?" ten Cate et al. (2004: 220) expand this, by saying; "That is, what is the content or objective of the learning, where should this content be found, and how should it be structured to adequately process the information?" Some of these are aspects that are addressed in the curriculum, but when it comes to individual learning may not be congruent with every student. Therefore, in the learning process every student is faced with the above questions and should be able to get the right answers for a successful learning process. Moreover, the teacher adopts a role of assisting students to find the best possible answers to the above questions.

The second component of learning is the affective component, which is concerned with students' drive or preparedness to learn (ten Cate et al., 2004). In this component students seek answers to questions of 'why learn' and understand the psychology behind the learning process. Students are not likely to learn effectively if they don't understand the reasons behind their need to learn and if they lack the necessary motivation to overcome the effort required to study effectively. It could be helpful for students to know the desired or expected outcome of learning and how important the outcome is before they embark on the learning process. The role of the teacher becomes that of a motivator for students in the learning process.

The last component of the learning process is the metacognitive. ten Cate et al., (2004: 222) assert that,

'A learner needs metacognitive skills to process information: he or she must be able to plan study activities, to monitor and evaluate progress, to diagnose and address personal lack of knowledge'

These are the skills required for the student to be able to learn, because without the ability to learn, students won't be able to learn successfully. The implication for teaching is that students need to be educated how to learn before they engage in the learning process.

2.7 Learning approaches

There are two major learning approaches identified by Biggs et al. (2001), Biggs and Tang (2007) and Marton and Säljö (1976). The approaches were identified based on theoretical learning, but Zhao et al., (2018) have also proved that clinical learning shows similar forms of learning. Further studies have shown that there is a third approach (Duff, 2004). The three learning approaches are surface, deep and strategic learning approach.

The surface approach stresses the duplication of information with little or no effort to integrate the data, more like rote learning (Marton and Säljö, 1976).The focus is on the surface, just looking at the text and anticipating how it can be used in assessment (Bowden and Marton, 1998). Metacognitive skills are rarely used as students want to use as little energy as possible in finishing any given learning task. On the other hand, the deep learning approach is aimed at a good understanding through analysis of ideas and conceptions. In the strategic approach, the focus is on getting best marks or assessment grades by studying as per the requirements of the assessment. It's important to note that in the deep learning approach, memorization is a means to an end while in the surface approach; memorisation is an end in itself (Biggs, 1987). The type of memorisation displayed here is called memorisation without understanding (Marton, Wen and Wong, 2005) which is different from memorisation in deep learning which is called meaningful memorisation (Zhao et.al., 2018).

Many factors influence the choice of a learning approach (Biggs, 1999). According to Sternberg and Zhang (2005), assessment requirements can affect students' choice of

the learning approach. The students' background knowledge and workload also affect the student's learning approach choice (Ramsden, 1992). A student with limited background knowledge on a subject may need to work a lot to catch up, hence adopt a surface approach (Biggs, 1999). Teaching strategies also influence students learning approaches, with lecture-centered methods likely to encourage surface approaches to learning (Gow and Kember, 1990) while leaner centered methods encourage deep learning approaches (Ramsden and Entwistle, 1981).

Students who use a deep learning approach obtain high assessment marks most of the time (Entwistle and Ramsden, 2015). Those using a surface learning approach can also yield high grades if the assessment tasks are surface learning approach oriented. It is difficult to tell if students obtain high marks because of their approach to learning or other reasons related to the assessment.

In the context of this study, students' approaches to learning are a result of their experience of the world around them and are not related to their personality (Marton and Säljö, 1976). The learning approach is related to the student's goal of learning and the student's focus during learning (Laurillard, 1979). Hence, the approaches to learning as described here show a close link with a phenomenographic study on student learning (Diehm and Lupton, 2012).

2.8 Development of Competence

The words of Tilley (2008; 58) highlight the challenges in developing competence: "No mechanism exists for most health care facilities to ensure that practitioners remain up-to-date with current best practices. Schools of nursing throughout the United States struggle to determine the best ways to educate students who demonstrate entry-level competencies." This statement above confirms that competence is not a permanent state; nurses have to learn continuously to remain competent. More worrying is the last statement where graduates enter the profession without attaining competence. They join a system that has no mechanism to help them attain competence. This raises the question, is competence ever achieved and if ever it's achieved is it maintained, or is it ever possible to become competent?

Against the backdrop of the above questions and current evidence that is challenging the idea of competence, the process of developing competence is introduced here. The development of competence is an ongoing life long process, follows a circle of reflection and action, and encompasses integration of past knowledge and new knowledge (Garneau and Pepin, 2015). It is engaging in the deliberate process of learning directed towards certain outcomes. The learning outcomes for professional nurses are set for them as they are expected to deliver safe quality nursing care. There is an assumption that with proper monitoring and evaluation of performance, nurses are somehow forced to learn and reach the expected level of performance.

In students, the situation may be different, quality of care and patient outcomes are not their primary responsibility, their focus is on attaining their learning outcomes that do not approximate patient care outcomes in most cases (Dadgaran, Parvizy and Peyrovi, 2012). Accordingly, the development of competence in professional nurses and in students may not follow a similar pattern. Studies to date have focused on the development of competence among professional nurses and few studies have looked at the development of competence in students. Studies that have investigated the development of competence among students have concentrated on components of competence and not the development of competence as a whole. This study focused on the development of competence as whole and not individual components. Consequently, the next section considers the development of competence as espoused by Benner, followed by current practices in teaching and learning that supposedly support the development of competence and will conclude by looking at the issues inherent in the development of competence.

2.9 Benner's model

Building on the work of Dreyfus and Dreyfus (1980), Benner (1982) developed the Novice to Expert model of professional development in nursing. Benner expanded on the work of professional development using the model in further studies conducted in 1984, 1996 and 2005 with a focus on nurses in acute and emergency care settings. According to Benner et al. (2010), the development of expertise occurs in five stages: novice, advanced beginner, competent, proficient and expert. Novice nurses are recent

graduates, with less than one year of experience whose practice of nursing skills follows practice guidelines as learnt at school (Clipper and Cherry, 2015; Dyness and Sherman, 2009). After a year or so of practice and experiential learning, novices may become advanced beginners; they are able to recognise certain relevant elements of the clinical situation and hence perform better than novices (Benner et al., 2010). After two years of practice, the advanced beginner becomes a competent nurse who has a holistic view of patient problems but lacks a sense of what is important in the clinical situation. Active teaching and learning in this stage promotes the development of proficiency where the nurse's performance is intuitive but lacks refined discrimination ability of the clinical situation.

While Benner's model has been widely used in studies on professional development in nursing and in designing mentorship programmes, it has major weaknesses. Firstly, the actual learning processes involved at each stage are not well described (Daley, 1999). Secondly, the transitional process from one stage to the other is not known (Gobet and Chassy, 2008). Thirdly, Benner's model is based on experiences of qualified nurses and was conducted during the time when nursing education was based on the apprenticeship model of learning. It's not clear from the model if the time students spent in clinical placements was factored in as time in the workplace. Lastly, the description of professional development by Benner is criticized for not being interpretivistic or one dimensional only focusing on the context neglecting the conception of the nurse in the process (Dall'Alba and Sandberg, 2006).

In their explanation, Dall'Alba and Sandberg (2006) urged that the development of competence is dependent on the understanding of what is being developed. For instance if one is developing competence to be a nurse, then the person's understanding of nursing influences the extent to which they become competent.

Recent findings by Daley (1999) have expanded the knowledge on learning processes in the development of competence. The findings unveiled learning processes at the novice and expert stage (Daley, 1999) and the transitional process involved in progressing from being an advanced beginner nurse to being a competent nurse. Despite this, a number of questions remain unanswered regarding the development of

competence in nursing; for example, what are the learning processes that lead to the development of competence in nursing students and what role does the understanding of nursing play in the development of competence in an individual?

2.10 Development of competence

Rebueno et al.'s (2017) study showed that the development of clinical competence follows a sequence and starts from a less complex to the most complex stage. A pyramid with simple skills at the bottom and difficult skills at the apex represents the process. They argue that for one to develop higher order skills, simple skills should develop because they form the basis for learning the complicated skills. They found that professional behaviours develop first then generic skill performance (general non-technical nursing related skills like communication), then basic nursing skills and lastly advanced nursing skills. The study also supports the perspective that competence is a process of growing in knowledge, experience, as well as confidence (Dehmer et al., 2013; de Souza Teixeira et al., 2014). This model does not describe the learning processes students used to move up the pyramid.

2.11 Development of competence in students

The development of competence follows a cycle starting from the classroom, to the simulation laboratory, to the clinical environment and back to the classroom (Benner et al., 2010). The learning that one undergoes is critical to the development of competence. The students learn theoretical knowledge about nursing, nursing skills, and values. This knowledge is supposed to be integrated and transferred to the simulation laboratory and the clinical environment (Jeppesen, Christiansen and Frederiksen, 2017). However suggesting that knowledge is transferred hides the fact that there is further learning that takes place in the classroom, simulation laboratory and in the clinical area. Because learning occurs in three different environments, a gap has been identified, namely the theory-practice gap. The theory-practice gap, refers to a situation where what students learn in theory differs from what students experience in practice (Ajani and Moez, 2011; Scully, 2011). There is also some evidence to support the existence of the practice-theory gap also known as evidence-practice gap where what is practiced has not kept pace with evidence for good practice (Cook, 1991;

Hickman, 2018; Leach and Tucker, 2018). Therefore, this section discusses learning in the simulation laboratory and in the clinical area because this is where the learning process covers all the components of competence unlike in the classroom where the focus is on theory. The concept of transfer of learning is also discussed because it is the link between simulation and practice and theory and practice.

2.12 Learning in different environments

2.12.1 Deliberate practice

Deliberate practice is a process of continuous focused training aimed at improving specific skills with the help of constructive feedback and assessment (Ericsson, Krampe and Tesch-Römer, 1993). Deliberate practice involves repetitive practice of skills under standardized and experimental conditions (Liou, 2013). Unlike repetitive practice, deliberate practice is well structured starting with a clear learning outcome/ practice weakness and ending when the learning outcome is achieved (Duvivier et al., 2011). Deliberate practice is not about the passage of time spent practicing but time spent on improving specific aspects of competence (Ericsson et al., 1993).

According to Ericsson et al., (1993) deliberate practice can result in improved performance if it's practiced according to four conditions. Firstly, the learning task should have a specific learning outcome. Secondly the student is self-directed or at least motivated to learn and improve their performance until the student reaches the required level of performance (Oermann, Molloy and Vaughn, 2015). Thirdly the students are assessed and provided with constructive feedback on their performance. Lastly students are afforded the opportunities for practicing and improving performance.

Based on the description above there seems to be a hierarchy in the use of deliberate practice in teaching (Duvivier et al., 2011). In the beginning students can benefit from any form of practice of a skill even though its superficial practice. However, beyond what could be familiarisation with the skills the student does not improve the level of performance. Later the student becomes focused on certain aspects of the performance and realises mistakes and weaknesses creating a need to take action to improve performance, which is not always easy (Mavis, 2000). Every time the student engages

in performance, s/he discovers areas of weaknesses and tries to improve on them in the next performance. This process is continuous and accumulative, students are to move from a lower level of performance to a higher level of performance with each practice attempt (Liou et al., 2013).

2.12.2 Deliberate practice and simulation

The combination of simulation and deliberate practice have been found to be effective for learning. Before discussing the use of both simulation and deliberate practice, a brief introduction to simulation is necessary. Simulation is the use of mannequins in a controlled environment that imitates clinical practice for student learning. It is an active learning strategy and allows students to construct meaningful knowledge (Bliss and Aitken, 2018). Through simulation students can develop critical thinking, problem solving skills and decision making skills which impact on the development of competence (Garrett, MacPhee and Jackson, 2010; Stunden, Halcomb and Jefferies, 2015). Additionally, simulation promotes reflective thinking especially through the debriefing sessions (Abelsson and Bisholt, 2017). This active learning is believed to help students apply their theoretical knowledge to clinical practice (Alinier and Platt, 2014).

Considering that both simulation and deliberate practice have been found to have a positive effect on learning, they are increasingly being used together in nursing education. Owen et al., (2017) reiterate that simulation is an effective teaching and learning strategy for nursing students. Similarly, Oermann et al. (2011) contend that deliberate practice has been found to improve skill acquisition and longer retention of information, inferring easy skill transfer to clinical practice among nursing students. Combining deliberate practice and simulation is slowly being regarded as best learning practice to promote the development of competence (Aebersold et al., 2012; Barry et al., 2012; Botma, 2014; Chee, 2014; Owen et al., (2017); Clapper and Kardong-Edgren, 2012; McGaghie et al., 2010; Motola et al., 2013;). In clinical practice, deliberate practice is not possible because every clinical situation tends to be different (Oermann et al., 2015). Simulation enables the use of deliberate practice because it allows one to create a variety of scenarios that allow students to practice repetitively psychomotor,

cognitive and decision-making skills (Parker et al., 2011). Overall, the amalgamation of deliberate practice and simulation improves levels of competence among students (Bathish et al., 2018; Liou et al., 2013).

2.12.3 Transfer of learning

Transfer of learning is important considering that learning does not always occur in the same context where it's applied. Transfer of learning is the capability to correctly use skills and knowledge learnt in one environment in another environment which may be comparable or different (Thomas, 2007). Where transfer is applied to similar situations it's known as near transfer and when it applies to a different or new situation its known as far transfer (Barnett and Ceci, 2002). Simmons identified three types of transfer

> '…from prior knowledge to learning, from learning to new learning, and from learning to application' (Simons, 1999: 577).

The process of transfer begins when students use their pre-existing knowledge to link with new knowledge. Then students need to use the knowledge to learn in a different way based on the new knowledge and lastly apply the knowledge to a particular situation. Without a change in the way students learn, think or behave they will not be able to apply what they learnt if they encounter situations that are different from what they learnt (Simons, 1999).

Despite the positive outcomes of deliberate practice and simulation based learning, evidence for transfer of the skills into clinical practice remains contestable. If simulation based learning cannot be transferred to clinical practice then simulation and deliberate practice are irrelevant (Handeley and Dodge, 2013). Pai (2016) is of the opinion that simulation can improve one's technical skills but cannot improve one's ability to use the technical skills in real practice. Some evidence suggests that skills obtained in the simulation laboratory can be transferred to clinical practice (Bliss and Aitken, 2018: Draycott, Sibanda, Owen et al., 2006; Seymour et al., 2002). On the contrary there are questions related to how simulation based learning is transferred to the clinical environment (Miles et al., 2016; Munangatire, 2014). There is competing evidence to suggest that students fail to transfer simulation skills into practice because students lack adequate clinical knowledge and skills (Günay and Kilinc, 2018). In most cases there is

an assumption that transfer of learning has occurred without evidence to support it (Disher et al., 2014; 2008; Hallenbeck, 2012; Murray et al., 2008). Some imply that because students are able to transfer theoretical knowledge to the simulated setting that they are able to transfer it to real practice (Botma, 2014).

Nevertheless, there is no proof that positive outcomes of simulation-based learning are translated into the clinical environment (Pai, 2016). Kimhi et al. (2016) have shown that simulation improves the confidence of students in technical skills but the actual clinical environment improves students' confidence in their performance of nursing care with real patients. Most literature suggesting positive transfer of learning tends to be questionable and seems to overgeneralise the transfer of learning from the class to the simulated setting with transfer of learning from simulation to clinical practice (Maginnis, Croxon and Croxon, 2010). In the learning programme, the assumption is that curriculum content is based on the requirements of practice and hence students learn what is directly related to clinical practice.

However, the existence of the theory-practice gap is an indication that learning in theory and in practice is not complementary. This creates a grey area and probably the biggest gap in learning because there is need to use learning processes in which classroom learning can be consolidated with clinical learning. The complexity and unpredictability of clinical experience may make it difficult to correlate theoretical learning and clinical learning. Previous studies suggest that textbooks portray nursing practice far more simply than what it actually is (Anderson, 2009; Flood and Powers, 2012). While the use of case studies and portfolios to close this gap suggests progress, their acceptance and adoption is not widespread (Green, Wyllie and Jackson, 2014). Identifying the learning processes that can close these gaps may contribute to the development of competence.

2.12.4 Clinical learning environment

Benner's (1982) studies on competence showed that time spent on the job can positively influence the development of competence. It can take up to 1 year 6 months for new graduates to advance from being a novice to an advanced beginner (Benner, 1984; Duchscher, 2008; Rafferty and Lindell, 2011). However, other findings from

problem based learning programmes indicated that the majority of the nursing graduates were at least at the advanced beginner level on completion of their studies (Lofmark, Smide and Wikblad, 2006). The differences in the findings could be attributed to the types of learning used by the students and skills they were evaluated on. This suggests that meaningful learning can significantly contribute to the development of competence. It also is critical that the clinical environment be utilised in an effective manner to nurture the development of competence in nursing students because it provides concrete authentic learning experiences (Warner and Burton, 2009). There are findings that reveal that students lack the expected level of competence required in the clinical environment (Lauder et al, 2008). It may be an indication that there are challenges during the education programme that hinder the development of competence in students (Liou et al., 2013). This demands a change in approach to nursing education, a change informed by the current strengths and weaknesses of nursing education.

Hager, Gonczi and Athanasou (1994) claim that if students are to develop competence, then the student learning environment should match the actual work practice where all components of competence are tested as is in the clinical area. Facilitating the development of competence requires a shift in the learning processes to focus on performance in real situations as the outcome rather than accumulation of knowledge and performance of isolated skills in simulated environments (Rahnavard, Hosseini Nodeh and Hosseini, 2013). Eraut (2002) suggests that students must learn knowledge in the context of its use and relevance in the actual practice. Clinical learning aims to promote psychomotor skills, integration of the components of competence, application of theory to practice and complete socialisation into nursing practice (Clare and Van Loon, 2003). Therefore the clinical learning environment must be effectively utilised for learning purposes because studies show that clinical experience enhances students' clinical performance more so than does simulation experiences (Pai, 2016).

Students spend more than half of their learning time in the clinical area making clinical experience invaluable for students learning experiences (Pai, 2016; Warne et al., 2010). However, the clinical learning environment has been described as learning by chance

(LeFlore et al., 2007). Unlike the simulation laboratory and classroom, the clinical environment is complex and more challenging (Hartigan-Rogers et al., 2007). It is not clear what constitutes the best learning opportunities, what aspects of clinical practice should be taught and when they should be taught (McNelis, Ironside and Ebright, 2014). As a result, clinical learning experiences are not as structured as those that can be created in the simulation laboratory and classroom teaching (Baraz, Memarian and Vanaki, 2014). It is possible for some students to be exposed to better learning opportunities than others making uniform learning complicated (Rahmani et al., 2011). While the complicated nature of the clinical area creates negative learning experiences for the students (Yamada and Ota, 2012), it also provides good learning opportunities (Papastavrou et al., 2010; Ranse and Grealish, 2007).

2.12.5 Clinical learning processes

During clinical allocation students learn mostly by practicing, especially during the early years of education (Feng and Tsai, 2012). This practicing in most cases does not result in automatic improvement in students' skills or knowledge unless some critical process of learning is involved. Bos et al. (2015) acknowledge that observation and mentoring are learning processes that help students learn professional and cognitive skills in practice. But to suggest that observation and mentoring alone improves learning is neglecting to consider underlying active processes that drive learning. There is evidence challenging this thinking, describing it as too simplistic learning. Instead other researchers emphasize that students can learn and improve their competence level if they reflect in and on their clinical experience with the help of their mentors (Garneau and Pepin, 2015). In the same line, Pai (2016) observed that effective self-reflection in simulation promotes learning and is linked to better clinical performance. While Pai's (2016) view of self-reflection as an effective learning process in simulation may not be accurate, it doesn't mean such learning will result in better performance in the clinical area. However, nurses are sometimes overwhelmed with work so they have little time to help students with learning (Jansson and Ene, 2016.

2.12.6 Clinical learning model

The clinical learning process has been shown to follow a sequence from simple to complex (Baraz et al., 2014). The first stage is learning by observation as students watch the clinical instructors or nurses providing care (Lee, Clarke and Carson, 2018). The nurses and the clinical instructors are role models to students, so observation is one way of socialising students into nursing (Rowbotham and Owen, 2015). According to Baraz et al. (2014), there are two forms of observation: careful observation, and reflective observation. By careful observation, the student looks and pays attention to what the nurse is doing and how the nurse is doing it. Reflective observation involves thinking about what the nurse is doing.

After observation, students engage in learning by doing, which involves active involvement and independent practice. In the process of active involvement, the student practices under supervision while simultaneously delivering nursing care (Allan, Thiagarajan and Beke, 2010). As the students improve their skills, they are allowed to assume more responsibility for independent practice with limited direct supervision (Baraz et al., 2014). Lastly, Baraz et al. (2014) referred to learning by thinking which includes 'inquisitiveness' and 'critical thinking'. Inquisitiveness is the student's desire to know and understand by asking questions related to practice. On the other hand, critical thinking is accomplished by reflective thinking on and in action for the student to better understand and rationalise their practice.

The role of the nurse is to create an environment conducive for learning (Moscaritolo, 2009). During the demonstration, the nurse takes the opportunity to impart knowledge, skills, and values as well as stimulate critical thinking among the students (Bourgeois, Drayton and Brown, 2011; Ludin and Fathullah, 2016; Zakari et al., 2014). As students engage in learning by doing and thinking the nurse /instructor must give constructive feedback that improves student learning (Rafiee et al., 2014; Rowbotham and Owen, 2015).

2.12.7 Organisation of clinical learning

Clinical learning is not supported as much as classroom/simulation learning and this doesn't help students because clinical learning is important in developing nursing

competence (Kaphagawani and Useh, 2013). It is in the clinical area where students apply, develop and integrate the knowledge, skills and attitudes learnt in theory (Aghamohammadi-Kalkhoran, Karimollahi and Abdi, 2011; Newton et al., 2010). Merely having clinical experience doesn't equate to learning but there is need to identify mechanisms that can cause learning to occur from experience. This is where clinical support becomes invaluable if clinical learning is to reach its peak.

Clinical learning is mainly organised by the nursing colleges and universities and the clinical instructors act as a bridge to the clinical area. Ideally the clinical instructors and the nurses are supposed to work together in supporting student learning, but this is sometimes problematic due to poor coordination between the two (Saarikoski et al., 2013). In clinical practice student learning is supported by nurses who are either dedicated to student learning or those with a dual role of patient care and student learning (Mamhidir et al., 2014; Sweet and Broadbent, 2016). In most cases the clinical nurse is affiliated to the hospital although in some cases the clinical nurse is affiliated to the college of nursing. In some cases, the nurse's teaching role is not as formalised as it should be and in most cases, there is no clear guideline in supporting student teaching (Kristofferzon et al., 2013). The position of the clinical nurses directly impacts on their role helping students to integrate theory and practice. A dual role can reduce the clinical nurses' availability for student learning as the primary focus will be nursing care (Henderson and Tyler, 2011). This compromises student learning as a supportive learning environment is important for student learning (Jansson and Ene, 2017). Due to the challenges of clinical learning some models used to organise student clinical learning are considered.

2.12.8 Models of clinical learning

Many models of clinical learning are applied to nursing education. Two of these models are reviewed here. The first one is the collaborative learning unit model where the teaching of students is the responsibility of every nurse in the ward (Chan et al., 2018). While there are positive student learning experiences with this model (Callaghan et al., 2009), there are challenges in monitoring students' progress. In contrast to the collaborative learning model is the preceptorship model in which one nurse is assigned

to teach the students. Recent evidence in Sub-Saharan Africa strongly suggests that students' level of confidence improved and they attained learning outcomes (Phuma-Ngaiyaye, Bvumbwe and Chipeta, 2017) in the preceptorship model. Studies conducted in Malawi, Ghana and Lesotho have all reported positive student learning experiences where the preceptorship model was used (Phuma-Ngaiyaye et al., 2017; Atakro and Gross, 2016) However, this model was found to be difficult to implement due to nursing staff shortages and an increasing number of nursing students (Nielsen et al., 2013).

2.12.9 Student experiences of clinical support

Many aspects of the clinical environment affect student learning experiences. A conducive learning environment and the support by the nurses or clinical instructors strongly influences the development of clinical competence of nursing students (Rebueno et al., 2017; Zakari, Hamadi and Salem, 2014; Ludin and Fathullah, 2016; Theander et al., 2016). A positive relationship between students and their clinical facilitators is associated with positive learning experiences (Chan et al., 2018; Curl et al., 2016). Recent work by Arkan, Ordin and Yılmaz (2018) has demonstrated that clinical teachers strongly influence students learning experiences. Therefore, the correlation between students learning and clinical support is important in the development of competence (Jansson and Ene, 2016).

In a study by Anderson, Moxham and Broadbent (2018), nursing students felt that they were not well supported in their clinical learning. The findings by Cheng et al. (2014) indicated that students had a limited opportunity to practice as nurses excluded them from practice. Furthermore, the lack of equipment compromised students' opportunities for practice. This exclusion of students from practice breaks the communication between the students and the nurses and negatively affects students learning (Mlek, 2011; Serçekuş and Başkale, 2016). Consequently, this limits the support for student learning which has an effect on both students in the early years of study and those in the final years. Students in the early years need more support (Matthew-Maich et al., 2015) while those in the senior years need to have a sense of belongingness which is important for student learning especially in the complexity of clinical environments (Chernomas and Shapiro, 2013; Lapkin et al., 2010).

Yang, (2012) found that nurses might lack clinical skills and time to help students learn. This is in agreement with the findings of Lee et al., (2018) that showed that the clinical area is a busy environment for nurses and they prioritise work more than learning. Calls for nurses to allocate time for student learning is evidence that nurses don't have time (Bengtsson and Carlson, 2015; Rafiee et al., 2014). Therefore, it means that nurses are not able to supervise student learning and give feedback to help students improve and this affects their learning negatively (Mlek, 2011; Serçekuş and Başkale, 2016; Xu, 2016)

2.13 Assessment of competence

The study of the learning process is incomplete without reviewing assessment. Assessments influence students learning and teachers rely on assessments to determine students' progress in the learning programme. In an ideal scenario, the purpose of assessing students is to determine their level of competence. However, this has proved to be problematic due to a number of factors. Bowden and Marton (1998:12) assert that:

> 'The point of studying at university may be to become an effective and competent nurse. But being good at exams, testing knowledge of anatomy or physiology may reflect something, which is different from or perhaps even unrelated to capabilities in nursing. To the extent that this is true, students can focus on 'making the grade' without necessarily developing capabilities of vital importance for their professional future.'

According to Tilley (2008), employers have no valid way of evaluating the entry-level competence of professional nurses. The assertion above highlights the major challenges encountered in assessment and as a result it is difficult to determine students' actual level of competence.

Assessing students' level of competence is as important as facilitating its development (Aiken et al., 2003; Kendall-Gallagher and Began, 2009). However, as with defining the concept of competence, there is little consensus on how to measure it (Yanhua and Watson, 2011). Valid and reliable tools used in assessing competence can ensure that

decisions about competence are accurate (Hvalič-Touzery, et al., 2017). However, a few of the available tools have not been proved to be valid, reliable and objective (Andrew, Tolson and Ferguson, 2008; Levett-Jones et al., 2011). Several authors have suggested measures to improve the validity and reliability of assessing competence. Accordingly, Wu et al. (2015) recommend that students' assessments be conducted at the beginning, in the middle and at the end of clinical placements to improve their reliability. Others claim that both qualitative and quantitative aspects of competence should be measured (O'Connor et al., 2009) because competence is multidimensional (Tommasini et al., 2017. Therefore, with limited consensus on assessment of competence, it is difficult to tell the level of competence of graduating students.

Determining the acceptable level of competence is another important aspect of assessment. Garside and Nhemachena (2013) posed the question "what level of performance is considered competent"? By looking at competence as the lowest acceptable level of performance is evading this question. Simultaneously continuing to assess students and certifying them competent is a nonentity. The suggestion to adopt an all or none approach- either the student is competent or not still leaves the question unanswered. Therefore, the question of level of performance considered as competent cannot be reduced to mere standard setting; it's a subject that requires more explicit description (Watson et. al., 2002). Any further details on this subject lie beyond the scope of this discussion.

In the assessment of competence, behaviourists assess competence by observing task performance and using checklists of a list of skills the student has to perform. This approach is criticized for veiling the salient skills that constitute competence such as cognitive skills (Dolan, 2003). However, it can be argued that competence cannot be observed, it is inferred from performance so observing performance is one way of assessing competence. In addition, observation checklists can be designed to cater for all components that make competent performance. If competence is a whole, then breaking it down for the sake of assessment and objectivity is an acceptance of competence as broken down pieces (Pijl-Zieber et al., 2014).

Most competence assessments lack a standard by which the required level of competence is judged. Findings by Numminen (2015) suggest that students' standard of competence is determined by passing final examinations while clinical practice standard of competence is measured against the ability to meet minimum practice requirements. This theory-practice gap seems to have widened when nursing education departed the apprenticeship type of education model moving into higher education. Educators seek to produce graduates with generic transferable skills while employers seek graduates with job specific skills, who are ready for practice (Chapman, 1999).This compounded by the setting in which assessment is conducted, for example in Namibia students are examined using the OSCE in a simulated setting with basic simulators and this is not assessment of real competence. A pass in the OSCE cannot translate into competence in real clinical practice considering that competence is context dependent (Lagha et al., 2012). Eraut (1994) and Deyfrus and Deyfrus (1980) claim that competence must be assessed in real clinical settings, but such a call brings back issues of reliability and fairness of assessments as well as patient safety and ethical practice. If patient safety is compromised in the process of developing competence then the whole essence of competence will lose value.

A review by Wu et al. (2015) suggests that clinical nurses should be more involved in the assessment of students and not clinical instructors and lecturers only. Some countries have developed standards that approximate competence expectations for nurses but in some, such standards are lacking or if present they are not explicitly linked to the assessment. The use of criterion referenced tools suggest a move towards the understanding of competence as an all or none entity. But adopting such an approach is difficult since most assessment tools' psychometric properties have not been validated and the tools do not reflect the holistic nature of competence Morris, Gallagher and Ridgway et al., 2012). Additionally Bradshaw (2000) seems to suggest that no one knows what nursing is, so it's difficult to determine the level of knowledge nurses possess, what knowledge they should possess and what they actually don't know.

Grauerholz and Main (2013) suggest that quantifiable outcome measures, such as test results and course grades, do not capture the subtleties in differences in deep learning

and suggest that other methodologies, including qualitative approaches, are more appropriate to evaluate real differences in student learning outcomes.

Students are more likely to have their studies discontinued for failing academic work than for poor clinical performance. There is evidence that nurses fail to demonstrate competence but still pass clinical assessments and are subsequently deemed fit to register (Vinales, 2015).

Considering the complexities in measuring competence and the broad nature of nursing practice, borrowing from the ideas of Frenk et al. (2010) a competent nurse should be educated on a certain specialty of nursing rather than general nursing. This may however be practically difficult to implement. Assessing special areas is more valid because it allows many skills to be assessed rather than general nursing where it may be impossible to assess enough skill areas of general nursing practice. They also propose a stage wise development of competence in which every year of study takes students to a certain level of ability matched against a certain area of practice. In nursing for example, a second year student can be considered competent in skill areas for this level.

2.14 The gap in knowledge

The clinical environment has become complicated with a patient presenting with comorbidities and advancement in technology (Chong et al., 2014). No matter how comprehensive the curriculum is, the pace at which these developments are occurring is faster than the rate at which the curriculum is changed, books are written, and guidelines are developed. While nursing programmes seek to provide students with the best learning experiences that will make them competent nurses the current education system makes it difficult for this goal to be attained (Rebueno et al., 2017; Zieber and Sedgewick, 2018). This is an indication that students can learn and develop competence, but there remains confusion about how they become competent (Levine and Johnson, 2014). It is evident from current studies that the pedagogical and didactic principles needed in developing competence have not yet been established (Blažun et al., 2015).

Consequently, there are many studies focusing on learning and the development of competence. However, most of the studies have established the stages of the development of competence without revealing the learning experiences that contribute to the development (Dall'Alba and Sandberg, 2006). According to Biggs (1999) studies on learning in the past century focused on theories of learning and it's only recently that the focus has shifted to student learning. Bowden and Marton (1998) insist that learning theories and teaching methods don't explain in full the student experiences that result in better learning. This area is not well researched in nursing as many studies focus on the learning processes in registered nurses or the development of competence in certain domains such as clinical reasoning and cultural competence.

2.15 Conclusion

This chapter presented an overview of the literature on competence starting with the history followed by the significance of competence and its definition. The literature related to the development of competence was discussed with focus on issues around learning and theories of learning. The application of learning theories should support the development of competence. While there is no one theory that can be used to support learning, theories of phenomenography and constructivism relate to learner centered learning which is crucial for the development of competence.

CHAPTER 3: METHODOLOGY

3.1 Introduction

In this chapter, the methods used to attain the objectives of the study are discussed. The methods for sampling, data collection, data analysis and the justifications for using these particular methods are outlined. The processes described in this chapter culminated in a deeper understanding of the learning processes nursing students use to develop competence in the DNMS programme.

Firstly, the qualitative research paradigm is presented followed by a discussion on phenomenography and its links to phenomenology are discussed. Secondly, an account on the sampling, data collection and data analysis processes is given. Lastly, the chapter describes the aspects that ensured trustworthiness of this study as well as the ethical principles applied.

3.2 Research Design

The research approach adopted in this study was that of the qualitative paradigm because the researcher sought to understand experiences, which is a qualitative variable. According to Hesse-Biber and Leavey (2006), the studying of experiences is an attempt to understand or describe a phenomenon based on the meaning people create by relating to that particular phenomenon. With this study focusing on learning processes that best support the development of competence among nursing students, the focus is on how students experience learning and the development of competence in particular. However, the qualitative paradigm is broad and entails many epistemological approaches such as phenomenology, ethnography, grounded theory, case study, descriptive study and phenomenography. This study adopted the phenomenographic approach due to its inclination to research questions of an educational nature.

3.3 Phenomegraphy and Education Research

Marton (1988, 53) defined phenomenograhy as "an empirically based approach that aims to identify qualitatively different ways in which different people experience, conceptualise, perceive, and understand various kinds of phenomena". This strongly

links phenomenography to education because phenomenography has its roots in education and has continued to grow as a research approach in the field of education (Limberg, 2000; Svensson, 1997). In its origins, phenomenography was developed from studies exploring differences in student learning outcomes, how students learn, how they view knowledge and experience learning in general (Marton and Booth, 1997). It has further been used in exploring the various ways in which students approach learning and the different ways teachers approach teaching as well the various roles teachers can assume (Trigwell and Prosser, 1996).

The question "what are the learning processes that best support the development of competence among nursing students?" is an education question and can be answered through an approach that is educational in nature. In addition, students experience learning differently, therefore phenomenography is suitable for discovering the various ways in which students develop competence. Bruce (1999) further contends that even if people experience and comprehend phenomena in a number of qualitatively diverse ways, their experiences and understanding are interconnected. Putting this statement by Bruce (1999) into the context of this study, students learn in different ways, but ultimately they all seek to attain competence. This means that there are interconnections in the various processes students use to learn. Consequently, the use of phenomenography in this study will allow for the description of the various ways in which students attain competence.

3.4 Phenomenography

3.4.1 Origins

According to Svensson (1997), phenomenography is defined as a scientific research approach that aims to describe conceptions of the surrounding world. This approach arose from educational research conducted in Sweden in the 1970s (Ashworth and Lucas, 1998). Despite Sonnemann using the word *phenomenography* in 1954, the recognition of phenomenography as a research approach began in the 1970s (Hasselgren and Beach, 1997). Marton and his colleagues, Säljö, Dahlgren and

Svensson at the University of Gothenburg in Sweden, are credited with the development of phenomenograpghy as a research approach (Svensson, 1997).

Marton and his team carried out a study in which they gave a cluster of students an identical extract from a text to read. The students understood the same text in a limited number of qualitatively diverse ways, which researchers could put into distinct categories (Marton and Svensson, 1979). This created a hypothesis of interest to researchers who have since tested it in many studies and found it to be true (Barnard, McCosker and Gerber, 1999; Renström, Andersson and Marton, 1990). Today phenomengraphy has become an important qualitative research approach in educational research. It is important to compare and contrast phenomenography and phenomenology.

3.4.2 Phenomenography and phenomenology

Phenomenology is a qualitative research approach that is given greater recognition than phenomenography. The two approaches resemble each other in certain ways, but they are different. The object of research in both approaches is human awareness and experience (Barnard et al., 1999; Stenfors-Hayes, Hult and Dahlgren, 2013). In addition, phenomenography and phenomenology explore human experience and awareness of phenomena through people's oral and written descriptions of the phenomena (Stenfors-Hayes et al., 2013). With regard to differences, firstly, the two differ in the nature of being and research outcomes; phenomenography seeks to describe variations in ways of experiencing a phenomenon with the focus being on collective meaning, while phenomenology focuses on the ways of experiencing in the singular essence (Marton and Booth, 1998). Secondly, phenomenology is a first order perspective while phenomenography is a second order perspective. Marton illustrates this, (1981:180):

> 'By investigating people's experience of political power, for instance, the phenomenologist would aim at learning about political power, the psychologist would aim at learning about how people experience things, taking "phenomenography" as a point of departure we would aim at learning about people's experience of political power.'

Thirdly, phenomenography focuses on the reflective experience of the individuals while phenomenology looks at the pre-reflective experience (Micallef, 2016). Lastly, phenomenography is substance-oriented while phenomenology is methodological. For example, phenomenography in this study points to the process of the development of competence, which is how students experience, view and intellectualise the development of competence while phenomenology would focus on a conclusion reached about the development of competence.

3.5. Philosophical assumptions

3.5.1 The concept of first and second order perspectives

According to Marton and Booth (1998), there are two perspectives in educational psychology, first order and second order perspectives. The first-order perspective looks "from the outside" and the second-order perspective looks "from the inside". (Marton, 1981). In the first order perspective questions are oriented to the world and resulting responses make statements about the world; for example a question used in this study 'What is competence?' The answer to this question depicts the reality about the world. In the second order, perspective questions are aligned to our ideas about the world and people's ideas about the world; that is it focuses on experiences as perceived by the participants (Ashworth and Lucas, 1998; Marton, 1988). An example is another question used in this study, "What are your views regarding the role of lecturers, clinical instructors and nurses in supporting your learning processes that best support the development of your competence?" The answer to this question represents a declaration about people's conception of reality, that is a second order perspective and most questions used in this study are of the second order orientation. This is so because,

> 'Phenomenography, as with other qualitative research approaches, assumes that subjective knowledge as the object of research is a useful and informative undertaking and that within subjective knowledge, there is meaning and understanding that reflects various views of the phenomena. These various

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views are judged to be fundamental to the way in which we act, understand, form our beliefs, and experience our world' (Barnard et.al., 1999: 215).

In summary, the first order perspective is concerned with objective facts of phenomena (Ashworth and Lucas, 1998) while the second order focuses on people's views about the phenomena. In research, these two perspectives are complementary hence the need to use both (Marton, 1988).

Henceforth the second-order perspective allows researchers to describe certain facets of the world from the subject's opinion exposing human experience and awareness as an object of research (Yates, Partridge and Bruce, 2012). In the context of this study, uncovering the qualitatively different ways in which students experience the development of competence was important for finding better ways to facilitate learning that promotes the development of competence. The understanding can assist in devising ways of improving teaching and learning and ultimately the development of competence (Larsson and Holmström, 2007). Educators can also get a better understanding of how their students conceptualise the development of competence and how they understand nursing practice (Dall'Alba, 2004).

3.5.2 Phenomenographical ontology

Ontology pertains to the nature of reality and the nature of the human being in the world (Bunniss and Kelly, 2010). In the quantitative approach, studies are driven by dualist ontology, with the subject/participants and the world regarded as two distinctive entities. In contrast, phenomenography has its roots in non-dualist ontology, where there is a link between the phenomenon/world and the subject (Stenfors-Hayes et al., 2013). In other words, phenomenography is relational in its approach where the subjects/participants and the object (phenomenon under study) are treated as intertwined and not in isolation (Yates et al., 2012). Phenomenographic research concentrates on examining the associations among the research participants and aspects of the world (Limberg, 2000). The associations between subject and object are characterized as experiences, which when pooled together symbolize the phenomenon as a whole.

Marton and Booth (1997:13) explain phenomenography's non-dualistic ontological perspective stating:

> 'There is not a real world 'out there' and a subjective world 'in here'. The world (as experienced) is not constructed by the learner, nor is it imposed upon her; it is constituted as an internal relation between them.'

Phenomenography focuses on peoples' conceptions of the world. The conceptions can include what is considered true or objective conceptions of reality as well as mistaken conceptions of reality. Therefore, phenomenography is an intermediate position between what is considered true (objective) and what is thought to be true (subjective). This position means that phenomenography is relational, always describing certain world phenomena as they are conceptualised or experienced by an individual.

Bowden and Green, (2005) further state that experience is always relational, between the subject and object of the study. The interrelationship between the object and subject of study is represented by a conception (Barnard et.al., 1999). In Fig 3.1 below, it shows that experience is a product of a relationship between a person (subject) and a given phenomenon in the world. The researcher gains an understanding of the person's experience based on the relationship of the subject and the aspect of the world.

Subjects

Subjects and an aspect of the world

Aspect of the world

Researcher and subjects

Object of the study

Researcher and subjects
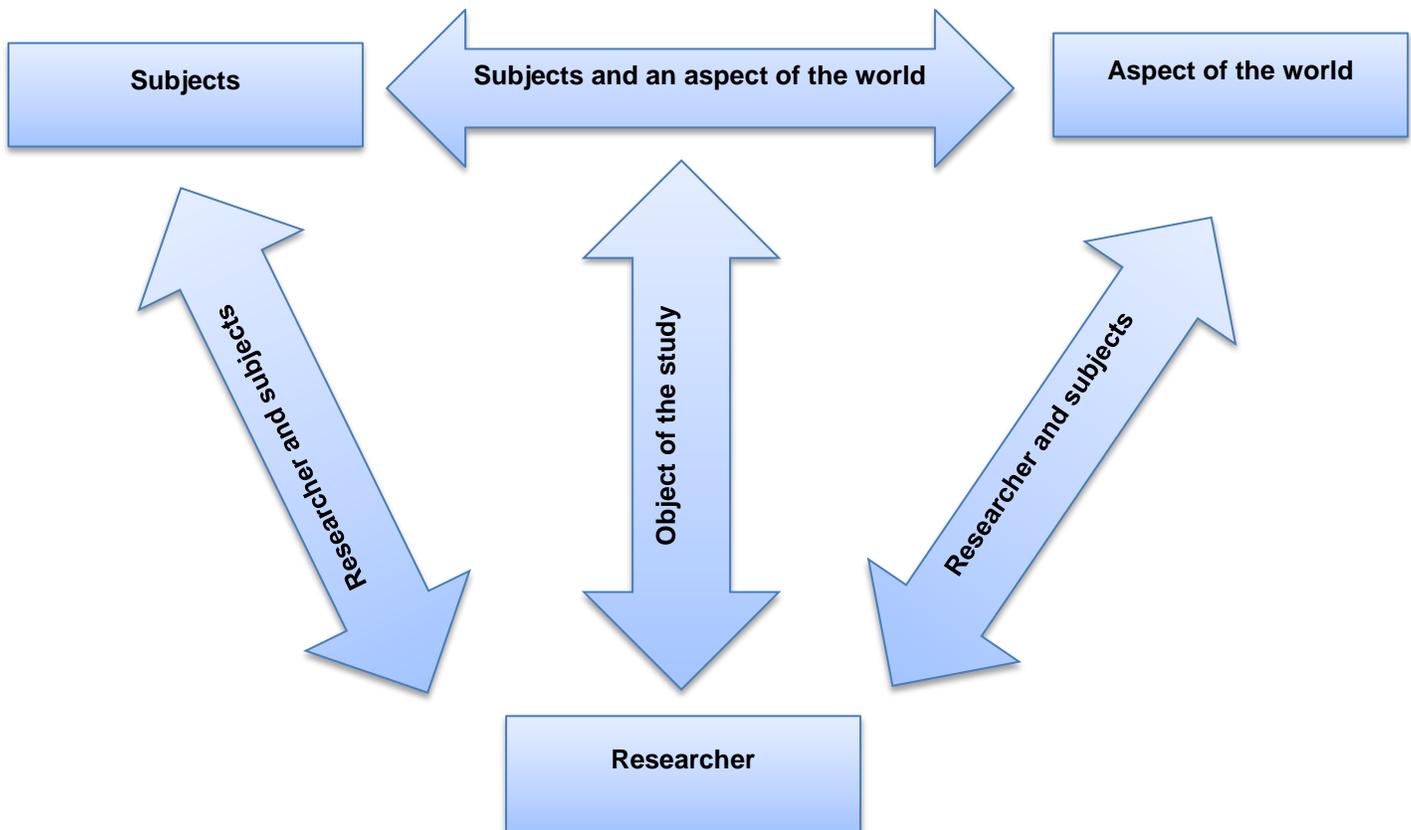
Researcher

Figure 3-1: The Relationships between researcher, subjects and aspects of the world (Adapted from Bowden and Green, 2005:13)

3.6 Phenomenographical epistemology

Epistemological assumptions are concerned with the nature of knowledge (Morgan, 2007). The epistemological position of phenomenography is founded on the principle of intentionality (Marton and Pang, 2008) which personifies a non-dualist view of human awareness whereby experience is portrayed as "an inside connection between human beings and the world" (Pang, 2003). Therefore, in phenomenography, knowledge is established through internal relations between people and the world; it is hypothesised as a human-world association (Bowden and Marton, 1998). Marton and Pang (2008:98) insist that

'one cannot experience without something being experienced'

Consequently, knowledge in phenomenography is understood in terms of the different meanings concomitant with the phenomenon of interest, and the resemblances and

dissimilarities in those meanings (Svensson, 1997). Ultimately, the collective consciousness of phenomena is depicted by the variation in experience (Marton and Booth, 1997).

3.7 Conceptions and its components

The phenomenon of interest in phenomenography is represented by specific terms such as conceptions, ways of experiencing, ways of seeing and ways of understanding (Marton and Booth, 1997). Conceptions are ways of thinking and are central to describing knowledge in phenomenography (Marton, 1986). Knowledge is a result of the thinking process and hinges on the environment that is exterior to the individual (Barnard et al., 1999). Thinking, experience, and phenomenon form the relational basis of knowledge and the three are in a constant interrelationship (Svensson, 1997). It is important to understand a conception if one is to understand phenomenography. Ultimately, conceptions should reveal the variation in human experiences and awareness, and offer experiential descriptions of the variations (Marton and Booth, 1997; Sjöström and Dahlgren, 2002).

Experience is interactive in nature because it depends on human action and the world or truth exterior to an individual (Yates et al., 2012). The manner in which one experiences something is reliant upon a person's awareness or consciousness (Marton and Pong 2005). Awareness represents an individual's entire experience of the world at any particular time and moment and this human awareness is composed of two main components. Firstly, all human beings are aware of everything simultaneously but in different ways. Secondly, an individual's awareness is stratified, as one cannot be conscious of everything concurrently (Marton and Booth 1997).

3.8 Anatomy of experience

Marton and Pong (2005) state that phenomenography focuses on the conceptions or what they called the anatomy of experience. The anatomy of the experience represents the knowledge of interest in a phenomenographic study and helps the researcher to understand people's experience (Marton and Booth, 1997). Fig 3.2 below depicts the structure/anatomy of experience/awareness
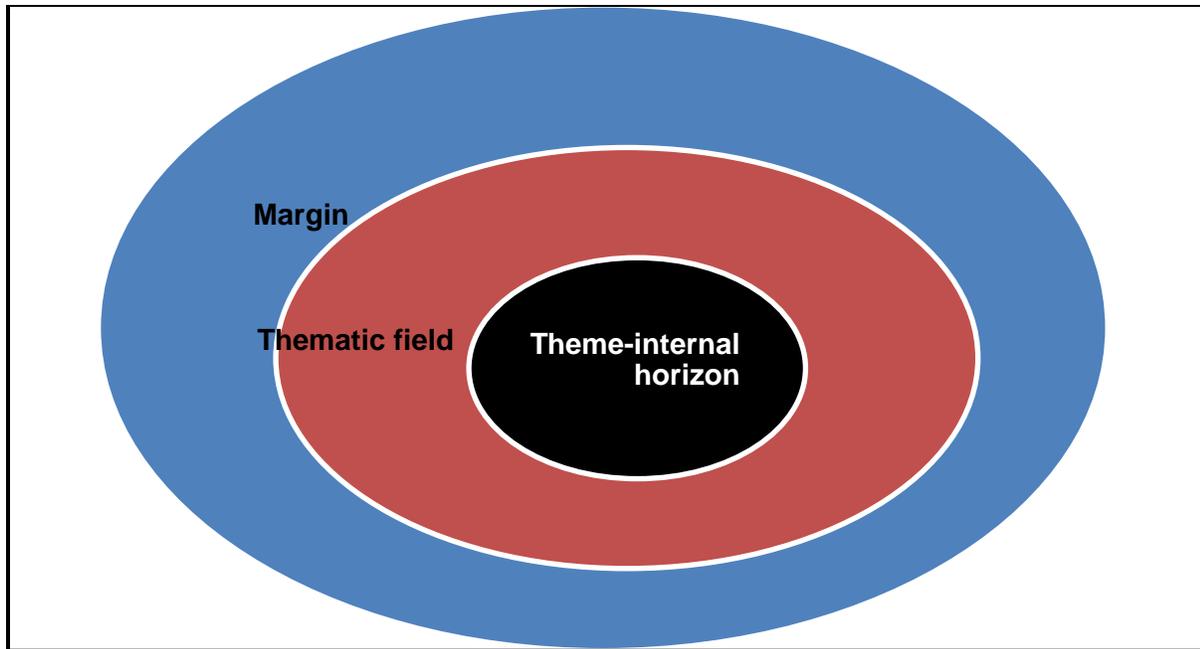
Figure 3-2: The anatomy of awareness (adapted from Marton and Booth, 1997:98).

As depicted in Fig 3.2 above, awareness is composed of three interrelated areas: the internal horizon /theme, the thematic field and the margin, which make up the external horizon (Marton and Booth, 1997). At any given time and place an individual's awareness of a phenomenon is made possible by certain aspects that make up the phenomenon. An individual however, has different levels of awareness of the aspects of a phenomenon, as it is impossible to be consciously aware of everything around oneself. By referring to Fig 3.2 above, the internal horizon/theme of awareness is made up of those aspects of a phenomenon that are closely intertwined and they become the concentration of awareness for an individual. Other aspects of the phenomenon that may not be closely related but are in awareness are referred to as the thematic field, which form part of the external horizon. In addition, there are those aspects, which are not associated with the phenomenon; they make up the margin of the anatomy of awareness.

The external horizon acts as a context in which the internal horizon exists. This is clarified by the example of experiencing a deer in the woods given by Marton and Booth (1997:87) as they elucidated the internal and external horizons:

'Thus, the external horizon of coming on the deer in the woods extends from the immediate boundary of the experience - the dark forest against which the deer is discerned - through all other contexts in which related occurrences have been experienced (e.g. walks in the forest, deer in the zoo, nursery tales, reports of hunting incidents, etc.). The internal horizon comprises the deer itself, its parts, its stance, its structural presence. The aspects of the phenomenon, which are discerned as part of the internal horizon of awareness, have been called dimensions of variation.'

To understand the awareness further, it is important to look into what is being referred to as aspects of a phenomenon as they are important to the experience of a phenomenon. According to Marton (1998), aspects of a phenomenon, which are recognised as the internal horizon, are termed dimensions of variation. Therefore, it means that aspects that make up a phenomenon have potential or ability to vary which makes it possible for an individual to recognise them. Runesson (as cited in Cope, 2006:24) clarifies this point by saying:

'How do I learn to experience the object in front of me as an old, big, blue non-transparent tea cup? The answer is by experiencing a variation in certain respects. To be able to discern those aspects of the cup I must relate them to potential dimensions of variation. The "blue" of the cup for instance, refers to a value in the dimension of colours. In order to be able to discern the blue colour, I must previously have experienced other colours, like red, green, white etc. and in order to experience it as a non-transparent cup; I must have seen tea cups made of glass, for example. The way the cup is experienced, the meaning I assign the object, is a function of the dimensions of variation through which it can be seen. To be able to see what the case is, I must be able to see what not the case is.'

The above structure of awareness is invaluable for use in phenomenographic data analysis but can be problematic in presenting the findings. An expanded structure of awareness, which is made up of referential aspects (meaning of phenomenon) and

structural aspects (internal and external horizon) as put forward by Marton and Booth (1997) is shown below in Fig 3.3.
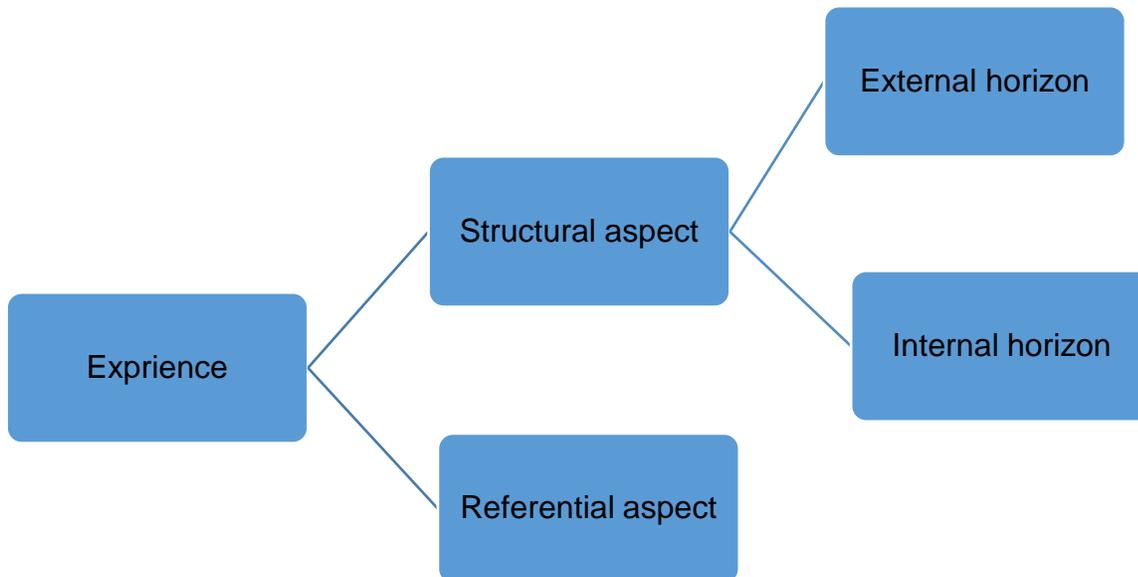
Figure 3-3: The anatomy of experience (Adapted from Marton and Booth, 1997: 88)

In this structure, the anatomy of experience is composed of two internally related aspects, the structural and referential (Trigwell, 2006). The structural aspect characterizes how people behaved in response to something or how something is done (González, 2011; Marton et al., 2004). It consists of two components, the internal and external horizon (Åkerlind, 2005). The internal horizon reveals how component parts of the phenomenon are related to each other and how they are understood Marton and Booth, 1997). On the other hand, the way in which the phenomenon is separated from its context is called the external horizon (Barnard et al., 1999). Both the external and internal horizons form the structural aspects of people's experiences of a phenomenon. The referential aspects (what) epitomise the meaning of the experience or label given to the experience; it is the particular phenomenon which one is experiencing (Marton and Booth, 1997). Although the structural and referential aspects are different, they occur concurrently, and are interlinked and dependent on each other (Marton and Pong, 2005).

Emanating from the phenomegraphic theory the structure of awareness was further modified to suit the language of learning as shown in Fig 3.4 below. The referential aspect normally refers to the 'what' aspect of an experience while the structural aspect refers to the 'how' aspect of an experience. In the context of this study, the learning processes that support the development of competence are the experiences of the students. These experiences can be classified as referential aspects and structural aspects. For example, the referential aspects were what students think about competence. In addition, structural aspects consider how students carry out or go about their learning in the development of competence (Marton and Booth, 1997).
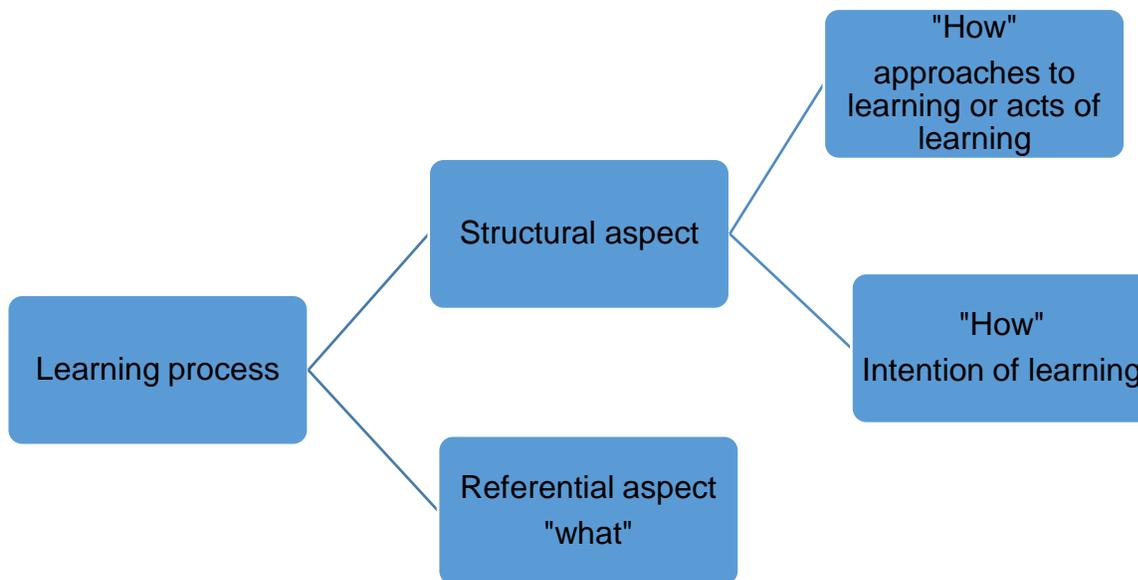
Figure 3-4: Learning in phenomenography- (Adapted from Marton and Booth, 1997:85)

The implications of the above structure of awareness or conception are that a conception is not complete without differentiating the expressions of the referential and structural nature. Both are part of the whole conception but focus on different aspects (Barnard et al., 1999). A complete characterization of a concept must include a clear distinction of the two aspects, the referential and the structural. As a result, it means that in analysing data one has to focus on the whole transcript, considering the context, meaning and viewpoint of each expression to construct a conception or an experience.

The aim of the learning process is to bring about measurable changes in students conceptions of the learning material. Students' conceptions may be similar or different from that of the facilitator of the learning process or the source of information. Marton and Booth (1997) further argue that such differences in conceptions exist even after the learning process of a certain topic. In the context of the development of competence, it is important to understand students' conceptions of competence, the learning processes and the subject matter. This is the reason why this study asked questions on competence- what is your understanding of competence?; with reference to the learning process, what learning activities do you engage in that you find useful in the development of competence? Bowden and Marton (2003) argue that these kinds of questions must be answered so that we can understand what it takes to learn a particular subject matter.

Taking from the example cited in Marton, (1981) a car can move 8 meters in 4 seconds. What distance does it cover in 16 seconds? Students can arrive at correct and incorrect answers in two possible ways. One student may think of the link within the variables, 16 is 4 times 4 so I have to multiply 4 times 16, which is 32 (correct). Another student may focus on the relationship between the variables, 8 is 2 times 4, so I have to multiply 16 by 2 which makes it 32 (correct). This example shows the differences in conceptions of the two students who are arriving at the same answer. It is this variation that phenomenography seeks to discover. Therefore, in this study I sought to discover the students' various conceptions in the development of competence.

3.9 Population

In this study data were collected from nursing students at all levels of study in the diploma program, nurses working in the clinical area, clinical instructors and lecturers. The researcher chose these four groups of participants because they are important in the learning processes of student nurses and therefore likely to provide pertinent data required to answer the research questions and allow for data saturation. In addition, this study sought to explore as many differences in experiences as possible for the outcome to be achieved (Åkerlind, 2004). Detailed figures on the population are provided in Table 3.1.

3.10 Sampling

3.10.1 Sampling method

Purposive sampling was the method of choice in this phenomenographic study. The researcher deliberately and carefully selected participants who could give the most relevant and thick descriptions of the experience of the phenomenon under study (Patton, 2002). According to Akerlind (2004) and Marton and Booth (1997) selecting participants from different groups allows the qualitative differences in experience of the phenomenon to be discovered. The flexibility of purposive sampling made it the most suitable for this study as it allowed for the strategic drawing of a sample to answer the research questions.

Discovering and describing the variation is the main purpose of a phenomenographic study, therefore adopting purposive sampling aligns the sampling procedures to the philosophy of the study. As a result, to capture students' various learning experiences required the selection of students in different levels of study. Any other sampling method might have resulted in exclusion of students from a certain level culminating in the compromise in the results. Looking at nurses, not all nurses in clinical practice have significant exposure to facilitating students learning in practice, so there was need to pick those nurses with relevant experience. These were the nurses designated to work with students at a unit level in the hospital.

3.10.2 Sampling process

Through the head of the college, lecturers and clinical instructors were informed about the study and their position as possible participants, in a staff meeting. This allowed me to approach individual lecturers or clinical instructors to invite them to participate in the study. The sampling criteria considered the department, level of study of students one was facilitating learning in, years of teaching experience and current responsibilities. This excluded lecturers or instructors who occupied mainly non-academic positions and reduced the available population to ten.

Two research assistants were employed, one to recruit the nurses and the other to recruit the students and assist in the conducting of the focus group discussions. I

trained them on how to approach potential participants, the details of the study, data collection process, the ethical issues involved that study and how to obtain informed consent from the participants. The research assistant employed for the students was a member of the non-academic staff. At this time, I was less than a year in the country where this study was conducted. I was still adapting to the culture and way of life and found it difficult to approach both the students and the nurses. Furthermore, as a clinical instructor, approaching students to participate in my study could have caused undue influence on the students' decision to participate in the study. It was easy to approach the lecturers and clinical instructors since I had worked with them closely and they were more likely to be assertive in their decision-making. According to Steven and Deane (in Liamputtong, 2017), the researcher can engage services of a research assistant when there are challenges such as cultural integration and communication. Although the research assistants were not the gatekeepers, their role assisted me to gain access to the potential participants, which would have been difficult for me to do so alone.

For the nurses in clinical practice, I recruited a research assistant who had experience of working in one of the study sites and was familiar with the other study site. The assistant approached the gatekeepers, the nurses-in-charge of different departments to obtain information about registered nurses whose responsibilities included a significant teaching component. Using the information the assistant managed to approach the possible participants from various departments of the hospital on an individual basis and seek appointments for me to meet with them. On the recruitment of students, I selected a research assistant who had knowledge about the students and was familiar with the institution. The assistant called different groups of students together and informed them about all the aspects of the study. Those who felt they could not participate in the study left the meeting, leaving those who felt they could consider participating to obtain more information. The recruitment process described above was done between March and August 2017.

3.10.3 Sample Size
 Trigwell (2006) recommends that the actual number of interviews and focus group discussions be determined by data saturation. Bowden (as cited in Bowden and Green,

2005) urges that the sample should be large enough to allow for adequate variation and not too large to avoid overwhelming amounts of data, which can become difficult to analyse and manage.

Although ten facilitators (lecturers and clinical instructors) consented to participate, only eight participated because two withdrew from the study. Of the 15 nurses approached ten agreed to participate. I did not pursue more participants because as I was collecting and analysing the data simultaneously, I found the sample size above sufficient to show the range of variation that was necessary to reach data saturation (Åkerlind, 2008).

All 21 second year students who consented participated in the focus group discussions. The focus group discussions were arranged in such a manner that each group had students of both gender and a total of three focus group discussions were conducted with seven participants in each. Fifteen third year students and 20 fourth year students consented to participate. However after interviewing ten students from each group, data saturation was reached and there was no need to collect additional data. The data collected from the different groups of students showed that their experiences centred on similar themes hence data saturation was reached with fewer numbers than those who had consented to participate. In phenomenography, saturation is said to have been reached when data that is being generated corresponds to already existing categories and no new categories can be developed (Onwuegbuzie et al., 2009; Sandberg, 2000; Trigwell, Prosser and Taylor, 1994). Table 3.1 below provides a summary of the study population, size of sample recruited and sample that participated in the study.

Table 3-1: Study population and sample size

Category	Total population	Total participants sampled (N)	Number of Participants (n)
Second year students	59	21	21
Third year students	72	20	10
Fourth year students	72	15	10
Lecturers	5	5	4
Clinical instructors	5	5	4
Registered nurses	150	15	10
Total	363	81	59

3.11 Ethical considerations

I sought and obtained permission to conduct this study from the following:

1.The Graduate Studies Committee, Faculty of Health Sciences   of the University of the Witwatersrand assessed and approved the title and proposal of the study (see Appendix A).

2. Human Research Ethics Committee (Medical) at the University of the Witwatersrand granted ethics approval for this study. (Clearance certificate number M160780- see Appendix B).

3. The Human Research Ethics Committee of Namibia granted approval for this study (ethics approval number 17/3/3TM) see Appendix C).

As part of ensuring ethical practice in the study I prepared participant information sheets for informed consent for the different categories of participants during the proposal

development stage. See Appendix D for that for lecturers and clinical instructors, Appendix E for that for nurses and Appendix F for student nurses. Participants were informed that participation in the study was voluntary and that refusal to participate would not carry any consequences. Furthermore, they were informed that they could withdraw from the study at any point should they choose to do so. In addition to the informed consent form to participate in the study, participants were also asked to sign a separate consent giving permission to have the interviews audiotaped. The research assistant was responsible for obtaining the signed consent forms from the nurses and student nurses whilst I obtained the consent form the lecturers and clinical instructors.

The participant information sheets for students (Appendix F) also included an explanation that absolute confidentiality in focus group discussions was not feasible because one cannot control what people will discuss after the session despite being asked not to. Resultantly, most of the students in the third and fourth year groups indicated willingness to participate in in-depth interviews instead of focus group discussions. Thus, focus group discussions were held with second year students only and in-depth interviews with third and fourth years. I conducted all the interviews and focus group discussions and audiotaped them. I coded each interview with a letter and a number e.g. interview one (I1) or focus group discussion one (FGD 1) for identification purposes. The data were immediately transferred from the recorder to a password-protected computer for storage. I took these steps to ensure confidentiality.

3.12 Data collection

3.12.1 Objectives

Data were collected to address the following objectives,

1. To identify and explore learning processes that best support the development of competence among nursing students in Namibia.
2. To explore the views of the students as to what they see as the role of lecturers and clinical instructors in the learning processes that best support the development of competence

3. To explore the nurses' in practice views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia.

4. To explore the lecturers' and clinical instructors' views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia

5. To develop a model on the development of competence in student nurses and to validate the model with a group of experts in nursing and the field of health professions education.

Data collected from students addressed objective one and two and data collected from the nurses addressed objective three. As the lecturers and clinical instructors became one group of facilitators, objective four and five became one objective seeking the views of the facilitators; "To describe the facilitators' views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia". Data collected from a group of experts who reviewed the model addressed objective six. The outcome of this study combined objectives one to five in the outcome space presented in chapter four and objective six is addressed in chapter five as the data were collected after the model was developed.

3.12.2 Data collection in phenomenography

Data collection in phenomenographic studies is through interviews; semi-structured interviews, focus group discussions, observation of behaviour in controlled environments and open-ended questionnaires (Åkerlind, 2005; Barnard et al., 1999; DiCicco-Bloom and Crabtree 2006; Marton and Booth, 1997). I collected all the data through semi-structured in-depth interviews and focus group discussions (Ashworth and Lucas, 2000; Marton, 1986).

Semi-structured interviews were the primary method of data collection because there is deeper engagement, which allows participants to share their experiences adequately (Stenfors-Hayes et al., 2013). Using open-ended questions and probes, the interviewee is able to elucidate his/her relationship with his or her experience of the phenomenon

helping the researcher to understand the meaning of the interviewee's experience (Kvale, 1994; Marton, 1988). DiCicco-Bloom and Crabtree (2006) argue that to understand the meaning one ascribes to the experience requires the person to share deep social and personal matters related to the phenomena. This is only possible through in-depth interviews; which is the preferred method for data collection in phenomenography (Marton and Booth, 1997) hence, most of the data were collected using in-depth interviews. Focus group discussions were not used for the purposes of triangulation only. Using focus group discussions in phenomenography enables the researcher to obtain a broader range of experience (DiCicco-Bloom and Crabtree, 2006). Therefore, the use of focus groups enabled collection of data covering a broad range of student conceptions, which were further discussed in the in-depth interviews.

The data collection process focused on the relation between participants and the research object (competence) (Bruce, 1999). Data were collected concurrently with data analysis in line with the phenomenographic orientation (Marton and Booth, 1997). This was done to ensure that no questions remained unanswered as the analysis process can reveal the need for further data collection and the direction the data collection should take. As I engaged more with the data, certain information became evident which improved the process of data collection and understanding of the phenomenon under study. Ultimately, the focus was on the collective awareness and variation in how individual participants experienced the development of competence.

3.12.3 Data collection process

I conducted all the interviews and focus group discussions using the English language as all participants were comfortable with it. In focus group discussions, I made use of the research assistant to ensure that the recorders were functioning all the time and refreshments were available for participants while I focused on leading the discussion. The participants chose the venue for the interviews and focus group discussions, so data were collected on the college premises, students' common rooms and the hospital clinical feedback rooms. I found it easy to establish rapport with participants once we started talking about nursing education matters because it was of direct interest and easily resonated with all the participants. The data were collected over a period of six

months, (April to September 2017) and the specific data collection procedure for each group of participants is outlined below.

3.12.4 Data collection process for the facilitators

The interviews were guided by the questions given below (also see Appendix G)

1. Please tell me what you understand by the term "competence".
2. What is your view of your role in facilitating students' learning processes that support the development of competence?

Examples of follow up questions:

      a. Can you explain further?
      b. Please give examples
      c. What do you mean by that?

Question 1 allowed the participants to share their understanding of competence, which then could be compared to the understanding of the other participants. Question 2 served the purpose of extracting information on teaching processes implemented by the participants and the context in which teaching and learning takes place. The interview questions addressed the "what" and "how" of learning. Each interview lasted approximately thirty minutes (with a range of 20 minutes to 40 minutes). The participants were asked broad questions which were tailored to direct them towards the phenomenon. However, the questions remained broad enough to allow participants to express themselves freely, but certain patterns developed on particular areas after about four to five interviews, which allowed me to probe further in subsequent interviews.

3.12.5 Data collection process for the students

The questions below guided the student's focus group discussions and semi structured interviews and (see Appendix H and I). In the focus group, discussions it was necessary to lay down some ground rules for the smooth progression of the discussion (see Appendix H). In particular, participants were assigned numbers as a way of

identification to avoid mentioning names. Each focus group discussions lasted between 60 to 70 minutes.

Questions for the students:

1. What do you understand by competence?
2. What do you do in your learning to become competent?
3. What are your views regarding the role of lecturers, clinical instructors and nurses in practice in the learning processes that best support the development of your competence?

Examples of follow up questions:

a. Can you explain further?
b. Please give examples
c. What do you mean by that?

The first question allowed the students to share their thoughts about their understanding of competence while the second question provided the students with an opportunity to detail how they went about their learning to achieve competence. The last question enabled the students to describe a context in which they learnt and how it relates to their choice of learning strategies and their understanding of competence.

Table 3-2: Specific data collection methods and participants

Participants	Data collection method
Second year students (21 with seven participants in each focus group)	Three focus group discussions
Third year students (10)	Semi structured interviews
Fourth year students (10)	Semi structured interviews
Lecturers and Clinical instructors (8)	Semi structured interviews
Nurses (10)	Semi structured interviews

3.13 Data analysis

3.13.1 Data organisation

The audiotaped recordings of the semi-structured interviews and focus group discussions were transcribed verbatim. The transcripts were imported into ATLAS. ti 8.0 to aid the analysis. The analysis process is described below.

3.13.2 Phenomenographic analysis

The process of analysis, which began during data collection, followed the steps outlined here as described by Sjöström and Dahlgren (2002). Each transcript was read several times for the purpose of familiarisation. As the data accumulated, the familiarisation process involved reading the data as separate groups of participants, second year, third year, fourth year, lecturers, clinical instructors and registered nurses. This separation allowed focus to be given, firstly to individuals within each group, then each group and finally the whole data set giving attention to the combined experience. Notions about the data started to materialize and portions of related data were coded. The researcher took time off the data analysis process to ensure that every time the data were read attention was given to different aspects of the data. The data revealed other aspects such has how expectations and communication among the facilitators and students could affect

learning processes, but such relationships were not explicitly analysed as they were not central to the purpose of this study.

The codes were analysed to check for any developing themes related to the experiences of student learning in general. As the analysis progressed searching for similarities and differences in the data were sought within and across the groups' transcripts. Then the search for meaning commenced with attention to providing answers to what participants considered competence to be, how they went about learning to attain competence and what other aspects were significant in the process of developing competence.

Initially codes revealed critical aspects of learning such as validation and learning activities, outcomes, role of assessment in determining competence, thoughts different group participants held of each other inter alia. The number of codes generated was in excess of 100 and could not be synthesized without further processing. This necessitated the process of consolidation, which involved creativity in linking different codes, as if one is solving a puzzle or completing a jigsaw. As a result, the number of codes was almost halved and the process continued until it was impossible to shrink the codes further. The point where the comparison of the codes began to yield similar outcomes to the researcher marked the end of the condensation process. Here the codes could not be merged because they were now distinct. At every stage of the condensation and comparison process, the researcher iteratively looked at the codes, data and the context to ensure that the outcome of the analysis remained firmly grounded in the data.

With the codes stable, it was time to commence the grouping of the codes based on similarities in ways of understanding the phenomenon under investigation (development of competence) that was displayed by the participants. This process marked the birth of categories of description. At this stage, it was necessary to carefully articulate each category and capture its core meaning in preparation for naming or labelling it. They were grouped based on their meaning paying particular attention to similarities and differences of certain aspects of the codes. However the process was not

straightforward, it involved another iterative process of going through the grouping, comparison and articulation and labelling of the categories. Some categories disappeared and new ones were identified in the process. A stage was reached where no category could be eliminated or a new one discovered; the categories had become stable and unique each retaining a unique label or identification.

Data analysis in this study aimed to discover the qualitatively different ways in which students experienced the development of competence in a nursing program. Therefore, in analysing the data the researcher sought variations in the meanings ascribed to the learning processes. Critical to discovering the variations was the contrasting process, where categories were described in terms of their individual meanings and in terms of their meaning in relation to other categories. Repeated reading and changing of the descriptions helped in reaching a stage where the descriptions became stable. At this stage, it could be said that each category was a representation of a unique way of experiencing the development of competence in nursing students. It is significant to note that the categories did not represent a certain group that only conceptualized the development of competence in one way, but they represented aspects of awareness or experiences that students recognized and focused on at the same time.

In the final data analysis stages, the categories of description were developed into an outcome space by applying the anatomy of awareness framework to the categories of description (Marton and Booth, 1997). From each category of description emerged what are called aspects of awareness/ dimensions of variation. These are themes existent in all of the categories, which are experienced in a different way. The variation in the experience displays an increasing level of awareness of the phenomenon-giving rise to a hierarchical arrangement of the categories of description in the outcome space. This is significant in education as learning is progressive from low levels to high levels. Each category of description in the outcome space occupied a certain position in a hierarchy and consisted of referential and structural aspects (internal and external horizon) and the dimensions of variation. The accompanying excerpts from the data under each category of description validated the descriptions provided.

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Through an interpretive analysis process based on the data, the categories of descriptions were linked and arranged in an outcome space to reveal the learning processes that were critical to the development of competence. While I mainly performed the coding, another researcher gave an input on the codes, which helped me in consolidating the codes. The scripts were also shared with my supervisor to confirm whether the codes I developed were grounded in the data collected from the participants. Based on the data analysis and discussion, a model for the development of competence was proposed.

Table 3-3: Steps in data analysis (Sjöström and Dahlgren, 2002)

Familiarisation consideration	Reading the interview transcripts to get a fresh impression of how the interview proceeded. In this initial phase, all data in the entire pool are given equal emphasis.
Condensation	Identifying meaning units in the dialogue and marking or saving these for the purpose of further scrutiny. The size of the meaning units identified in this step varies: some researchers claim that these chunks can be small, whereas others emphasise the importance of keeping the whole transcript more or less together.
Comparison	Comparing the units with regard to similarities and differences.
Grouping	Allocating answers expressing similar ways of understanding the phenomenon to the same category.
Articulating	Capturing the essential meaning of a certain category.
Labelling	Expressing the core meaning of the category Steps 3-6 are repeated in an iterative procedure to make sure that the similarities within and differences between categories are discerned and formulated in a distinct way.
Contrasting	Comparing the categories through a contrastive procedure whereby the categories are described in terms of their individual meanings as well as in terms of what they do not comprise.

3.14 Phenomenographic study findings

"…phenomenography provides a means through which knowledge about the ways in which people experience phenomena can be revealed" (Yates et al., 2012:97).

The findings of a phenomenographic study seek to show the different ways of experiencing the phenomenon i.e. the conceptions (Bruce, 1999) and to scrutinise how

these ways of understanding are structurally related to one another (Stenfors-Hayes et al., 2013) They are given as categories of description and an outcome space (Yates et al., 2012). The relationship between conceptions and categories of conceptions is explained as follows:

> 'Conceptions, which make up our unit of analysis, refer to whole qualities of human-world relations. They also refer to the qualitatively different ways in which some phenomenon or some aspect of reality is understood. When trying to characterise these conceptions, we use some categories of description. The categories are, however, not identical with conceptions - rather they are used to denote them.' (Johansson, Marton and Svensson as cited in West and Pines: 249).

Marton and Booth, (1997) make the distinction between conceptions and categories of conceptions clear by stating that conceptions or ways of experiencing refer to an individual while categories of description refer to the group level. They further propose three key features of a category of description. Firstly, each category must show something unique about a way of experiencing a phenomenon known as the dimensions of variation. Secondly, there should be a coherent link between categories. Lastly, the categories of description should be limited in number and determined by the degree of distinction among the categories.

In terms of describing each category, both the referential and structural aspects of how the phenomenon is experienced are covered (Yates et al., 2012). The researcher must describe the primary focus of each category as well as its structure. The quotes from interview transcripts and a description of each category should be included to show how each category differs from the other (Bruce, 1999). The categories of description are consolidated into an outcome space. The outcome space can be in the form of a table, image or diagram and illustrate how the categories relate to each other (Säljö, 1988; Bruce et al., 2004). The different types of outcome spaces are classified as:

- an outcome space which denotes a developmental progression, in the sense that the conceptions represented by some categories have more explanatory power than others
- an inclusive, hierarchical, outcome space in which the categories further up the hierarchy include previous, or lower, categories
- an outcome space in which the different categories are related to the history of the interviewees' experiences of the phenomenon, rather than to each other (Yates et al., 2012).

The outcome space is made up of categories, which are named based on the distinguishing features they possess. In this study, the categories of descriptions represent the different learning processes that students described as useful to support the development of competence (Ashworth and Lucas, 1998). Through an interpretive analysis process based on the data, the categories of descriptions were hierarchically linked and arranged into a model to reveal the learning processes that are critical to the development of competence (Trigwell, 2006). The outcome space was developed by the same data analysis process described above, where categories from the different sets of data were integrated to create categories based on the sum of the data sets. A further analysis of the data generated links in the categories of description and additional information identified in the data contributed to the linkages between the relationships in the categories of description in the outcome space (model).

3.15 Model Validation

Something is valid if it is grounded on evidence and has been subjected to criticism (Guralnik, 1976). One of the ways of validating models or theories is through expert opinion (Fehring, 1987). In nursing, several studies report the use of experts in validating theories and interventions, hence expert opinion was applied in this study (Castro et al., 2011). The model was subjected to critique by experts in the field of nursing and competence-based education identified through organisations such as the Foundation for Advancement of International Medical Education and The Forum of University Nursing Deans in South Africa. The experts were purposefully selected based on their knowledge and experience in nursing education in the area of teaching

and learning. Because of their expertise, it was anticipated that they would provide the most valuable criticism and input in refining the model. The five participants were invited by email (see Appendix J) to comment on the model given the summary of the study, its findings and the proposed model and a set of questions to guide their critique. One of the experts declined due to commitments. The questionnaire left room for any other inputs, which the experts deemed relevant. The questions used were:

1. Is the model linked to the findings of the study?

2. Does the model flow logically from stage one to five?

3. Are the relevant links between stages of the model clearly shown?

4. Does the model take into consideration the most necessary aspects of the learning process?

5. Are the theories linked to this model relevant?

6. What is your overall impression and suggestions to improve the model?

3.16 Data Trustworthiness

The researcher adopted several measures to ensure trustworthiness in this study. Focus was put on validity, reliability and triangulation (Akerlind, 2012; Stenfors-Hayes et al, 2013). Validity refers to the degree to which the research findings accurately reflect the phenomenon under investigation (Akerlind, 2005). In this study, validity specifically refers to the extent to which the outcome of this study reflects the students' experiences. On the other hand, reliability is the application of suitable methods to ensure that consistent results or interpretations are obtained from a similar study at different times (Guba and Lincoln, 1981). In addition, triangulation involves using multiple sources of data, different methods of data collection and using many researchers to interpret the data (Denzin, 1978).

3.16.1 Reliability

According to Arkelind, (2005), there are two ways of ensuring reliability in a phenomenographic study:

1. Coder reliability check, where two researchers independently code all or a sample of interview transcripts and compare categorizations; and

2. Dialogic reliability check, where agreement between researchers is reached through discussion and mutual critique of the data and of each researcher's interpretive hypotheses.

However, reliability is a more positivist concept, seeking objectivity and not suitable for phenomenpgraphic findings (Sandberg, 2005). In addition, Marton (1986) and Saljo (1988) contend that phenomenographic findings are a result of comprehensive and iterative analysis processes, which do not have to be replicable. Therefore, none of the above was comprehensively used in this study although there was another researcher did some co-coding and my supervisor who had to check my work at every stage. Instead, a detailed application of the structure of awareness as the analytic framework for this study helped to provide a clear interpretative process. According to Cope (2004), this is a way of improving what is normally reliability in quantitative studies.

3.16.2 Validity

Validity in phenomenography seeks to ask how accurately the study findings relate to the human experience of the phenomenon (Åkerlind, 2005), and not how the findings correspond to the phenomenon, as it exists in reality. Specifically the emphasis of research quality in phenomenography is making certain that the research methods accurately mirror the research objects (Ashworth and Lucas, 2000; Bowden (in Bowden and Walsh), 2000). Two types of validity checks exist; communicative and pragmatic validity check (Åkerlind, 2005). In communicative validity, the researcher must be able to defend his/her interpretation of the data to the significant research community (Marton and Booth, 1997). The findings of this study were presented at the South African Association of Health Educationists Conference in 2019. This helped to enhance communicative validity check (Åkerlind, 2005).

Pragmatic validity seeks to verify the extent to which the outcomes are considered important (Entwistle, 1997). It is a question of how the findings of the study can enlighten more information about the phenomenon to give people a better

understanding and way of functioning (Marton and Booth, 1997). Therefore, the pragmatic validity check can only be done on completion of the study.

3.16.3 Triangulation

I adopted three triangulation methods in this study. The first one is participant triangulation, which involved collecting data from different sources and through various methods (Denzin, 1978). I collected data from students at different levels of study, from lecturers, clinical instructors and registered nurses. The second one was methodological triangulation where data collection employed both semi-structured in-depth interviews and focus group discussions. Thirdly, I implemented investigator triangulation method where I sought input checking and verification of data analysis process with a colleague and the continuous input and critique from the supervisor. According to Wahlström et al. (1997), investigator triangulation can improve credibility of phenomenographic findings.

3.17 Conclusion

This chapter provides a description of the methodology and the methods used in the study. It includes a description of the research approach of phenomenography and an explanation of the reasons for its use in this study. The chapter also gives a clarification of the "anatomy of experience" utilised in data analysis and the construction of categories.

CHAPTER 4: FINDINGS

4.1 Introduction

The purpose of this study was to identify and explore learning processes that best support the development of competence among nursing students in Namibia. This chapter presents the findings of the study in the form of the outcome space, which shows qualitatively, the different ways in which students experience the development of competence. The outcome space is composed of a closely linked group of categories of description (Bowden and Green, 2005). Conceptions, which are hierarchically related, make up categories of description. Quotations from the participants provide evidence to support the conceptions.

This chapter culminates from a rigorous process of data analysis from four groups of participants who play a role in the teaching and learning processes of student nurses. These processes are collaborative in nature and involve students, lecturers, clinical instructors and clinical nurses. The four parties are involved in the process of the development of competence; therefore, it's important for them to have a common understanding of the process involved in the development of competence. Stenfors-Hayes et al. (2013:263) support this idea by saying,

> 'Phenomenographic research findings illuminate differences in ways of understanding and how these different ways of understanding are related to one another. Knowing about these differences and their relationships with one another can help teachers to better support development by building on students' pre-existing understanding.'

The contents of this chapter are restricted to the findings of the data analysis process only. Therefore, there is no reference to the literature, or discussion of any conclusions or implications for practice. Such discussion is reserved for chapter five.

For the purpose of this study lecturers and clinical instructors, will sometimes be referred to as facilitators if they are being discussed as a group. Only when there is need to refer to them separately will their specific titles be used.

4.2 The outcome space

The researcher will present the findings of this study using the framework of the anatomy of experience as described in Chapter 3. A brief summary of the framework as applied to learning is given below.
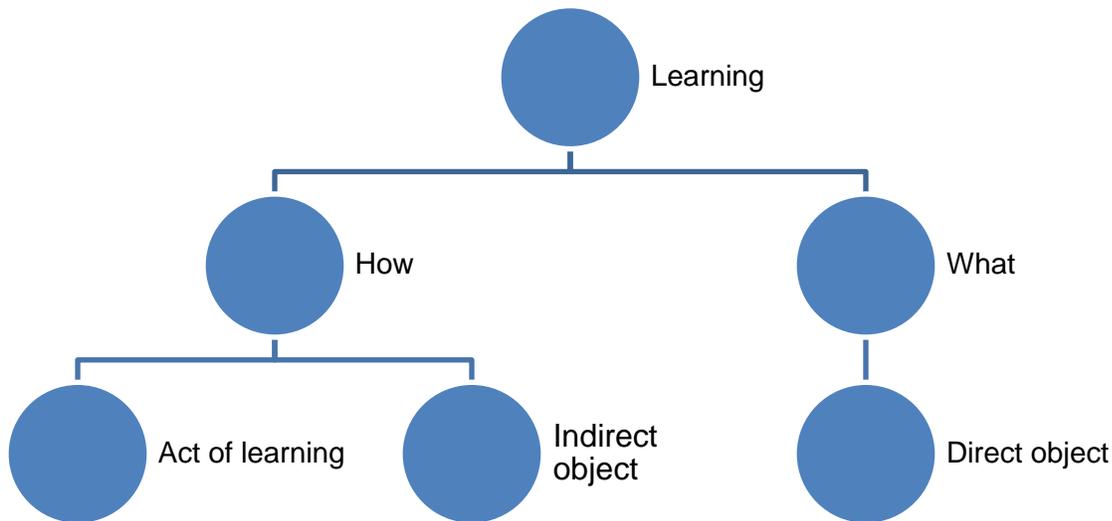
Figure 4-1: Learning in phenomenography (adapted from Marton and Booth, 1997:85)

The focus of this study, is 'the act of learning', which is part of the internal horizon. However, the findings of this study will not give a complete picture of the experience of the development of competence if other parts of the anatomy of awareness are excluded. Hence, the complete anatomy of experience with regard to the development of competence will be described.

The meaning students assign to competence is the referential aspect. This aspect is represented by the question 'what' students understand by competence. Under structural aspect, represented by the question "how" the internal horizon is composed of the 'indirect object' and the 'act of learning'. The 'indirect object' represents an explanation of the level of competence students seek to attain. As mentioned above, the 'act of learning' gives a clarification of the way students experience learning to achieve their perceived level of competence. Now, the external horizon is the context in which

students find themselves during the process of developing competence. Included in this environment is how the learning platforms and the interaction of students with the facilitators of learning influence the learning process as well as the understanding of competence. This understanding of the external horizon is drawn from an example given by Marton and Booth (1997:86-87), 'if one glances at a bird in a tree in a park, to actually see the bird one needs to differentiate the bird from the surrounding trees and the environment in general'. The surrounding trees and the environment constitute the external horizon of the experience.

Founded on the above framework, the outcome space of this study is composed of five categories of description. In these categories, students describe the qualitatively different ways they experienced the development of competence during their studies. The categories of description are by no means a fixed classification of students' levels of conceptions because students described conceptions from different levels. The outcome space in general is at a collective level rather than an individual level.

There were five categories of description that emerged from the data. These categories were deduced from each group of students separately and then collectively. An example of the excerpts from different groups of students aligned to different categories is shown in Table 4.1 below.

Table 4.1: Conceptions of different group of students

Category	Second years	Third years	Fourth years
Competence as task completion	*...the participation of the lecturers in the clinical area by following students is really helping, because some of us students only go to the clinic for the sake of our books to be signed.* **(Second year 3).**	*I'm not getting anything for my logbook, which is the main reason that I am there…* **(Third year 10).**	*This is not like in first year. I only wanted to focus on the things I was taught in class, I didn't read or do more, and I just thought it was not important to me. Sometimes I just used to follow what is being done but I didn't understand nor question it* **(Fourth year 4).**
Competence for assessment /to satisfy facilitators	*I will explain my first opinion, it may be like that, that if you pass you are competent* **(Second year 3).**	*Yes, I'm not competent. I can't be if I can't pass the examination. The exam is the one that allows you to become a professional nurse, so if I fail, how now can I say I am competent. You have to pass the exam to be competent* **(Third year 8).**	*I think it's important for me to follow what I was taught, so if I do that then my supervisor is happy because they expect it that way* **(Fourth year 7).**
Competence as applying theory to practice	*...a registered nurse should be able to apply the knowledge, the skills practically and theoretically you know how to do the job, especially when dealing with the patient* **(Second year 1).**	*So when the clinical instructor came she gave us some notes to read on how to do a dressing. I read that, I also watched some videos on You Tube on how to do a dressing. Then the clinical instructor also demonstrated to us, so I watched her do it and from there I just practiced*	*...because nursing is about reading and understanding and understanding and putting into practice* **(Fourth year 6).**

		following the steps. When I came to the clinical area, I just started doing the dressing on the patient, and I was good (Third year 8).	
Competence as per clinical standards/guidelines	*In some cases there are guidelines, and if you follow them and perform to meet the required standards, then you are competent (Second year 2).*	*The right way is according to the guidelines given of doing that procedure, like manuals recommended by WHO (Third year 6).*	*Not only books, we also check the guidelines like WHO has many guidelines , so what I am doing I can compare with that even when I am taught I check to see if its correct, so no we can't be taught the wrong things (Fourth year 7).*
Competence as positive outcome		*In particular, we know that nursing is all about caring for the patients to get better. And we want to find ways of doing things better that can actually improve patient's health. So when engaging the lecturers and the sisters with more information, it can actually help (Third year 7).*	*…can say I am competent if I learn something, for example administering blood, blood transfusion if I know which patient needs a transfusion, and how much of that . Also, I have to (know) which type of blood to give and what to do before the blood, that's like functional knowledge. Then I also need skills, like technical skills of withdrawing blood and setting up the IV lines. Because it's a human, I also should be able to interact in a manner that is good before, during and after transfusing blood. It's not just about putting the blood, there, I have to monitor the patient*

			for any complications, and then assess how the blood has helped the patient to improve. Then you can report and possibly think how better the condition of the patient can be improved maybe by giving more blood or just normal saline. This makes me feel I am competent because I am improving health of the patients (Fourth year 5)

The categories to illustrate how students developed competence and are linked as shown in Figure 4-2:

- Category 1: Competence as task completion
- Category 2 : Competence for assessment /to satisfy facilitators
- Category 3: Competence as applying theory to practice
- Category 4: Competence as per clinical standards/guidelines
- Category 5: Competence as positive outcome
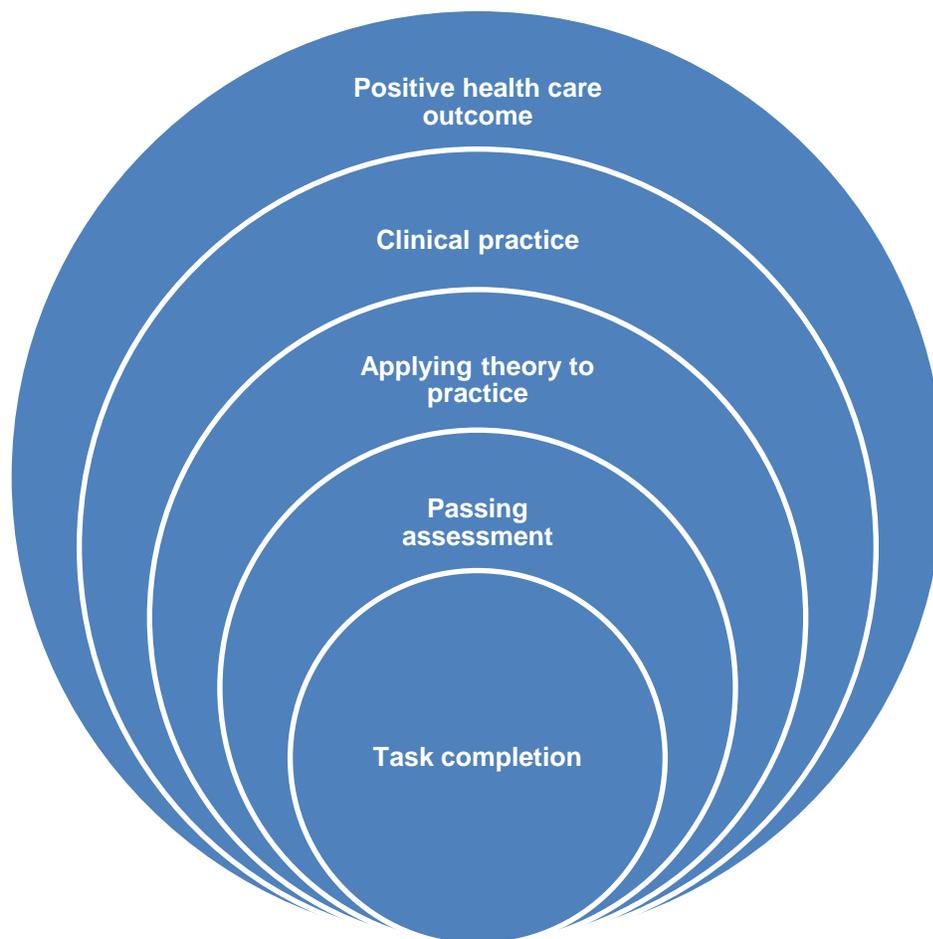
Figure 4-2: Diagrammatic representation of the hierarchical association of the categories

The categories of description are intricately interrelated and represent a hierarchy of increasing awareness of the development of competence. The concentric circles above

diagrammatically represent the linkage between the categories of description showing that students experience the development of competence from the simple to the complex. From the smaller circle one starts to understand competence as mere task completion that is task completion is the centre of their focus. In level two, the understanding improves to understanding competence as meeting assessment requirements and this is shown by a bigger circle covering the smaller one on task completion. It shows that one's level or focus of awareness has expanded. In level three, both aspects in level one and two are included as shown by the bigger circle covering both first and second circles. The student understands the importance of task completion and passing assessments but appreciates that there is more to competence than just completing a task or passing an assessment. They seek to understand what they are doing, why they are doing so and appreciate that assessments cannot cover all the necessary tenets that they need to become competent. This trend of increasing awareness continues until level five where students' understanding of competence is entrenched in the nursing care outcome.

4.3 Summary of the outcome space

With reference to Figure 4-2, in category 1, task completion is the student's focus of awareness or the internal horizon. Students experience competence as the ability to imitate a procedure with the aim of completing a given task. The student will adopt a learning approach that makes it possible to be able to complete a given task. Learning is characterised by familiarisation through passive observation, listening and reading. Aspects related to meeting assessment requirements, demonstration of understanding, meeting practice standards and patient outcomes are not within the student's focus of awareness. These lie in the external horizon of the student. Also in the external horizon is the role of facilitators. The activities of the facilitators help to shape students' internal horizon, in this case students consider facilitators as sources of information and instruments for delivering the information. The facilitators consider themselves as teachers who rely on lecturing and providing students with information.

In category 2, the students' focus of awareness has expanded to include competence as passing assessments or pleasing the facilitator not just completing the task. Students

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aim at performance that meets examination performance standards through strategically understanding the requirements of the examination or facilitator with or without independent understanding and ability. The act of learning is strategic and driven by the needs of the examination or the facilitator and may involve the use of evaluation/assessment tools to direct studying. In the external horizon lie aspects related to demonstration of understanding, meeting practice standards and patient outcomes. In addition, the role of the facilitators influences the internal horizon; students see examinations as measures of the standard of competence as well as pleasing the facilitators. Simultaneously the facilitators believe they know it all and their students have to prove their competence by passing the examinations.

Link between category 1 and 2

> In category 2, students' focus of awareness expands and the students understand that competence is not merely performing, but performing according to requirements. Unfortunately, the chosen requirement is passing of the examination, which can be met even when one is not competent. The students direct their efforts towards understanding the facilitator and examination requirements, which may not necessarily be practice requirements or may fall short of practice requirements. The learning is strategic - if exams can be passed through memorisation and recall of information, then studying focuses on recall only; if the examination requires deep understanding then studying is done likewise. This compares with conception 1, where learning is restricted to familiarisation and recall only.

In category 3, the students' focus of awareness has further expanded. Competence as application of theory to practice is now the focus of awareness. Students realize that to be able to apply theory to practice, one should have an understanding of the theory. In the learning process, the students take time to achieve deep meaning of the material and make an effort to visualize application to practice before actually starting practice. These students struggle with transfer of knowledge into practice as they possess limited practical skills and believe that having knowledge is adequate to enable them to practice competently. Practice standards or requirements and positive health outcomes

mark the external horizon. In addition, the limited role of lecturers and clinical instructors who predominantly facilitate theoretical learning, strengthens the students focus on theory as the basis for practice

In category 4, the ability to perform according to real/actual practice standards and clinical guidelines becomes the focus of awareness. Students now understand competence in the context of not only completing a task, passing an assessment, applying theory to practice but also being able to do so while meeting practice standards. During the learning process, students decipher what is important for clinical practice and focus on that. Practical learning through practice in the clinical area and understanding what is required to practice in the clinical area is given priority. Differences in theory, simulation and practice are subject to questioning with the aim of ensuring that practice adheres to clinical standards. However, the students fail to recognise that merely adhering to standards without positive patient outcome is inadequate, that lies in their external horizon. The students' internal horizon lies in the context of facilitators who see their role beyond the classroom and simulation and even passing assessments. Watching students perform in reality and meeting practice standards drives the facilitators' teaching acumen.

Category 5 represents the highest level of awareness of the students where competence is experienced as the ability to perform with positive outcomes for the patients. Students pay attention to detail and are always thinking about what they are doing with a view to discovering a better way of practice and producing better outcomes. Other aspects that can improve patient outcomes lie in the external horizon. The role of the facilitator is needed when the students' desired outcomes cannot be attained.

4.4 Detailed outcome space

Table 4.2 below gives a complete picture of the anatomy of awareness, which is then described in full. In describing the outcome space, the author uses the framework of analysis shown in Fig 4.1 above covering the referential and structural components as well as the dimensions of variation.

Table 4-2:Detailed description of the outcome space

Category	1	2	3	4	5
Name	Completion of a task	Passing examination or satisfying the facilitator	Applying theory to practice	Performance to satisfy clinical standards or guidelines	Performance to attain positive care outcomes
Referential aspect	**Task completion**	**Assessment**	**Theory to practice**	**Clinical practice**	**Positive outcome**
Direct object - Students experience of competence	Students consider competence as their ability to complete a given nursing task regardless of how they carry it out. For example if one measures blood pressure and gets a reading, it's considered good even if the readings are not accurate. The students do not learn anything from this process and can do it several times without improving the way they measure the blood pressure.	Students seek to do whatever it takes to pass assessments; if deep understanding is required, they seek that; if the facilitator wants something done in a certain way, the students just follow without questioning even if they may not agree.	The students understanding of competence is focused on putting theory into practice in an exact manner. However, they fail to recognize certain practical aspects required for successful transfer of theory to practice.	The student's understanding of competence is that there should be some standard or guideline to direct nursing practice. The student seeks not to just directly translate theory to practice but also seeks to see what the recommendations are and adapt their theory to suit these standards.	The student sees patient improvement or positive health outcome as important; therefore, performance that results in a positive outcome is interpreted as competence.

Structural aspects/Internal horizon- Focus of awareness	The focus is learning that can help them to attain the ability to complete tasks.	Students focus on learning that can help them complete tasks and pass assessments.	Students' focus is on learning that enables the transfer of theory to practice. Completion of tasks and passing assessments are considered the route to the ultimate goal of putting theory into practice.	Focus is put on learning that gives students the ability to practice according to clinical standards. Students want to complete tasks, pass assessments and put theory into practice with meeting clinical standards in mind.	The focus of learning is to attain the ability to practice and provide care that results in an improved patient health outcome.
Indirect object - Intended learning outcome	Completion of required and allocated tasks is the primary focus	Passing assessments and satisfying the facilitator is the primary focus.	Putting into practice what students learn theoretically is the primary focus	Ability to practice according to clinical standards or practice guidelines	Ability to achieve a positive outcome in practice in particular for the patients

Act of learning - learning activities and approach	Students' learning is characterised by passivity; they seek information from the facilitators. In practice, students perform procedures through imitation with little or no understanding and rarely learn from the experience.	Learning is directed by assessment. Students strategically adopt learning activities that enable them to pass assessments and/ or satisfy their facilitator.	Students' learning begins to focus on understanding especially in relation to the theoretical meaning regardless of assessment requirements. They seek understanding so they are in a good position to apply the theory to practice.	Students' learning is driven by practice requirements. The student wants to understand standards required for practice and practice according to them. Practical knowledge shifts from the theoretical understanding only to one of standards.	The students focus on critically examining what they are learning and how it impacts on patient health; they seek to understand and reflect on their actions
Dimension of variation					
Approach to learning	Students use a surface approach to learning with restricted range of activities of learning and learning materials used.	Students approach to learning is strategic; focusing on how to pass assessments or please facilitators	Approach to learning is predominantly deep but more theoretical.	Deep learning approach of both theoretical and practical knowledge. Learning is more biased towards practice.	The learning approach is transformative
Understanding of the role of the facilitators	See facilitators as providers of information	Facilitators are seen as the determiners of competence	Facilitators are seen as partners in the learning process who students need for successful learning, the facilitators	Facilitators expedite the learning process with the responsibility of learning carried by the student.	Facilitators are considered consultants in the learning ;process, utilised by the initiative of the students

			control the learning process		
Validation of performance	Rarely seek validation for their performance	External validation is based on the assessment mark and facilitator's approval	Seek both internal and external validation with validation from the lecturers and clinical instructors more meaningful than from the nurses	Validation is external and relatively objective and is sought from facilitators and only acceptable if it's in line with practice standards	Students seek external and objective validation as measured by patient health care outcomes
External horizon **Formed by what is outside students' focus of awareness and the role of the teaching strategies in influencing students' focus of awareness.**	Assessment, application of theory to practice, performance according to clinical standards and positive patient care outcomes are out of the students' focus of awareness. In the background are teaching strategies that promote passive learning through providing students with all the information.	Application of theory to practice, performance according to clinical standards and positive patient care outcomes are out of students' focus of awareness. In the background is the importance of assessment and getting approval from the facilitators of learning.	Performance is according to clinical standards and positive patient care outcomes are out of the students' focus of awareness. Teaching strategies that promote understanding and linking of theory to practice form the background	Performance that results in positive patient outcomes lies within the bounds of the focus of awareness. In the background is a style of teaching that focuses on students to meet the clinical standards.	Improving health care practice forms the boundary of the students' focus of awareness. Teaching for critical thinking and clinical reasoning form the background.

4.4 Category 1: Competence as task completion

4.4.1 Referential Aspects (Direct object)

The core meaning of competence is experienced as task completion. Students consider competence as their ability to complete a given nursing task regardless of how well they are carrying it out. For example, taking a patient's blood pressure and getting a reading is considered good even if the readings are not accurate. The students do not learn anything from this experience and can do it several times without improving the way they measure the blood pressure. Both students and nurses expressed this experience of competence,

> *No I understand nursing better ,from a better perspective and point of view than when I was in first year so now I understand that you must not just to do things for the sake of doing them , you must do the right things and then you must do them right* **(Third year 4).**

> *...because students can just do anything but if you ask them why they doing it, the indications of doing the procedure, they do not know* **(Nurse 5)**

One of the tasks students seek to complete is the logbook, which is completed when the student has performed a procedure to the acceptable standard. However it appears students seek to have their logbook signed every time they have performed a procedure regardless of whether it was up to standard or not.

> *...the participation of the lecturers in the clinical area by following students is really helping, because some of us students only go to the clinic for the sake of our books to be signed.* **(Second year 3).**

> *I'm not getting anything for my logbook, which is the main reason that I am there, which is to complete the logbook. That's the only challenge we face otherwise everything else is okay* **(Third year 10).**

My general feeling is when they go to hospital they are just concentrating on the logbooks; then they tend to forget everything that is happening around them (Clinical instructor 2).

The students prefer performing nursing tasks without supervision but expect approval of their efforts through the signing of their logbooks.

...sometimes the students are interested in getting signatures even if they don't understand; they tend to forget they are in the clinical area to learn not just to get a signature so there are so many factors (Clinical- instructor 1).

If there is no supervision, we are not being assessed that you are doing it the right way. But sometimes when you feel that you are being assessed you end up doing it the wrong way, just because you are scared (Second year 1).

4.4.2 Structural Aspects- Internal horizon (Act of learning and the indirect object)

The understanding of competence as completing a task is supported by aspects, which occupied students' focus of awareness. These aspects are constituents of the students' act of learning and the indirect object.

At this stage, the students' learning outcome is the ability to complete any given nursing task as described in 4.4.1 above. With task completion as the intended outcome of learning, students do not actively engage in the learning process because their desired level of competence is simple and easily attained. Such students adopt an information-receiving approach to learning. Receiving information and skills needed to complete a nursing task or procedure is the key focus of the students' learning. The students are passive and depend on information provided by the facilitator in the form of lecture notes or procedural notes, with very little or no questioning or reviewing of the information being provided. The students' conception is that once knowledge is delivered through lectures, lecture notes, videos and demonstrations learning will occur. These students passively listen during lectures or discussions, watch videos or observe demonstrations without making an effort to make sense of the learning content. Their cognitive engagement is minimal and they rely on familiarisation and memorisation to

be able to complete nursing tasks. The students rarely studied beyond what had been provided by the facilitators.

Although I did not do it, but if I learn it theoretically, I see someone doing it on the video or maybe in practical areas, I tend to understand better. My point of view is when you learn in class and when you go to the practical areas then you remember what the lecturer was telling you and then you also see what the nurses in the ward are showing you, then you can do it (**Second year 3**)

Students consider memorisation through repetition of learning material or use of some symbols as learning.

I think when you study to memorise, you just read something and you don't know what it means but you just know it, how can I say, let's say I read the tool on how to give an injection, so I know first to last step in exact words, I can't use my own words and I don't know how to do it **(Second year 1)**

I just read through to familiarise myself what is being taught in the chapter until later that's when I come and read intensively. Just for me to capture the thing for now, that's what I do **(Second year 2)**

Students describe their learning as copy and paste and take in information without questioning it. If it's clinical practice, the students' focus is on imitating what the facilitator did without understanding the rationale behind the actions.

Yes, the way I am studying now I read to understand everything that I study not like in my first year most of the things I did not understand them. I just tried to copy and paste if possible. I just copy and paste and no matter how important is it. I didn't ask then, I was trying to copy and paste but now in the third year I am studying to understand **(Third year 3).**

I think, like in practice, because you see the nurse doing it, so all I have to do is copy what the nurse was doing, I don't think there is anything to think about **(Third year 8).**

Besides taking information as is, students just wait to receive information from the facilitator; they do not make use of a variety of sources to enhance their learning.

> *This is not like in first year. I only wanted to focus on the things I was taught in class, I didn't read or do more, and I just thought it was not important to me. Sometimes I just used to follow what is being done but I didn't understand nor question it* **(Fourth year 4).**

> *I really think for me concentrating in class helped a lot because when it comes to studying I didn't really need to put more effort. I just had to recall* **(Third year 10).**

4.4.3 External Horizon

As discussed in Chapter 3, the external horizon is the context in which the internal horizon exists. It also represents those aspects outside the students' focus of awareness. The students may be aware of the aspects but the level of awareness is superficial.

Students' experience of competence as task completion and learning as information receiving is influenced by the learning context. Firstly, in the early years of study students have challenges of knowing what to learn, where to find the information and the expected outcome of their learning, so they have to rely on the facilitators for guidance. For example, one student excerpt below shows that students experience learning difficulties, not knowing what is important for their competence. So the students trust only what they get directly from the facilitators since they lack the capacity to select relevant information for their learning.

> *In the first year when we started the program we were not used to nursing; we didn't know what it was, so the learning was difficult and we have to at some point, to memorise the things so that you just know without understanding. Now we are more acquainted to nursing or to the components now I can say I am comfortable, and having a better understanding. Unlike in the first year we didn't really understand what was happening, but now we are acquainted to everything I can tell, describe, define or whatever because I do know that I know the things in theory and in*

*practical terms, there is a significant change, very significant change **(Fourth year 7).***

Secondly, the role of the facilitators enhanced students' understanding of learning as a passive process of receiving information. Some facilitators saw teaching as providing information to students and adopted teaching strategies that best transmitted the knowledge and skills to the students.

> *With first year students, it's as if I have to provide them with a lot of information and do demonstrations. In fourth years, I am asking questions for them to justify their practice, I just supervise and correct where they are wrong, and they already know most of the things **(Nurse 4).***

> *…if you're not prepared then meaning the students are going to get wrong information because they are they are just looking and seeing and looking what you're doing then they will copy and paste **(Lecturer 2).***

The students quotes below best describe the effect teaching has on their understanding and experience of learning. Some even referred to the lecturers as the source of information. This context drives the experience of understanding competence as task completion and learning as a simple passive process.

> *By teaching, I mean when the lecturers come and present to us, giving information on the procedure and when they demonstrate in simulation. I learn when they teach because I listen and can ask questions, then see them demonstrate **(Third year 4).***

> *Definitely here the lecturers, they are the primary source of information **(Fourth year 1).***

On the other hand, some facilitators did not encourage the student's ideology of considering them as information providers. They were of the view that students should do more rather than wait for them. The facilitator even took the blame for promoting passive learning and not giving students the opportunity to engage actively in the leaning process.

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They depend on the clinical instructor and lecturer because we are not allowing them to think deeper (Clinical- instructor 3).

They don't, I know they want to be spoon-fed, and they don't want to work or go and read on their own (Clinical- instructor 4).

Students do show some level of awareness in assessment although it is superficial. They understand that their success in the programme can only be confirmed through assessment of their competence. However, this awareness is at a superficial level.

Sometimes we just do the procedures alone but we know that ideally the sister has to assess my competence before signing my log book (Second year 3).

4.4.4 Dimensions of variation

The dimensions of variation within the focus of awareness of the students above included the approach to learning, understanding of the role of the facilitators, and validation of performance. The students adopted a surface approach to learning which focused on memorisation. Facilitators of learning played a major role in the student learning process with the student doing very little. Lastly, the students rarely sought validation for their performance. The only internal validation they had was to complete nursing tasks even though they may not have been correctly done.

To me it's all about remembering what I read. I can use some symbols to help me remember something, or I sometimes repeat what am reading (Second year 3)

4.5 Category 2: Competence for assessment/ to satisfy facilitator

4.5.1 Referential aspects- Direct object

Students experienced competence as passing the assessment or satisfying the facilitator. Assessment was considered the gold standard of being competent regardless of some obvious challenges associated with the validity and reliability of the assessments. The understanding of students is that what they practice in the clinical area is what is assessed in the OSCE. So failing an OSCE means the student was not practicing correctly hence was not competent.

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Although passing assessments was important for all students, some did realize the limitations of assessment as a standard for competence.

> *Yes, I'm not competent. I can't be if I can't pass the examination. The exam is the one that allows you to become a professional nurse, so if I fail, how now can I say I am competent. You have to pass the exam to be competent* **(Third year 8).**

> *Then there, I would say yes, if you fail an assessment that means you don't know anything because you cannot fail something that you have been practicing from January to December* **(Fourth year 6).**

> *So if I have taught the student, have given the necessary theory and I have given the necessary practice, that she needs to do and she is able to demonstrate this back to me, once she is in the clinical area, she is able to apply the theory into practice and that's when I would say the student will be competent.* **(Clinical instructor 3).**

However, some who perceived problems in the assessments challenged this understanding. The understanding was that some students can actually pass assessments even if they are not competent due to a number of reasons, inter alia, the assessor's behaviours and the assessments being of a standard where students can easily pass or because the pass mark is set too low.

> *Yes, because sometimes you pass by memorising the tool and you pass an assessment if you are given a stable patient with no complications. The way you memorise the tool it will go accordingly as long as the patient don't have complications and you pass it and still not know what to do* **(Fourth year 5).**

> *Yah, you may find that the students have passed the test or the examination to measure the competence but may find that they are not yet competent. It depends on the evaluator* **(Clinical instructor 1).**

With regard to assessments in simulation and the clinical areas, facilitators may use different standards for similar tasks. Subsequently, a student should perform according to the expectations of the facilitator who is assessing him/her at any given time.

Most importantly is that there are procedures that are to be followed in any given scenario; for example to inject or giving an injection, then you know for sure there are procedures to be followed in terms of clinical areas, whatever you want to do in the clinical (area) there are procedures to be followed. If they follow the procedure systematically, in a manner that you know you are satisfied, then you know that these minds are developing well **(Nurse 9).**

I think it's important for me to follow what I was taught, so if I do that then my supervisor is happy because they expect it that way **(Fourth year 7).**

It does so; sometimes I just do what they want me to do. Then I remember what I do in clinical practice is not exactly what I was taught in theory. But then because they sign our books, there is nothing I can do except follow that, so my book can be signed, but I know what we learnt at school is correct, the lecturer and clinical instructors told me so **(Third year 8).**

4.5.2 Structural Aspects- Internal horizon (Act of learning and the indirect object)

Lying in the focus of awareness for the students is passing the assessment, which they consider the ultimate goal of their learning. As students go about learning, they focus on those activities that help them pass examinations because their view is that assessment is the ultimate measure of their competence. During learning, if passing an examination requires memorisation, they do so, if it requires explaining how to do something, they do so, if it requires demonstrating or showing how to do something, they do so.

The learning here focused on what is expected in the examination, without criticising it because passing depended on doing exactly as expected in the marking guide. In this learning, sometimes students even knew that something was not quite correct but they had to accept it the way it is. The students took time to analyse and understand what it took to pass the examinations in the college and what it took to make their facilitators

happy with their performance. Learning strategies were not fixed but were adapted to suit assessment requirements.

…but that does not mean I am not competent and sometimes because of these things that we do, we study a day before or would try to memorise, not necessarily that you don't read to understand, but there are things that you memorise to make sure that you know them, line by line, that if you can assess (Fourth year 6).

I will explain my first opinion, it may be like that, that you pass you are competent because sometimes the student can study, having a tool in the hand, only studying that and that's it (Second year 3).

When you study to pass you just, for example, when people are writing tomorrow an examination or test, you study today you want to finish everything on that day. The students use assessment as a guiding tool for learning (Third year 4).

The students did not consider assessment as a route to competence certification only, but also as a learning process. Students use assessment as a learning opportunity for identifying mistakes to avoid in subsequent assessments. Assessments also helped the facilitators to detect students' mistakes and point them out. This helped the student know better and improve at the next assessment opportunity.

In my point of view because comparing, from first year, it's like every time when I am assessed I improve. In first year when I was assessed I find that there are a lot of things that I was not doing good, but when it came to exams this time I didn't do the same mistakes, so I know what you focus on. I think it helps us to improve (Second year 1).

The thing is like you do assess your students and like we go into the practical setting you can even observe them when they're doing a procedure. It can also be these mini OSCEs that can mean you will be able to tell when they're doing things or when you find them doing something then you can tell 'oh this one still needs to learn more' (Clinical instructor 2).

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4.5.3 External horizon

Naturally, assessment plays on the mind of every student because every student should be assessed to be able to complete the education programme. Therefore, passing assessments becomes synonymous with competence and ultimately forces students to relate assessment to competence. However, transfer of theoretical/simulation knowledge and skills into the clinical area remains outside students' focus of awareness.

> *With regard to nursing the term 'competence' to me is the required skills, meaning the individual under training should acquire some skills and the skills should be according to the institution's criteria. So once one who is under training was being taught and trained so in the end they have to be assessed to see whether they met those criteria and if the institution is satisfied that the person has the required skills then we can see the competence (**Clinical instructor 1**).*

Assessing students is one of the key roles of the facilitators in the development of competence. It is this assessment that helps both the facilitators and the students to assess their progress in terms of becoming competent. The manner in which assessment is carried out has a direct effect on what students think about learning and competence. The facilitators check students' understanding and competence development through assessing them. The level of students' performance in assessment can give an indication of how well the students understood and are making progress in their learning.

> *The thing is when you are assessing the students or when you're following them up is for you to diagnose and then it actually gives you an indication how you will be able to support the students; like you can kind of go through with them again and then practice because in the end of the day its practice (**Clinical instructor 2**).*

> *When you allocated students tasks to do, you supervise them to see what are they doing and if they are doing it right, doing it correctly, and even when they are doing it, you are asking them why they are doing that (**Nurse 10**).*

Nurses use students' performance in an assessment to certify that students have developed competence in particular skills outlined in the student logbooks. This directs the students' thoughts, that for them to have their tasks in the logbook completed, they need to demonstrate the skills and do so correctly rather than just doing for the sake of doing. Students focus on how they are supposed to perform as demonstrated by the facilitator to make sure they are able to pass the assessment.

> *Yes, because they have logbooks; so the school gives them log books for them to have signatures for the procedures. So you can only sign like for the procedures after you have assessed the student and see that is doing okay. We assess according to how they are doing the procedure if they're doing it correctly and logically or if they're skipping then you allocate the marks according to that. So if there is something that they're not doing well, in the marking, deduct marks (**Nurse 3**).*

> *But if I was to say this - if you are to grade a student and say you are not satisfied then you should tell the students this is how best you could have done, after reviewing what was done actually, so that's my feeling (**Nurse 6**).*

In addition, when it comes to assessment each facilitator uses standards they consider correct, which may be different from other facilitators. Students have no choice except to understand the standards required by each assessor. The students see this as a way of meeting assessment requirements regardless of who is assessing them. Ultimately, this student will develop a mentality of thinking of competence as pleasing your supervisor and not necessarily doing or learning the right thing.

> *It's affecting my learning because it's not like correlating with what we are studying because I might be forced also to do a shortcut because the nurse is telling you to do all those things, so it's really a problem (**Third year 5**).*

> *The lecturers are saying plot it this way, the registered nurse in the ward will say, plot it this way, now there is a difference between these two people. When you ask the lecturer she gives her reasons, when, you ask the registered nurse, she gives*

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her reasons, but there are also times when they talk the same language, but it's very rare (Fourth year 6).

Although not in the focus of awareness, students superficially acknowledge that beyond passing assessments there is more to competence. The student in the quotation below clarifies how one can learn to pass an assessment but still fail to retain the skill or knowledge for future use; in this case, that is practice in the clinical area.

Basically, there is studying for knowing and studying for the exam. They can be done at the same time but studying for the tests just to pass it, or for the exam just to pass it, comes when the student is not really competent. The student doesn't have enough time. The exam has just been announced, you are going to write next week. That next week, a day before the exam, that night you are going to study. That is already showing that this student is studying just to pass because they study only that night because anything that you capture maybe you can only remember in the exam, but after the exam if I come to ask you what is what you will not be able to answer it (Second year 3).

To me, I think assessments are just the starting point, because to be competent is more than just doing a few procedures in an assessment, especially when you do them in simulation (Third year 9).

4.5.4 Dimensions of variation

Concerning dimensions of variation, the students' approach to learning is strategic unlike in category 1 where the approach is predominantly superficial. The students use the strategy of understanding the standard of performance the facilitators or the assessment requires. Based on the requirements, students formulate a learning approach, which can include superficial learning, but goes beyond in some cases. For example, nurses do assess students in clinical practice, and assess students on real patients where nurses can validate the outcome of student performance. The quotation below demonstrates how a student cannot escape by an act of mere task completion, because the nurse checks the performance.

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You can find yourself doing vaginal examination the sister will do the vaginal examination first and ask me to do the vaginal examination. The sister will now be asking for my findings and comparing with hers. She will correct when you are wrong (Fourth year 3).

The excerpt above also illustrates how students in this category validate their performance. Unlike in category 1 where validation is internal, here validation is external and is sought from the facilitators and a pass mark in the assessment. Coming to the role of the facilitators, the facilitator's role that students are concerned about is the setting of standards for assessment as well as giving feedback. Students want to know what standard of performance is good enough for the facilitators, and then they do the rest of the learning to meet those standards, unlike students in category 1 who solely rely on the facilitator for their learning.

4.6. Category 3: Competence as applying theory to practice

4.6.1 Referential aspects-Direct object

In this category, competence is experienced as the application of theory to practice. Theoretical knowledge and skills become the basis of practice. The students possess a good understanding of the subject matter and a good visualization of how theory works in practice. At the basic level, this understanding makes students feel strongly that they are ready to practice nursing.

And even if I go to practical, I can still remember my theory that I learnt in class, but I don't necessarily have to do it practically for as long as I understand it, it's obvious that I can practice it (Second year 1).

The students start experiencing competence as more than just knowledge and skills and imagining how they work in practice but also as putting it into practice. The focus shifts from describing how something is done to demonstrating how it's done in practice based on the skills and knowledge the student has. This is a demonstration in actual practice and not in simulation.

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*…she is able to demonstrate this back to me once she is in the clinical area; she is able to apply the theory to practice and that's when I would say the student will be competent; she is passed theory (**Clinical instructor 1**).*

*...a registered nurse should be able to apply the knowledge, the skills practically and theoretically you know how to do the job, especially when dealing with the patient (**Second year 1**).*

*I think competence is when you are doing something and you are sure of what you are doing because of the knowledge you have (**Second year 2**).*

4.6.2 Structural Aspects- Internal horizon (Act of learning and the indirect object)

Deep in the student's focus of awareness is the need to apply theory to practice or transfer simulation skills into real practice. The focus of awareness has expanded from just passing an assessment to thinking about how the theory actually works in practice. Similarly, the act of learning that is consistently active becomes associated with the students' focus of awareness unlike in category 1 and category 2 where learning is predominantly passive and rarely active respectively.

Students engage with the learning material in an active manner. The students don't rely on the facilitator to make them understand and information received from facilitators is analysed against other sources of information. Students use facilitators as consultants in the learning process mainly by asking questions to enhance their understanding.

*The person will just come to class and teach you and you do not even understand a thing. You have to go and study by yourself, for you to understand, if you don't study then you won't understand. But there are some that make you understand (**Third year 4**).*

*..learning is a process so you cannot just focus on knowledge you have to understand when you come to practical. I usually used to ask why are we doing this? We must ask questions (**Second year 1**).*

Resources for use in the learning process widen and include the use of pictures, videos and simulation to help the students to see practice in their theory.

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So when the clinical instructor came she gave us some notes to read on how to do a dressing. I read that, I also watched some videos on You Tube on how to do a dressing. Then the clinical instructor also demonstrated to us, so I watched her do it and from there I just practiced following the steps. When I came to the clinical area, I just started doing the dressing on the patient, and I was good **(Third year 8).**

...because nursing is about reading and understanding and understanding and putting into practice **(Fourth year 6)**.

Describing their learning, students differentiate learning for memorisation and learning for understanding. In learning for understanding, students give more time to their studies and chunk information into small pieces but link the information together into a whole rather than keep it disintegrated as in memorisation or cramming. The information is not just accepted, but it's questioned and additional information is sought to ensure a good understanding.

Also sometimes in first year, you focus on cramming rather than understanding, so it doesn't take much time, unlike when you study to understand. Now you have to carefully analyse everything and also question things so you can better understand **(Third year 7).**

…because when you are studying; like to examine the placenta you have to divide what you are studying like in parts. First you must study one thing and you master it. Then you study the artery and vein. You even have to know what the different types of placenta are, because the placenta can be different types, once you know the different types of the placenta. Now you have to study like the implantation of the cord also. You see that even when a woman delivers the placenta you have to ask what type of the placenta. Then you check and then comes the implantation **(Third year 6).**

The excerpt below gives a summarized version of how the students go about their learning in the process of learning for understanding.

When you study to pass, you just for example, when people are writing tomorrow an examination or test you study today you want to finish everything on that day and when you study to understand you make notes and when you make notes, you make things shorter for you and make things more understandable for you and when you study when you have at least a week or so like you read every day even if you're not reading everything you read every day a small portion and when you are writing on a Friday today on Monday now on the first day, you revise everything because when you are going to revise on the things they will be much easier because you have already studied them to understand. You study them little by little as long as you know that you will get there. It will be easier than to study everything on one day because if you study things in one day sometimes you will black out, you will not even answer the questions as asked (Third year 4).

After having a clear understanding of the theory and imagination of how it works in practice, they transfer their learning to the clinical area, but theory remains their guiding principles to practice. One student said,

...so I observe how it is done. I also understand through reading and asking questions, how, and when a certain procedure is done. When I get to the clinical area, I ask the sisters to help understand my theory in practice (Third year 9).

Another student comments that after exposure to practice s/he returns to the theory to make sure that s/he can better apply it to practice. There is an attempt to make every aspect of practice theoretically linked.

When I say I am learning I apply theory into practice like the things that I was taught in class; I will apply it in practice. That's what I call learning. Like if I'm in practical, I come back home go through my notes and my books and when I go to work, I apply the theory that I was taught (Third year 4).

The experience of being in practice is considered learning, not merely applying theory to practice. This deeper understanding appreciates that it's not all about putting theory into practice, but transforming the theoretical knowledge into practical knowledge. Students

realise that theory does not always literally translate into practice; one has to make certain adjustments for theory to work in practice.

> *What I mean is that, after understanding theoretically, you need to be able to put it into practice. For example, I learnt how to give an injection, about the site, the angles and the equipment. But when you get to the clinical (area), you need to actually do it. And when I was doing it, now I was injecting actual medication to an actual patient, so I had to know more about the medication, why I am giving it and at the same time, I had to be able to hold the needle at the required angle. So to me I was learning, because now I was doing real practice (Third year 5).*

Linking is a very important component of learning in this category. Linking involves the actual theory experienced or seen in practice. As one student clearly puts it, the students then would want to link their knowledge with the practice.

> *For example I can know the signs and symptoms of TB, but if I see the patient I may not recognise the signs, so I ask the nurses and they show me those things, then it begins to make sense to me (Third year 9).*

> *...for my second year to my third year, I started learning everything going through it over and understanding it so when I got to practical now I used to link what I learnt and what I am seeing. Now up to today I have improved. I only study to understand now (Fourth year 6).*

This shows that students understand that theory and practice cannot be separated but should always be considered together. However, in this experience students are inclined towards theory informing practice in all the cases and not the other way round. There is a tendency to consider what they learnt theoretically as correct, even if they may not have adequately exhausted all written learning material on the subject matter.

> *You can know theory but if you do not know how to link. You can know the theory but if you do not know the practice then there's no point. You will still be lacking as a nurse or as a student (Clinical instructor 2).*

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4.6.3 External horizon

Active learning with the goal of transferring theory into practice occurs in a supportive teaching environment. Facilitators teach in a manner that facilitates active learning, understanding and help students to integrate the segments of the course into one whole. There is a deliberate effort to link theory and practice. For example, a student may know the signs and symptoms of a disease, but faced with a patient presenting with those symptoms the student may not recognise them. Hence, exposing them to that reality, firstly through simulation and videos then through real life situations can bring understanding.

In their teaching, the lecturers who deliver the theoretical component have an expectation that students are able to connect theory and simulation with clinical practice.

> *So if I have taught the student, have given the necessary theory and then I have given the necessary practice that she needs to do and she is able to demonstrate this back to me once she is in the clinical area she is able to apply the theory into practice and that's what I would say the student will be competent. She has passed theory .We have a minimum cut-off point to say she is to perform at this level and then when she gets to the clinical area she is to practice and perform at a certain level and that she is able to apply theory into practice that's a competent student to me (Lecturer 3).*

The manner in which facilitators teach strengthens students' conception of competence as applying theory to practice. There is a link between the lecturer and clinical instructor to ensure smooth linking of theoretical and simulated teaching. Students get the picture that their learning doesn't end with the theory but has to be translated into practice.

> *… Actually, we (lecturer and clinical instructor) sit like at the beginning of the year so we go through the required competence of the students and then I (clinical instructor) will have an idea. She (lecturer) will indicate to me as if this one is for me to teach…. Then on the other side I as a clinical instructor, I don't really just focus on practical only. Let's say if I have to teach them how to administer the blood*

components; for me I still have to do the theory part to make them understand what are the blood components; indications ,contraindications till we get to the practical parts. So for me actually I rather do theory and practical rather than just jump in because this where you can relate. Start from the basics (Clinical instructor 2).

Furthermore, the manner of teaching is such that students become active learners. Although students can be given information, they are also referred to many resources to study on their own and the facilitator follows up to assess students and diagnose their understanding. Therefore, students are pushed to make an effort to learn on their own.

I present to them, explain to them, and show them how it is done. Also to give them resources that they should go and read and use and give them websites so that they can go and Google. Then also follow-up those standards to see if they are following those standards when practising; so that I am sure that they are competent in whatever I taught them that they are supposed to do (Lecturer 3).

One student described how teaching for understanding occurs:

They sometimes, they want to make you understand. They show you how things are done in simulation. The sisters in practice, now if they are teaching you about the emergency trolley they teach you the medication, what they are used for and the contraindications everything, so then make me understand. In addition, they show you, that this is what, if it is a yankauer sucker for suctioning and the introducer for intubation, things like that (Third year 4).

The clinical teaching is conducted in such a manner that students' theoretical knowledge is linked to practice. One facilitator excerpt below demonstrates how students' practical knowledge is tested, where if students cannot apply theory to practice they won't be able to detect the signs of a disease on a patient even though they know the signs theoretically.

..here we had real patients that we had to assess and diagnose. So having students able to identify the symptoms and then be able to tell the diagnosis that is practical, so it shows they are improving. One thing in the clinical area, I do not just

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tell them the signs and symptoms of this, I give them a patient, then they have to identify, that is putting theory into practice **(Nurse 4).**

Questioning students' actions so that they provide rationale for their actions also requires students to seek understanding for their actions.

When you allocate students tasks to do, you supervise them to see what are they doing and if they are doing it right, doing it correctly and even when they are doing it, you are asking them why they are doing that. What is the reason for doing that? So from the answers, you can tell which student is actually knowing what they're doing **(Nurse 5)**

The understanding of nursing and learning in this category becomes deeper as explained by the quote below.

There has been an improvement in my learning approach because in first year, we used to study to pass but now I realize that I have to study for my practice. So I study to understand things, not study just for the sake of passing an assessment **(Third year 4).**

Additionally the use of theory as the basis of practice is supported by students' beliefs in their theoretical facilitators. They consider them as the better informed; hence, what they teach students is what is correct. Whenever there are differences between practice and theory, students rely on theory to inform practice.

Some of them are not even happy, they don't want to listen to students, I don't know why. Maybe because they don't want it to be seen that they are doing wrong. But our lecturers, there is no lecturer who teaches you something which is wrong. That's why sometimes they can go the extra mile to see what is being done in the current practice because they have to update us on new developments **(Second year 3).**

Sometimes I do either what I learnt at school or sometimes what I learnt there (clinical area). Sometimes if you ask why there are differences, the lecturers tell

*us that what we learn in school is correct so we should do more of what we learned in school … I don't know about that. What I know is the lecturers read a lot and are always well informed, so I trust what they teach to be right **(Third year 8)***

In the transition period students' focus of awareness can expand sometimes to considering competence not as merely putting theory into practice, but as applying it according to certain required standards. The students realise that it's not a matter of just putting theory into practice, but finding ways of appropriately transforming the theory into practice to meet certain standards. However, the student's level of understanding remains rooted in theory, which is the basis of their practice or the standard for practice.

*..when you go for practical in all clinics and hospitals you practice what you get from theory and by doing things over and over again will become competent. With time, I feel that I am actually competent because you doing the care required. Not that everything, but most I feel that I am actually competent **(Third year 1).***

4.6.4 Dimensions of variation

With regard to the learning approach, students engage in active learning with a focus on understanding as opposed to category 2 where the approach varied based on the assessment requirements. Even if students pass the assessment by cramming, they study after the tests to understand so that they are able to apply theory to practice.

*There has been an improvement in my learning approach because in first year, we just used to study to pass, but now I realize that the things that I study; I need them when I am practicing. So I study to understand, not just for the sake of passing an assessment, **(Third year 4).***

Validation of performance is both internal and external. Internal validation is based on the extent a student can transfer theoretical knowledge and simulation skills into clinical practice. If there is a match between theory and practice, students get satisfaction and consider themselves competent.

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*Even if they said, you pull the cord, I don't support that idea because I went to find out that there is evidence to suggest that pulling of the cord is not good because of the way the placenta might have implanted. Maybe it has implanted deep into the uterus, so pulling can trigger excessive bleeding **(Third year 6).***

The students disregarded external validation from the nurses whenever their theoretical did not correlate with practice. Instead, in such cases students sought external validation specifically from the lecturers and clinical instructors who are responsible mainly for theoretical and simulation learning.

*If you want to learn something, let me say like if I'm not sure of this first I will ask the sister, or someone who is there even my fellow students, just to explain a bit; then if am not fully satisfied with what he or she gave, I have to come back to my book, or sometimes I call our lecturer like the clinical instructor of that certain subject just have to get more clarification on that procedure or sometimes I can go onto the internet. Let me say there was a time when I went on the internet, the sister will say if you are not sure of something, you are having a computer there, is internet, do everything… **(Fourth year 4).***

With regard to the role of the facilitators, students see them as directors in the learning process. They depend on them to make their learning possible as much as they take responsibility for their own learning.

4.7 Category 4: Competence as practice according to guidelines

4.7.1 Referential Aspects-Direct object

In this category, students' understanding of competence has deepened. The students' understanding of competence is that there should be some standards or guidelines to direct nursing practice. The student seeks not to just directly translate theory into practice but seeks to see what the recommendations are and adapts theory to meet the set standards. Unlike the textbook guidelines, which tend to be universal, clinical standards or guidelines are adapted to a specific practice area.

The initial understanding is that in clinical nursing practice there should be some kind of acceptable level of performance, which students refer to as the required or acceptable level.

> *When you are in the clinical area, there is a certain way of doing things that is acceptable, so you are expected to follow that (Second year 1).*

> *Competence, I understand it in a way that someone, like doing something perfectly, as it is required to be done (Third year 5).*

> *I make sure that I carried it out the way it was expected of me to be carried out without running around looking all confused or like you don't know what you're doing, so that is what makes me say that I am competent in the things that I'm doing right now (Fourth year 3).*

The required standard is revealed as the clinical standards /guidelines including the recommendations made by organisations such as WHO. This understanding develops as students get to experience more about clinical practice

> *For example, in the clinical area when we are doing procedures with the nurses, they don't use any tool, but they just see if you are doing the procedure as it's supposed to be done in the hospital. In some cases, there are guidelines, and if you follow them, then you know you are competent (Second year 3).*

> *The right way is according to the guidelines given of doing that procedure, like manuals recommended by WHO (Third year 6).*

The nurses confirmed this understanding by suggesting that nursing care is rendered following nursing care standards.

> *In nursing if you are competent, you are able to provide nursing care as required. Let us say in your ward, you are able to know what needs to be done in your ward, assess your patients and find their problems then provide the necessary care following the standards of care (Nurse 7).*

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The students do not end at just following guidelines and standards but they consider how well and effectively the guidelines are adhered to and that the standards are met. The understanding of competence is therefore seen as performance that follows the guidelines or meets the set standards of practice.

In some cases there are guidelines, and if you follow them and perform to meet the required standards, then you are competent **(Second year 3).**

Most importantly, is that there are procedures to be followed in any given scenario, for example to inject or giving injection then you know for sure there are procedures to be followed in terms of clinical areas, whatever you want to do in the clinical there are procedures to be followed. If they follow the procedure systematically, in a manner, that you know you are satisfied then you know that these minds are developing well **(Nurse 4).**

The required standards are not restricted to just technical expertise but also soft skills like punctuality in clinical practice as one facilitator put it.

It includes a lot of things for me to say a student is competent. I look at the performance of the student at work in terms of practical standards that are there. It also depends on the tasks that are allocated to them. Do they come on time, do they also do the procedures correctly so I monitor their performance **(Nurse 3).**

The students start to develop confidence and independence in their practice because they know the guidelines to follow and the expected standards to meet. They no longer wait to be supervised. This is different from the experience of understanding competence as task completion where students deliberately want to practice unsupervised but lack some reference guide to support correctness of their practice.

For now, when I go to the clinical (area) I don't expect the sisters to come and tell me what to do. What are some things that I have studied, am I doing differently for now? Let me say I go to the clinic I make sure everything is in place, then when I see that all is in place we can start working with the patient. But when I was in first year I would go to the room for the clinic, then from there I will be

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waiting to be given an order that you must do this in the room, but for now I'm having a clear picture of what to do when working in the clinical area (Third year 6).

What I can say is that a competent someone or nurse is one who used their knowledge and skills to care for the patients according to the required standard and help the patients recover, because in the end the nurses are there to care for patients and help them get better, so if one can do that they are competent (Fourth year 5).

4.7.2 Structural aspects- Internal horizon (Indirect object and act of learning)

In the students' focus of awareness is real nursing practice and students aim to gain the ability to practice nursing according to practice standards. The students appreciate the difference between theory and practice, understanding that theory may not cover every practice detail and they cannot apply theory directly into practice. Therefore, the students use the clinical setting as an important area for learning accurate practice requirements. Learning that is directed to the students' goals involves careful observation of practice before one can engage in practice. The observation is an active process involving recognition of key aspects that assist in clinical decision-making.

I just used to observe and see how they are doing. It's what are the signs and symptoms that show that this patient is ready to deliver. I have mastered from there. I started mastering all those things until to a point I know that this woman is about to deliver; I have to prepare myself and prepare the patient for such a procedure (Fourth year 6).

To understand practice, students focus on learning every activity that goes on in the ward without restricting them to what was learnt in theory. There is a desire and intent to know what the required standards and protocols in the practice of nursing are. Asking questions and referring to theory are efforts students make to link practice with theory rather than link theory to practice. There is a deliberate effort to learn the required standards for practice.

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The activities that I do are not much, but I am allocated at a certain part of hospital. I make sure that I ask all the questions that I need to, to make sure that I know all the standard protocols, in case something happens. And whenever senior sisters are doing a procedure I look at how is (she) doing it so that I can do the same thing (Fourth year 5).

The clinical area is considered the best place for learning, there is an appreciation that learning by doing is better than mere reading. Clinical practice is regarded as a more reliable guide for learning than textbooks, which at times contain what could be outdated information especially in some areas of nursing where the practice standards are changing on a regular basis.

…to my point of view we learn better in practical because when (we) are doing something with your audience you understand it better as compared to when you are reading the book (Second year 1).

Then you have to follow the registered nurse who is most experienced in hospital because they teach you it was like this before but maybe the books that you are taught from are outdated now. Things have changed it's no more up- down cord contraction, but it's down ward traction. Don't continue to suture a perineal tear, you do sub cut on the skin such things (Fourth year 5).

4.7.3 External horizon

In the external horizon, there is teaching that supports standardised clinical practice. This context pushes students' focus of awareness towards practice that meets clinical standards. The clinical areas are the major learning areas in this category; and the nurses are the main facilitators. However there are lecturers and clinical instructors who emphasise to students the need to attain competence as the students may be required to demonstrate it in cases of emergency when they least expect.

So what I do is to make sure that every procedure is taught in a manner that can make them competent and the procedure is examinable. So the approach is I am teaching them to clarify everything, every procedure is important like for instance in

our midwifery we are not dealing with one person but dealing with two so each procedure should be known inside out even when during your sleep you can tell when a woman delivers. Usually, I give them examples. It is not for the examination. When a woman delivers when you are in the queue of a bank and you are a nurse, what are you going to do? That one should not memorise it, should know the technique of how to help the patient. Wherever you are. We focus more on the future so (Clinical- instructor 3).

This creates awareness in the students that they need to learn to a level where they are in a position to practice professionally and up to standard in real life settings. The learning involves consulting facilitators and researching for information to improve understanding. Students seek to learn everything that is required to make them competent as a registered nurse to ensure that they will deliver nursing care with a sense of responsibility and accountability.

No, in my first year I used to understand some of the things but then I wasn't that competent in those things, for example types of placenta, the examination of the placenta. I used to study to pass the examination, I didn't know that we have to learn for our future (Third year 3).

Yes most of the times. If it's something I think is not necessary for me I would then ask my seniors if the explanation is satisfactory enough. I might not go and further research, but the bottom line is I try to learn everything because I want to be a very competent nurse. I don't want to be a nurse who blanks out or gets stuck on something. A registered (nurse) is supposed to be responsible and accountable for their actions. So if you are ignorant on some things, you complete your studies, and you go in the field it would be an embarrassment if you don't know minor things that arise (Third year 10).

Student awareness of their needs to be practical and up to standard is strengthened by the role of the facilitators who follow up on their practice to enforce the practice standards.

I present to them and explain to them and show them how it is done; also to give them resources that they should go, read, use, and give those websites so that they can go and Google. Then also follow-up those standards to see if they are following those standards, then practising so that I am sure that they are competent in whatever I taught them that they are supposed to (be able to do) **(Clinical instructor 4).**

This kind of teaching spurs students further to learn how to practice according to the requirements of the clinical area. There is development of an understanding that nursing practice is about performing according to standards. In addition, the facilitators challenge students to ensure that their clinical practice is linked to their theoretical knowledge.

...when it comes to the sisters for instance, a student might be asked "student why are we doing this procedure to the patient?" If the sister realizes the student does not know, the sister will say, "tomorrow when you are coming, make sure you find this information and come and tell me why we are doing a lumbar puncture" for example. So the student will make sure that the first thing to do when they get to the room is to find out why are we doing lumbar puncture, what are the critical things the doctor requires to do lumbar puncture? **(Second year 3)**

Nurses who supervise students in the clinical area are more interested in observing students actual performance when working with real patients. The quote below illustrates how the nurse makes students aware of safety procedures and how the nurses then follow up to evaluate students' adherence to the safety procedures.

So you see that with senior students, what I will just be doing is to monitor what they are doing and then we sit down; we discuss the cases and challenges they are facing. What is it that they've planned to do? What is correct and what is not? **(Nurse 5).**

4.7.4 Dimensions of variation

The approach to learning in this category is active both theoretically and practically. The centre of attention in the learning process is ability to practice per the clinical standards rather than mere transfer of skills from theory and simulation into clinical practice as in category 3. Linking of theory and practice is in such a manner that practice informs theory and not theory informing practice such as in category 3.

> *…to my point of view we learn better in practical because when you are doing something with your audience you understand it better, as compared to when you are reading the book (**Second year 1**).*

> *For it's just to learn everything in (the) ward. Ask the sisters, go and read about it so that I know what happens in the ward and to ask sisters to show me things I haven't done, so I can practice them. I just want to be sure I just know everything there (**Fourth year 4**).*

Student validation of performance is predominantly external and relatively objective. Facilitators, in particular the nurses, are utilised as validators of students' competence. However, students only accept validation from the facilitator if it is in line with the practice standards. The role of the facilitators is seen as expediters of learning rather than directing the process. Students use them as consultants to enhance their learning.

4.8 Category 5: Competence as positive outcome

4.8.1 Referential Aspects- Direct object

The students experience competence as performance for better nursing /health care outcomes, so any performance that yields positive patient outcomes is considered competent practice.

> *Yes, let me say I do something, then the results come out positive and there is an improvement, which means I was competent because the results of what I did were very positive (**Third year 10**).*

The understanding of students here is that completing tasks, applying theory to practice, using standards and guidelines in practice, are important but they are not the objective of nursing care. At the basic level, students assess the patient and identify the problem or diagnose the problems as this forms the basis for appropriate interventions and possible positive outcomes.

> *She plans for nursing care for the patients and knows what needs to be done in terms of caring for the patients and they are able to do those things required as care for the patients like procedures (Nurse 5).*

Nursing becomes holistic. Students cannot only assess and diagnose but they possess the necessary ability to plan and implement a plan of action to resolve the problems of the patient.

> *She plans for nursing care for the patients and knows what needs to be done in terms of caring for the patients; and they are able to do those things required as care for the patients like procedures (Nurse 6).*

> *A competent nurse, I would say for example if the person is having a pain and the patient pointed to the nurse and the competent nurse would give pain relief without anyone telling you and then she would report (Third year 2).*

The implementation of the plan of care is followed by evaluation to determine effectiveness of care rendered. If the outcome is positive, they consider their intervention as competent.

> *Like a patient can complain of pain, then I give them the medication for the pain, so I will come later to assess, how is the pain? If the pain is gone or reduced, then you know you are doing something right (Third year 9).*

> *..so you also find that some students after doing something they go back and they check, what has happened to that patient. We have put up the drip because the blood pressure was low. Has it now improved? So you find that this they understand what they're doing (Nurse 3).*

At the deeper level of understanding, the student sees competence as more than just improving the individual patient's outcomes, but improvement of health care in general. The understanding of nursing in general becomes broad and goes beyond just nursing patients within the confines of the clinic or hospital.

> *...but for me, now nursing is about doing more to improve the health sector of our country about coming up with new strategies that will help our nursing profession to go ahead. Now nursing to me is a pillar that will help me in future to be someone big and to understand a human being. I think nursing now to me is a very broad concept (Fourth year 1).*

Besides dealing with a planned course of care, the students understand that there can be unexpected events due to patient response. The student is aware of such and can deal with these emergencies rather than continue with a planned course of care

> *In addition, you can deal with unexpected events, like a response of a patient to something, which requires you to care for the patient, kind of an emergency (Nurse 1).*

In the greater depth of experience, the student considers alternatives to what is currently not yielding positive health care outcomes for the patient. The belief is that nursing care is all about improving patient health care outcomes, therefore if there is no improvement in patient care; better interventions need to be sought.

> *In particular, we know that nursing is all about caring for the patients to get better. And we want to find ways of doing things better that can actually improve patient's health. So when engaging the lecturers and the sisters with more information, it can actually help (Third year 7).*

One student summed up how competence is best understood in this category. The student refers to the need for a combination of knowledge, skills and attitudes required to manage a patient successfully. The success is not seen in completing the task but improvement in the condition of the patient.

4.8.2 Structural aspects- Internal horizon (indirect object and act of learning)

The intended goal of student learning is practice that yields positive patient outcomes. Students go about their learning using deep approaches to learning. Therefore, learning for positive outcomes is at the focus of awareness of the students. Firstly, the students experience a holistic understanding of nursing practice and learning. With a full understanding of nursing, students are able to learn material that is relevant to the practice of nursing. They become selective in terms of information they use for learning.

> *But now I have a full understanding of nursing, so I really know what to learn and what not, I don't just follow, I question things (Fourth year 5).*

Students consult several sources of information and compare the information obtained from facilitators. This is done so that the correct or current information is used, as well as to ensure that the understanding of information from various sources is consolidated.

> *When I make the research, I looked into many sources, the textbook and some articles for research. I also checked some WHO guidelines, and they all say the same, so I was sure you don't pull the cord (Third year 6).*

> *Not only books, we also check the guidelines like WHO has many guidelines , so what I am doing I can compare with that even when I am taught I check to see if its correct, so no we can't be taught the wrong things (Fourth year 7).*

There is an increased level of awareness of the learning process. Students begin to appreciate that people understand differently and one cannot rely on another person's understanding. Therefore, students make an effort to seek their own understanding and consolidate with other people's way of understanding.

> *No, it's not that but it's just further reading because people are not the same. The way someone explain(s) things to me is not the way the other person will explain to me and the way I would understand things that were explained from someone is not the way that I will understand how the other person explained (Third year 4).*

The students analyse information, be it from the books or other resources and from the facilitators. This includes what the students read, observed or taught to make sure they learn the right information understanding it.

> *Now you have to carefully analyse everything and question things so you can better understand* ***(Third year 7).***

In addition, students become critical in clinical practice and do not take anything for granted. There is application of clinical reasoning, for example, a situation where the nurse prescribes different treatment to patients with the same diagnosis, the student is eager to understand why this is so rather than assume patients with the same condition are always treated the same way.

> *When it comes to the writing of the prescription, when it goes to the clinics the easier way is for example when you're working with a senior competent sister, when she does something for example, diagnosis for you to be aware of what is happening the only way is when you're asking why, what makes her say what is the diagnosis because sometimes it differ(s). That way she can give you a valid reason that in this case, even if diagnosis is the same as the previous, I give this, due to this, and this because there are obviously, there are some things they look at* ***(Second year 3).***

Furthermore, the student's focus of learning is getting the fine details of implementing nursing care. Students no longer approach implementation of care the same way for different patients in different situations.

> *Then for me is to go and read further. Like I googled on how to do several dressings because dressings are not done the same. The dressing is done according to the wound* ***(Third year 4).***

In the clinical learning space, they seek close supervision to ensure that they get help in doing the right procedures. The student is hesitant to engage in clinical practice until they feel they fully understand and are ready to practice.

Like if I am told this is how you (insert) a nasogastric tube, then I go and read about it , watch some videos and when I see it for the second time, I am comparing and asking questions, until I fully understand what to do and why to do it, then I can make my first attempt. Obviously, I need the sister to be there just to supervise me and point out my mistakes out so I can improve every time **(Fourth year 5).**

In addition, the students' scope of understanding nursing practice expands and can deal with various nursing problems. Reflecting in and on their action coupled with evaluation of performance to see how better they can perform to improve patient outcomes becomes part of the learning process.

...because it gives me that ability to be independent and to think critically on my nursing interventions **(Third year 10).**

When I look at nursing, a competent nurse is one who is able to apply theory to practice, not only that but also to be able to know how to manage patients with various nursing problems. The nurse can also evaluate their care to see if it's helping the patient or not so, they can find alternatives **(Nurse 4).**

Besides dealing with a planned course of care, the students understand that there can be unexpected events due to patient response. The student is aware of such and can deal with these emergencies rather than continue with a planned course of care.

In addition, you can deal with unexpected events, like a response of a patient to something, which requires you to care for the patient, kind of an emergency **(Nurse 1).**

One student sums up how competence is best understood in this category

…can say I am competent if I learn something, for example administering blood, blood transfusion if I know which patient needs a transfusion, and how much of that . Also, I have to (know) which type of blood to give and what to do before the blood, that's like functional knowledge. Then I also need skills, like technical skills

of withdrawing blood and setting up the IV lines. Because it's a human, I also should be able to interact in a manner that is good before, during and after transfusing blood. It's not just about putting the blood, there, I have to monitor the patient for any complications, and then assess how the blood has helped the patient to improve. Then you can report and possibly think how better the condition of the patient can be improved maybe by giving more blood or just normal saline. This makes me feel I am competent because I am improving health of the patients **(Fourth year 5).**

4.8.3 External horizon

Students experience competence within the bounds of what they can do to improve the delivery of nursing care. Students believe that there is room for improving the way care is provided to enhance health outcomes.

In particular, we know that nursing is all about caring for the patients to get better. Moreover, we want to find ways of doing things better that can actually improve patient's health. So when engaging the lecturers and the sisters with more information, it can actually help **(Third year 7).**

The students have some awareness that managing patients and having them recover is not good enough, maybe more can be done to prevent patients from getting sick or reduce the chances of getting sick. There is a suggestion to a more comprehensive approach to patient care, which looks beyond the patient in the hospital only, but also looks to the community.

… but now I cannot just have a patient and treat I need to give information. I have to start from causes, preventative measures and empower the patient to have their own capacity to prevent diseases in the community and in the household… (Third year 6)

The excerpt below further clarifies what may lie in the students' awareness regarding their understanding of a competent nurse.

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…but for me now nursing is about doing more to improve the health sector of our country; about coming up with new strategies that will help our nursing profession to go ahead now; nursing to me is a pillar that will help me in future to be someone big and to understand a human being. I think nursing now to me is a very broad concept **(Fourth year 1).**

The role facilitators play also forms part of the external horizon of the students. The teaching strategies directly influence students' focus of awareness. The teaching is practice based and seeks to promote critical thinking and clinical reasoning, i.e. students are asked to assess patients and suggest the course of action. This gives students the idea that nursing practice involves critical thinking and reasoning.

You know when the student is competent- they are able to identify problems that patients have. They ask you and alert you that 'I have seen this patient is having this so I think we should do this'. So you now compare what they see as the problem and what they think should be done to the patient and what is actually the right thing that should be done. Some of the signs that a student is now becoming competent are to assess the condition of the patient accurately **(Nurse 3).**

The facilitators take students to actual patients and teach them to differentiate patients with similar symptoms but different conditions. This creates awareness among students of the need to analyse clinical situations in their practice.

…we differentiate, these are the signs of asthma and these are the signs of hypertension and angina …if someone is having difficulty in breathing the patient can have difficulty in breathing due to many conditions... **(Lecturer 1)**

The nurses expect students to be able to assess, diagnose, and intervene. Therefore, they give students the opportunity to do so and evaluate them as well as help them improve. Exposure to this practical teaching pushes students to focus on learning how to render nursing care correctly.

You know when the student is competent. They are able to identify problems that patients have. They ask you and alert you that I have seen this patient is having this, so I think we should do this. So in that student, then you now compare what they see as the problem and what they think should be done to the patient and what is actually the right thing that should be done. Some of the signs that a student is now becoming competent are to accurately assess the condition of the patient (Nurse 3)

4.8.4 Dimensions of variation

The approach to learning in this category is transformative. The students' understanding of their learning becomes better and is inclined towards effective learning strategies. This is accompanied by a deeper understanding in nursing as a profession. At this stage, students believe that their leaning is not about themselves but for the improvement of the health care of the population. Therefore, critical thinking, clinical reasoning and reflection dominate their learning; activities that help students to implement care that yield positive patient outcomes.

With regard to validation of performance, students predominantly seek external and objective validation. Facilitators, in particular the nurses are not utilised as validators of students' competence but as consultants in the process of developing the required level of competence. Students feel they have done well only when patients' outcomes are positive, this is the key source of their validation.

Coming to the role of the facilitators, students need them to challenge their thinking and use them as consultants in the learning process. However, the students remain in control of the learning process.

4.9. Expanded external horizon -Participants views

Besides the aspects described above under the external horizon of each category, more aspects came out from the data that applies across all the categories. These aspects are part of the external horizon but are not assigned to any one specific category of description. They represent the views expressed by the participants regarding each other's role.

4.9.1 Theory- practice gap

Nursing students' experiences of learning in the Diploma in Nursing and Midwifery Sciences (DNMS) is characterised by an apparent theory- practice and practice- theory gap. Instructors prepare teaching tools based on textbooks, and students find these tools in contradiction to current nursing practice. The excerpt below illuminates the differences between what nurses and clinical instructors teach.

> *There are times where it does tally but as I said, there are times when it doesn't; because when you are with the nurses they teach you - do it this way. However, when the clinical instructor comes, she comes with the tool, the tool that you already have, and that tool is telling you something different from what you are doing with the nurse. Like examining for cervical dilation, its telling you do it two hourly but (in) reality in the ward is it done four hourly. So now you have to memorise that tool which is wrong so that you can get marks* **(Fourth year 5).**

Theory-practice and practice-theory gap creates divided opinions among students. On one-hand students who understand competence as applying theory to practice rely more on what they learn in theory and trust the information they get from the lecturers and clinical instructors. They actually try to correct nurses and see lectures and clinical instructors as people who can do no wrong. They believe lecturers read more and are always up to date as compared to the nurses.

> *Some of them (nurses) are not even happy they don't want to listen to students, I don't know why. Maybe because they don't want to be seen doing wrong things; but our lecturers, there is no lecturer who is teaching you something which is wrong, that's why sometimes you can go the extra mile to see what is being done in the current moment because they have to update us on what we should do* **(Second year 3).**

> *I don't know about that. What I know is the lecturers read a lot and are always well informed, so I trust what they teach to be right* **(Third year 8).**

The facilitators who believe they are ahead of the nurses in terms of nursing theory and practice support this student view. Facilitators base their belief on the idea that they are always researching and stay up to date, unlike nurses who rely on experience.

> *Yes, just to be brought on to the same level with what we are doing because we learn every day, we do research, we Google, we learn every day about new things, but them they are more relying more on their experience* **(Lecturer 1).**

On the other hand, students who consider competence as practicing according to guidelines easily accept what happens in the clinical practice, are of the opinion that lecturers and clinical instructors lack clinical skills, and clinically updated information. Therefore, students are more likely to adopt what nurses teach them than what they are taught by the instructor or lecturer.

> *The lecturers - it's been a while since they've been in practical. Sometimes a lecturer, who does not even know how to palpate the patient, is teaching you. She is a lecturer but you can see the other lecturer is teaching her how to do palpation, so it does not make sense for me for someone who does not know how to palpate to teach me that* **(Fourth year 5).**

These students believe that textbooks may be outdated and lagging behind practice. In addition, the curriculum doesn't cover all aspects of clinical practice, so there is always more to discover in the clinical area. Unfortunately, lecturers and clinical instructors use the curriculum guide for teaching and the textbooks as a source for information. Hence, practice changes, and other subtle practice elements are not part of theoretical or simulated teaching, and therefore learning.

> *Maybe the books that we use are outdated. I don't know; because when you tell the nurse you are working with that, the books say this and this, they tell you that it has changed and then you are like ahh. So the things we learn are completely different. Maybe we do not put some of these things into our curriculum so it becomes difficult to cope with that* **(Fourth year 5).**

There is also another experience reported by students on the theory-practice and practice- theory gap. Some of the students see the differences in theory and practice as negligible. They attributed differences to the fact that nurses have become experienced in practice and developed better ways of practicing that enable them to meet clinical expectations. However, their new way of practicing may be seen as twisted or shortcut by some students.

I would say 98% yes, it's happening the way we are taught in the college and then 2% of it is a bit twisted because at the college we are being taught according to the book. And when you go to the clinical setting, you will find that the nurses that have been in the system for a very long time have twisted things and found their own way of doing things, like doing shortcut. To them if they follow the book then they cannot finish the work. If you ask, they say that is the way we are doing it, if you do it the book way then you will not finish **(Fourth year 3).**

The theory-practice and practice-theory gap context has an impact on the students' focus of awareness. Students make efforts to deal with the theory-practice gap by alerting the facilitators to help them. The students find it challenging to integrate theory and practice due to the contrasts that exist. They are forced to adopt a strategy to please whoever is supervising them at that particular time because their success in the course depends on it.

...when I encounter such cases, I inform them and we discuss about it because most of the time people have different information. What I might learn from the nurses in the field is maybe not, what my lecturers know so the information is slightly different **(Third year 10).**

*It's affecting my learning because it's not like correlating with what we are studying because I might be forced also to do a shortcut because the nurse is telling you to do it, so it's really a problem(***Third year 5).**

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The theory-practice gap is therefore within the external horizon of the students understanding of competence as pleasing the facilitator to a certain extent.

In the context of the theory-practice and practice-theory gap, the students believe that it is possible to close the gap. Communication between the lecturers and clinical instructors with the nurses can help the lecturers and clinical instructors to update themselves with current practice. One student further submits that being aware of current practice can help lecturers and clinical instructors compare clinical and theoretical knowledge and decide how to consolidate it. This will allow the delivery of correct information to the students, which aligns with current practice.

> *…but they also need to update themselves. For example, they should talk to some of the sisters in the ward; get updated information. Then it will be easy for them to compare the information they have with the information that they get from sister to see if it's the right one* **(Second year 1).**

Even nurses see the need to bring all four parties involved in the development of competence process together. Such a platform will allow for a discussion in which students will share their perceptions making it clear how the nurses, lecturers and clinical instructors maybe differing. The concerned parties can make efforts to come up with strategies to correlate theory and practice and practice and theory.

> *On some occasions, we call for clinical meetings to try to deliberate on issues affecting the learners. Students are given an opportunity to share their views on how they see the learning process. The nurse managers and lecturers also attend. I think we are getting there* **(Nurse 4).**

Unfortunately in practice it seems the communication between clinical instructors and the nurses is not as good as it should be. Nurses suggest that there is poor coordination between them as nurses and the clinical instructors who act as a link between theory and practice. Clinical instructors take students away from the nurses when they do clinical teaching and nurses are not part of the deliberations. Consequently, there is no significant communication about the students learning progress with the nurses and the

nurses feel their teaching efforts are not recognised and that they are not part of the teaching team.

Well let me start with the clinical instructors, when they happen to come they mostly do not involve the clinicians. They just come there and say 'morning, morning' and then they call the students for a caucus and I continue with whatever I am doing. At the moment, there is no amalgamation of the clinician, the students and the clinical instructor **(Nurse 1).**

Students also think that the clinical instructors should involve the nurses in the monitoring of student learning. They consider nurses key in assessing student learning progress, identifying student weaknesses, and finding ways of helping them improve.

The clinical instructors can work more together with the nurses in the wards so that they can see where the students are lacking because the nurses understand more where the students are lacking. So the clinical instructors make the effort to find where they can improve. So by going to the hospital that can make very good improvement in helping students learn **(Fourth year 5).**

4.9.2 Clinical learning support

The experience of support for learning in clinical practice varied among students. Some have experienced lack of support during their early years of training and gradually see that improving as they progressed with their studies. Students strongly feel that the early years of their education are most challenging hence they need clinical support more from the facilitators In addition, as the students' progress, they felt they needed little assistance for their learning from the nurses

That is the point in the first year they just look at you as if you are a baby, they cannot send you to do many things because some of the things you don't know. The relationship was not as good as it is now. Then, they felt like we are a liability to them. Therefore, they could not involve us in the learning. They just send you, bring that, bring that, but learning nothing. They were scared that you might cause things to go wrong **(Fourth year 3).**

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Nonetheless, nurses feel they do not neglect first years, but treat them according to their level of study. The scope of practical learning in first year is limited, so students find themselves having limited procedures to learn and practice. This may make students feel neglected.

> *I (am) not sure, but maybe they want more attention. But in first year there is nothing much to be done, not much practical work to do because they are still beginners, they are not allowed to do dressings, injections. They are allowed to do bathing patients, bedpans and urinals. So maybe for them they feel like they are being denied a chance to practice and learn. But their skills are limited when they come. I take them I don't give them too much responsibility* **(Nurse 7).**

> *…and from the first year as I said before, the level of understanding and the experience is very, is little, it's a bit shallow. They do not do much, but when it comes to senior students, we tend to focus on them and prepare them to tackle the job that is ahead of them* **(Nurse 6).**

In contrast to the nurses' lack of clinical support to first year students, the lecturers and clinical instructors tend to provide support that is more clinical to the students in first year than in later years. It seems as if the students develop in their knowledge, the clinical instructors and lecturers indirectly send a message to the students that they should take more responsibility for their own learning.

> *Actually, in the first year, they were like very close to us. They were like behind us every time to do something, but now it's as we are seniors and we are supposed to be on our own, they really don't pay much attention* **(Third year 10).**

The facilitators' approach to students in the early years of training helps students develop the view that they can only learn if the facilitators are there. Facilitators consider students to be still adapting in first year but they will reduce the level of support when students get into the second year.

> *…when they are first year we are very much supportive because for me it's like they're still working through an adaptation process because most of them have*

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*not been really in the college area. So they really need much support not to mean that we are not supportive in the second (year) but when it comes to the second year I let them to be more on their own **(Lecturer - 4).***

However, some students bemoan the unavailability of the lecturers and clinical instructors in the clinical area. The presence of clinical instructors and lecturers in the clinical area is of importance for students learning. Students expect their facilitators to follow up their theoretical and simulation teaching with real practical teaching in the practice area, however this rarely happens. Alternatively, if they follow students, they may focus on issues that are more non-academic like commenting on the uniform.

*Clinical instructors and lecturers teach in class and make you understand but they are not really contributing much when you (are) in the clinical allocation. Most of the time we are just there but they will never show up. It helps when they come to the clinical area and then do certain procedures with us, but it rarely happens **(Third year 10).***

*Sometimes they do, sometimes they don't really help us to learn. They are supposed to follow us in the clinical area but they don't always come, sometimes when they come, it's just to ask us, why we are not in proper uniform without helping us learn anything **(Second year 2).***

Instead, the nurses do most of the clinical teaching; hence, the students are at greater ease learning from the nurses as compared with the clinical instructors and the lecturers.

*So now coming to the lecturers and the clinical instructors maybe, they have so many responsibilities. But I'm expecting them to come more often, to come supervise and do some procedures with us, but that seems not to be happening. Nurses are always in the ward so they really help us; so we tend to be more comfortable with them **(Fourth year 1).***

On the contrary, not all students are concerned with the lack of adequate follow up by the clinical instructors and lecturers. They consider their efforts as their best under difficult circumstances of staff shortages.

> *They are doing everything they can. They're doing their best because I can see the lecturers or the clinical instructors, its hard for them to follow students, it's really hard. But they're trying their best to make sure that they come to you just do some things and teach you something that you don't know* **(Fourth year 4).**

One student clearly indicated that lecturers and clinical instructors met his/her expectations of them. He/she described them as being accessible every time when needed for learning purposes. This shows that it doesn't bother the students when the lecturers and clinical instructors are not available in the clinical teaching arena.

> *They are always there and always give me what I'm expecting of them, they are always helping me so I don't think there is a problem with that (***Third year 3).**

4.9.3 Role of the facilitators

The facilitators viewed their role in teaching students as similar but they carry it out differently and in a complementary manner. The lecturers align their role with theoretical teaching putting emphasis on the fact that the theory should be linked with practice, which is mainly taught by the clinical instructors and nurses.

> *I don't see my role different from the clinical instructors or the nurses in practice because that is what I always tell my students, as well that the theory and the practice are to be linked together* **(Lecturer 4).**

The clinical instructors share the lecturers' sentiments and consider any difference in their roles as insignificant. The presumed difference is that lecturers teaching focus more on the cognitive domain of teaching while instructors and nurses focus on the psychomotor domain.

> *There is not really much difference. May be the difference is just as the staff in the clinical area our role more or less the same except now for the lecturers they*

are more like teaching theoretical part more on cognitive. Mine is more on technical on the skills what they have been taught theory, so I have to show them how to do them what they have learned in the theory. So most of my work, I work with clinical staff more or less the same, may be a bit different with the lecturer, they teach theory and that is what students are supposed to go and carry out in their clinical practice (Clinical instructor 1).

The nurses also agree with the views of the lecturers and clinical instructors regarding their roles. Nurses readily accept the responsibility of providing clinical teaching for students, but they acknowledge that they have a heavy workload and this makes it difficult for them to perform the clinical teaching role.

I think we share the same role, but ours is affected by shortages, which plays a vital role. We are supposed to share responsibility with students getting theoretical learning from school and practical from here but with the workload, it is difficult. It is very busy and challenging (Nurse 9).

The students and the clinical instructors agree that nurses don't have adequate time to teach students because of nurse shortages in the wards. The clinical instructors even acknowledge that there is a gap in terms of clinical teaching for students. The clinical instructors cannot be in the clinical area all the time and simultaneously the nurses cannot fulfil this role as expected.

It's not always, especially the sisters (registered nurses), sometimes some sisters they don't have time for example if the ward is busy they don't usually teach you how to do things because for me being a third-year it doesn't mean that I know everything in practice. There are things that I don't understand that need answers. But when you go into practice people are too busy, there is shortage so they make sure that they stay away from students (Third year 4)

Their role is just to assist, but unfortunately, when it comes to number of the qualified nurses we do have a shortage, so I do not know. It's very hard may be in the near future (we) will be able to close the gap (Clinical- instructor 2)

Given the two competing duties of teaching students and caring for the patients, nurses will always prioritise nursing care. The nurses feel that this situation is unfair on students and one even suggested that there should be someone responsible for teaching students other than the nurses themselves.

> *They affect students learning in a way that they really don't get what they are supposed to get from the clinical area, but at least if there was someone who is patient to teach students in the clinical area because for us it's too much. My primary responsibility still lies with the patient so that is the problem. We try to be helpful, to try and coordinate and orient the student in clinical and also to transform this theory the student comes with, to turn into practical so that they are able to actually put the theory into practice without being confused as to how things are happening differently from what they are supposed to* **(Nurse 2).**

Nurses feel that the lecturers and clinical instructors can reduce the theory-practice gap by following up students and actually teaching them how to do procedures in the clinical area. By increasing the amount of time they spent in the clinical area, lecturers and clinical instructors can help ease the teaching load. Also nurses want to see clinical instructors and lecturers actually teaching students and not just coming to see them.

> *It is not adequate at all because the lecturer or clinical instructor should come in, do the procedures, and show students how things are supposed to be done. They hardly do that. They just come and see if students are there and they go. So that is making the job difficult for us because they are not helping us so it means that students in the clinical area become our sole responsibility* **(Nurse 7).**

In addition to the staff shortage, nurses consider themselves less empowered to manage students in the teaching and learning process especially on issues related to their behaviour. The nurses see students as difficult to manage, and that compromises their capacity to facilitate learning.

> *It's very true that when students are in the hospital, they are under the control of the nurses, but sometimes it becomes very difficult for a nurse to give instructions to students because they are difficult* **(Nurse 5).**

In addition, nurses feel that there is no clear understanding of how they can work together to support student learning because there is poor communication between them and the clinical instructors. Nurses see their relationship as embroiled in confusion and this confusion impacts negatively on student learning.

> *Therefore, I would think that as much as we sometimes come and work together. I'm not sure if we really understand each other. So in terms of how do I hand over to the lecturer or clinical instructor after having been with the students because I do not have any reports that I give* **(Nurse 7).**

> *…there is confusion between the clinical instructors and me. We really do not communicate openly and then I think somehow it affects students' learning* **(Nurse 8).**

Despite the apparent challenges nurses face in fulfilling the teaching role, the students and clinical instructors want them to do more. The instructors insist that it is within the scope of practice of the nurses to teach students, so they have to find ways of sharing the roles between patient care and teaching students. Furthermore, the instructors suggest that nurses should teach students and nurse patients concurrently rather than separate the two.

> *No but- I say no because if it was me looking at it, it is a matter of dividing responsibility. Even though the role of nurses is more of patient care, under their scope of practice, again there is a section to train the juniors. If it is administration of medication then the student has to follow the nurse to see how the medication is being administered. Alternatively, if the student is administering medication the nurse is looking to see how the student is doing and they don't need to give that patient the medication again* **(Lecturer 3).**

Nursing students also support the view of the lecturers and clinical instructors they suggest that nurses want students to take part in nursing care without teaching them. The students want nurses to teach them first how to practice.

In addition, the nurses they expect you just to do things without necessarily showing you how they are done. So I feel as much as they do (teach) us sometimes they can do more to help us, like more follow-ups and demonstrations on how to do the procedures (Third year 8).

The students feel the nurses focus more on getting their patient care work done, or are not actually comfortable with teaching students even if they have the time to do so.

Maybe they are also afraid, some of them. They just want to finish the work and some of them; they just do not have time for students. Some of them have a lot of work; some of them are under pressure. I really understand, but those ones who have time and don't want to show students have a problem (Fourth year 2).

In the midst of the clinical instructors and nurses shifting the blame on each other, they also think students can do more. The instructors are of the view that students are not self-driven; they want to be spoon fed waiting for the clinical instructors to demonstrate everything to them. Students should take more responsibility for their learning.

I think they do understand but I think on the other side they either take advantage of the clinical instructor because it seems like they tend to relax waiting for you to show them everything. When they go to the practical, they don't, they are not proactive, it's like you owe them, to teach all the content. But it's not supposed to be like that, they should be kind of on the lookout to learn on their own rather than think like we have to teach everything to them (Clinical instructor 2).

Nurses are also of the opinion that students should initiate the learning process and not the other way. One nurse suggested that if students do not approach her for help with learning, she/he would think the student has the knowledge because some students go to the clinical area the sake of going and not learning.

Normally, I help the one who comes and asks, wanting to know. If you don't come to me, I just leave you like that. Like others just come to show their faces around and do nothing (Nurse 5).

While there seems to be a good understanding of each other's role among the facilitators, the same cannot be said about their understanding in terms of how they go about the teaching. However, some lecturers are of the opinion that clinical instructors should leave both theoretical and simulation teaching to them. They suggest that clinical instructors should teach clinical practice in the clinical area. The lecturers suggest that their teaching already covers most of what the clinical instructor teaches in simulation, so that makes it a duplication of roles.

> *Yes, I am saying that they should leave that to the lecturers; the teaching of theory and practice in the classroom then the clinical instructor does the teaching in the clinical area. I am talking about this because as I teach in the classroom, I also teach the practical side so there is no need for the clinical instructor to repeat what I have taught* **(Clinical instructor 3).**

This is in contrast to the belief of clinical instructors who think lecturers are not well equipped for clinical and simulation teaching. Nevertheless, in describing how the clinical instructors facilitate learning, the repetition of what the lecturer teaches is evident.

> *The lecturers just focus on the theory. They don't have anything when it comes to practical that's my personal view. Then on the other side as a clinical instructor, I don't really just focus on practical only. Let's say if I have to teach them how to administer the blood components for me I still have to do the theory part to make them understand what are the blood components. Indications whatever, contraindications, until we get to the practical part. So for me I actually rather do theory and practical rather than just jump in because this is where you can relate. Start from the basics* **(Clinical instructor 2).**

4.10 Conclusion

In this chapter, the findings of the study were presented. The students' conception of the learning processes that best support the development of competence was presented in an outcome space. Five categories of description formed the outcome

space, which was formulated using the structure of awareness. These categories of descriptions are,

- Category 1: Competence as task completion
- Category 2: Competence for assessment /to satisfy facilitators
- Category 3: Competence as applying theory to practice
- Category 4: Competence as per clinical standards/guidelines
- Category 5: Competence as positive outcome

The findings addressed the first five objectives of this study, which are,

1. To identify and explore learning processes that best support the development of competence among nursing students in Namibia.
2. To describe the views of the students as to what they see as the role of lecturers and clinical instructors in the learning processes that best support the development of competence.
3. To describe the nurses' in practice views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia.
4. To describe the lecturers' and clinical instructors' views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia.
5. To develop a model on the development of competence in student nurses and to validate the model with a group of experts in nursing and the field of health professions education.

The fifth objective is a product of the data and the interpretations derived from the data, hence it is addressed in the next chapter, under the model, which was developed based on the data above.

CHAPTER 5: DISCUSSION

5.1 Introduction

The purpose of this study was to identify the learning processes that best support the development of competence among nursing students in a DNMS programme. This study used phenomenography as a research methodology to explore students' conceptions of learning from the perspective of the students. In particular, the focus of this study was to examine how learning experiences informed students' learning processes in the development of competence. The findings described in Chapter 4 indicated that the students' learning processes or experiences of the development of competence were associated with five categories of description. Each category of description represents a conception of learning that is the students' experiences of the learning process. Each conception of learning is based on the students' level of awareness of the phenomenon of competence. This chapter presents a discussion of findings and their relation to the literature, the interpretations of the findings and their implications for learning.

5.2 Context of the discussion

According to phenomenography learning theory, for learning to occur the following should be in place: direct object/ referential aspects and structural aspects made up of the internal and external horizon (Marton and Booth, 1997). The internal horizon is made up of the indirect object and the act of learning. In short, the anatomy of awareness alluded to in earlier chapters is important in framing this discussion.

5.3 Development of competence: learning process

This study demonstrated the links between competence, conceptions of learning and outcomes associated with a certain level of competence. Firstly, the study showed that competence has different levels or stages, which is consistent with earlier studies by Benner (1982); Dreyfus and Dreyfus (1980) although these studies were conducted in qualified nurses. Secondly, the findings proved that students' conceptions of learning were directly linked to a particular competence level-learning outcome). Students stated that they applied learning strategies that supported the level of competence they wanted

to attain. A similar relationship between students' learning experience and the learning outcome has been described in the literature. The students' conceptions of learning align with what they hope to achieve in learning (Marouchou, 2012). Such correlation has previously been established by Beaty, Gibbs and Morgan (1997) and Marton and Saljo (1976). The findings concur with the previous studies, which specified that learning should be directed towards patient outcomes (Donnelly, 2014). Thirdly, this study supports earlier evidence, which indicated that there is a relationship between students' conceptions of learning, the learning approach and the quality of the learning outcome (Entwistle and Peterson, 2004). Bowden and Marton (2003) further stated that the quality of the outcomes of learning is functionally related to the approaches adopted by the learners. Marton vindicates this understanding by stating that,

> '…an alternative way of thinking about learning is to realise that what is learned (the outcome or the result) and how it is learned (the act or the process) are two inseparable aspects of learning' (Marton, 1988:33).

Therefore, this discussion will explain these relationships and interpret how they contribute to the development of competence among students.'

5.4 Category 1: Competence as task completion

This category represents the least sophisticated conception of learning. Students understood competence as task completion; hence, students performed nursing and learning responsibilities with the goal of getting the job done. Similar findings are documented in the literature where students enter nursing with a goal of being able to complete psychomotor nursing interventions such as the administration of medications and basic care activities (Donnelly, 2014; Ironside, McNeils and Ebright, 2014). Students lacked the understanding and implications of their actions at this stage; their focus was on getting the job done. Scully (2010: 95) refers to it as "merely doing a task and not learning to do it". In agreement, Benner (1984) described it as novice practice where one performs the task without full understanding and abilities to reflect. Furthermore, Benner (1984) stated that it is normal for nurses who are practicing for the first time to focus more on technical skills.

Because students' understanding of competence was shallow, their conceptions of learning were simple and less complex. Students experienced learning as familiarisation and memorisation of isolated pieces of knowledge and skills. Marton and Säljö (1976) best describe learning this way as a surface approach to learning which agrees with the description. Biggs (1987) and Biggs (2001) further assert that surface approaches to learning are associated with memorised information that is not well understood and difficult to use in reality. This type of learning explains why students' performance was concentrated towards completing the task because the tasks are seen as learning objects without having any connections (Raij, 2000).

The findings also show that students had trouble in learning and had a shallow understanding of nursing. Investigations into the relationship between students experience and understanding of learning reported that students with a poor understanding of learning face difficulties (Biggs, 1999). Adopting surface approaches to learning is a coping measure, which leads to attaining a level of performance that is good for task completion. To sum up, the findings of this study can best be explained by saying that the students' drive for learning, which was basic task completion, matched the surface learning approach (Chan, 2013).

Furthermore, the early exposure of students to the clinical area can explain the conception of passive learning. In their early clinical experiences, students realized that they needed to know more to participate in many nursing activities. The findings show that clinical nurses described the students as having very little knowledge and skills and therefore could not do much in the clinical area. In agreement, one study shows that some nursing students felt they were not allowed to do practical skills, except to observe the nurse working (Jansson and Ene, 2016). Being denied a chance to practice created pressure on the students and they responded by accumulating as much knowledge as possible hence the adoption of learning strategies that quickly promote passive gain of knowledge. This interpretation corresponds with the work of Chan (2013) who urges that surface learning approaches are inspired by the aspiration to curtail effort while completing allocated learning responsibilities. The findings are also consistent with an array of evidence, which contends that increased workload pushes

students into superficial learning (Bowden and Marton, 1998; Hendricson and Kleffner, 2002; Prosser and Millar, 1989; Ramsden, 2003; West and Sadoski, 2011; Wilhelmsson, et al., 2011).

The findings suggested that students studied or observed clinical procedures to familiarise themselves with the information or the procedure but without understanding. Students conveyed that they could not explain the meaning of what they read and in some cases, once they used the information they would forget it. Students tended to be passive, receiving information from the facilitator via presentations and demonstrations. Gow and Kember (1990) substantiate this learning activity, by stating that too much content and dominant use of lecturing pushes students into surface learning approaches (Mirghani et al., 2014). Studies have shown that effective teaching includes teaching students how to learn (Ramsden, 1987) However, students are rarely taught how to learn, and this could explain why students have difficulties early in their learning programme.

The use of logbooks as a teaching tool is meant to gather students learning experiences, but in this study, students perceived that completing the logbook was more important than the learning experiences. This view by students is not surprising considering that completing the logbook is a requirement for progress from one year of study to another and for graduation. This kind of practice among new students can be explained by the lack of clinical reasoning and critical thinking skills (Benner, 1984; Benner and Tanner, 1987).

The students' conception of learning in this category parallels categories identified by different authors of other phenomenographic studies. Säljö and Marton, (1976:8) and later Marton et al., (1993:277) found that biology student teachers experienced, "learning as a quantitative increase in knowledge" and "learning as acquiring information or reproduction". Other related conceptions were the first three conceptions by business students from a study by Marouchou (2012): receiving knowledge, memorising and lecturer as a role model, which are in line with the students' conceptions in the first

category in this study. Similarly, nursing students' conceptions in this category resonate with the first category of Raij's (2000) categories of acquiring information.

Similarly, the learning process in this conception corresponds to assimilation described by Piaget (as cited in Inhelder, Chipman and Zwingmann, 1976) where the students add new information to their existing schemata without the need for further processing. Biggs (1993) explained this approach as a quantitative addition of information, without profoundly engaging with the focus on completing the task in the most straightforward manner possible. Learning this way should be considered as a means to an end and not the end because it does not culminate in meaningful learning (Baartman and de Bruijn, 2011).

At this stage, it was not apparent how assessment affected students' experience of learning. However, the role of the facilitator is seen to influence the students' approach to learning. The findings show that the use of facilitator-centered approaches to learning was associated with this category, with students adopting a learning approach that responded to the teaching method. The findings confirm that students' perceptions of teaching affect their learning approach (Trigwell and Prosser, 1991). Similarly, facilitator-focused strategies encourage students to use a surface approach to learning (Trigwell, Prosser and Waterhouse, 1999).

In this category, passive learning that is characterised by an accumulation of information and familiarisation with the practical procedures supported the development of competence. Competence in this category is equated to task completion.

5.5 Category 2 : Competence for assessment /to satisfy facilitators

In this category, students' perceptions progress to the understanding of competence as passing assessment tasks. The shift in understanding is supported by Åkerlind (2008) who explains that people's experiences of various components of phenomena vary at a given time. In this conception, students' poor performance or desire to obtain good grades may have stimulated the shift to focus on assessment. The conception at this stage is more complicated than the conception in category one. Students experienced at least two aspects associated with competence, task completion and meeting

assessment requirements. So category two is inclusive of category one. To support this point Marton et al., (2003) attested that the more students experience simultaneous variation in several aspects of a phenomenon, the more valuable the learning experience.

This category demonstrates the effect of assessment on learning. It is known that assessment plays a significant role in shaping students learning, such that any shift in assessment style will result in an alteration in learning strategy (Marton and Säljö, 1976; Sternberg and Zhang, 2005). According Aiken et al. (2003) and Kendall-Gallagher and Blegen (2009) assessment of students' learning is essential in making promotion decisions about students. Consequently, it is inevitable for students in a learning programme to value assessments as progression depends on assessment grades. For example, in this study students felt that practical examinations the objective structured clinical examination (OSCE) tended to be graded more based on what they said rather than on what they did. The signal to the students is that passing the OSCE requires one to memorise and recite the marking tool; therefore, students adopted surface learning approaches that allowed them to remember or recall.

Likewise, other findings explain that if students consider assessment demands as less demanding, they apply surface learning approaches (Scouller, 1998). On the other hand, if the examination is assessed at a deep level students adopt a deep approach to learning (Scouller, 1998; Trigwell and Prosser, 1991). Students in this study explained preparation for assessment as being associated with acquiring as much information as possible in a short time. Assessments prepared for in this manner likely lack substance, promoting students to apply a surface approach to learning (Frederiksen and Collins, 1989). The findings also affirm that assessments generally tend to promote surface approaches to learning (Baeten et al., 2010).

The data also suggests different ways of performing similar tasks depending on whether it is the lecturer, clinical instructor or the nurse assessing the student. Students experienced that different facilitators had different expectations of how various tasks should be performed. Such a variation among the lecturers, clinical instructors and nurses has been found to be normal because they all experienced their learning

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differently (Hartigan-Rogers et al., 2007). The students perceived that clinical instructors and lecturers expected a direct systematic performance contrary to nurses whose performance was not systematic because they could skip some of the non-essential steps or combine some of the steps. Subsequently, students learnt to be strategic in performing nursing activities so that they could please whoever was assessing them. Students tended to predict what faculty would test and made sure they prepared to have adequate information to answer the questions successfully (McNelis et al., 2014). Students can predict the perceived assessment requirements and as a result change the approach to learning to meet the assessment expectations (Gielen, Dochy and Dierick, 2003). The differences in practice standards among the clinical instructors, lecturers and the nurses can be attributed to the theory-practice gap, and it leaves students with a dilemma of whom to follow and what to learn (Ajani and Moez, 2011; Numminen, 2015). The call by students for the facilitators to communicate and agree on practice standards suggests that students find it difficult to cope with learning when there is no continuity of theoretical and clinical learning. Papastavrou et al., (2010) found that this lack of continuity of learning can complicate the students' ability to learn effectively.

Students did not just see assessment as the end of their learning; they saw it as an opportunity to learn better and learn from mistakes. Some students articulated that it was possible to pass assessments without being competent; this confirms the need for validity, reliability and objectivity in assessing for competence (Levett-Jones et al., 2011). After passing the assessment, students went back to study with a focus on understanding. This action by students is in favour of the suggestion by Biggs (1999) that some students adopt specific learning strategies not because of the facilitator or assessment requirements but because of factors related to them. On the other hand, if students failed in some assessment items, it helped them to realise what they didn't know and offered opportunity for them to go back and relearn. Al Kadri, Al-Moamary and van der Vleuten (2009) state that learning is one of the purposes of assessment.

To some degree, the students' conception of learning in this category equates to category 3 of Säljö and Marton et al.'s conception of learning; "Learning as acquiring

facts, skills, and methods that can be retained and used as necessary" (Marton et al., 1993; Säljö, 1979). In this case, the information is used for assessment purposes.

5.6 Category 3: Competence as applying theory to practice

In this category, students' conceptions are more profound than focusing on task completion as in category 1 and passing assessments as in category 2. The focus of awareness in this category is on the application of theory to practice. The students conceptualised learning as preparing them for clinical practice where they could use their theoretical and procedural knowledge, skills and values. This is consistent with Stanley and Dougherty (2010) who found that nursing students get to a point where they focus on the application of knowledge in practice rather than acquiring theoretical knowledge only. The students experienced that in order to apply theory to practice they needed to understand the theory. Understanding competence this way differs from mere task completion in category one because students begin to display deep thinking. For that reason, students understand competence as the ability to apply theory to practice successfully.

The findings of this study show that learning which promotes the application of theory to practice requires understanding. Students described how they studied for understanding, trying to link different parts together so that they could apply theory to practice. Integrating theory and practice is a form of learning where theory is modified to suit clinical problems. The use of theory in practice is demanding and takes time as compared to memorisation (Takase et al., 2014). The students' conceptions in this study are similar to the description by Entwistle and Ramsden (2015). According to them, students who are meaning oriented want to learn for understanding. Learning for understanding involves seeking meaning as a learning strategy (Biggs, 1987). Rohrer and Pashler (2010) reported that learning was most effective when studying was distributed over long periods.

 In this study, students found videos and simulation necessary for learning because it gave them insight into the clinical practice and improved their understanding. There is evidence showing that simulation improves learning outcomes as it makes students feel ready for clinical practice (Holland et al., 2013; Richardson and Claman, 2014).

Additionally, Jeppesen et al. (2017) found that simulation improves nursing students' understanding. However, in actual practice, students did not always find it easy to apply theoretical and simulation knowledge. This finding serves as confirmation that while simulation can help students to develop competence it is insufficient in addressing all learning needs due to the complex and challenging nature of the clinical environment (Helmich et al., 2001; Kajander-Unkuri et al., 2014; Pai, 2016). Similar research has shown that when nursing students found some situations, which correlate to what they learnt in simulation/ theory, it was easy to apply their knowledge to the clinical area (Kuiper et al., 2008; Perkins and Salomon, 1989). Illeris (2004) referred to this as cumulation, where information is kept in independent mental models and is easily retrieved and used in situations similar to the learning setting.

The students' conceptions revealed that application of theory to practice was not always easy, as raw theoretical or simulation knowledge could not directly address some clinical situations. Another previous study indicated that students experience a disconnection between what they learn in theory and what they learn or are expected to know in clinical practice (Ajani and Moez, 2011). Students fail to transfer theory into when there is a theory-practice gap (Benner et al., 2009; Tanner, 2006). Findings of this study showed that students experienced the theory-practice gap differently. Some students resisted learning new knowledge in the clinical area while some looked at the clinical area as a place to learn new things. A study by Scully (2011) confirms that a disconnection between theory and practice could lead students to either disregard theory as being immaterial or becoming disenchanted with nursing practice. The dissonance created by the theory-practice gap makes it difficult for students to learn, as a result they choose to refer back to the theory (Donnelly, 2014) as conceptualised by some students in this study.

The students who conceptualised the clinical environment as a source of learning displayed learning by assimilation. In this learning, students brought their theoretical knowledge and the clinical knowledge together and started constructing mental models that could solve the clinical problem (Illeris, 2004; Piaget, 2015; Posner et al., 1982).

Besides assimilation, students' conceptions in this category can be linked to Mezirow's (2000) transformative learning theory. Students' theoretical knowledge forms their frame of reference, and students could not readily change their frame of reference to consider learning driven by the clinical practice. There was a tendency by students to go back to the classroom and simulation to find answers. Past research by Benner (1984) which explained that skills performance demands that a student shifts from abstract understanding to concrete experience confirms the findings of this study. It means that students had to move away from relying on theoretical knowledge and start constructing clinical knowledge.

The level of sophistication in the act of learning increases from one category to another. In category 1, the act of learning is relatively passive demanding little time and the object of learning is intended for immediate use. Superficial reading, passive listening, passive observation and making no sense of a task during performance characterised the experience of learning in category 1. Conceptions in category 2 included the experience of learning in category 1 and any other acts of learning as motivated by the requirements of assessment or supervisor. The act of learning was mostly unpredictable, but data suggested that clinical examinations in the form of OSCEs demanded superficial learning. Conceptions in category 3 include all acts of learning in categories 1 and 2 as well as deep learning. As opposed to a surface approach to learning, the act of learning was experienced as reading for understanding, active listening, observing and practice with effort to make sense of what one is doing. Although learning in this category is beyond the surface approach, it falls short of being intensive enough to support the development of competence.

Learning in this category approximates to several categories of learning uncovered in previous phenomenographic studies in various fields. Category four of Säljö's (1979) study with participants from various fields described, "Learning as making sense or abstracting meaning and involves relating parts of the subject matter to each other and to the real world" which describes learning for understanding. In another study on student nurses, Raij (2000) developed a category called 'dealing with information', which involves comparing theory and practice, which has been demonstrated by

students' conceptions in category 3 of this study. In addition, Marouchou's (2012) study of business students explained one of the categories as "learning through involvement and through understanding the subject". This category is consistent with category three of this study's findings as it involves understanding and utilisation of information in practice. Furthermore, Zakari, Hamadi and Salem (2014) support this by describing it as the learning of what and why; where students want to understand how things operate in real life practice.

However, the findings of this study showed that students failed to transfer knowledge from theory to practice and from practice to theory. There is literature supporting failure of transfer of learning from theory to practice (Disher et al., 2014; Hallenbeck, 2012; Murray et al., 2008). On the other hand, there is no evidence relating to the transfer of practical knowledge to theory. The logical explanation for this is because theory is considered as the guide for practice. Such ideology needs to be reviewed if nursing education is going to promote complete integration of learning.

5.7 Category 4: Competence as per clinical standards/guidelines

In category 4, the focus of awareness was found to have expanded with students considering competence not just as the ability to apply theory to practice, but doing so according to relevant standards and guidelines. This conception parallels the findings of Sedgwick et al. (2014) and Donnelly, (2014) which uncovered that nursing students consider competent practice as the one that complies with hospital standards and policies. Failure to apply theory directly to practice and the realisation that some aspects of practice were not covered in theoretical and simulation learning drove students from category 3 into category 4. The study revealed that the more students became familiar with the clinical practice, the more they became aware of clinical practice requirements. Consequently, students started to consider the clinical area as a vital learning environment and not just a place for applying theory. Dante et al. (2011) affirm that the clinical environment is an opportunity to learn more skills and knowledge and is not just a place of practice. Dante et al. (2011) goes on to state that the difficulty in using theoretical knowledge to solve clinical problems, compels students to see the clinical

practice as a learning environment, where theoretical knowledge is integrated with clinical knowledge.

The act of learning in this conception aligns with deep learning and self-directedness. Students' conceptions illustrated that continued exposure to situations where theory fails to approximate practice activated their desire to start learning from practice. Chinn and Brewer (1993) affirm this by saying that when discrepancies exist between the new information and the existing mental models, a new way of learning is sought. The new way of learning is best described as accommodation, which can be applied when theoretical knowledge alone cannot solve the clinical problems (Hager and Hodkinson, 2009). According to Illeris (2004), learning by accommodation occurs when new knowledge doesn't fit into existing mental models, so the mental models are partly fragmented to be able to connect with the new information. The study findings conveyed that students started learning from the clinical practice setting, generating clinical knowledge. Learning in this way resembles active /deep learning.

A consideration of standards as a guiding principle for clinical practice uncovered by this study suggests that students' frames of reference had changed from theory to practice. Such alterations in the frame of reference echo the ideals of transformative learning as espoused by Mezirow (2000). Mezirow contends that a change in frame of reference cannot happen without reflection, and the students' experiences revealed that students reached a point where they could detect the weakness in their theoretical approach to practice. This conception by students resembles an act of reflection, which Schön (1983) contends that, without reflection, it is impossible to consolidate theoretical and clinical knowledge. Significant learning that could close the theory-practice gap can occur at this stage if the students reflect competently. Students have two groups of facilitators; nurses in the clinical area on one end and lecturers and clinical instructors on the other end. The nurses approach nursing practice from a practical point of view while lecturers and clinical instructors approach nursing from a theoretical point of view. If students can take control of their learning, they could use the two different approaches to create a better-integrated understanding of nursing.

Regarding self-directedness, the students' experiences uncovered that the measure of their success is not an assessment or application of theory to practice, but doing so to the required standard. Previous research suggested that students get satisfaction if their learning helps them perform to a standard they consider important or acceptable (Biggs and Tang, 2011) Furthermore, the data showed that understanding of standards helped students appreciate their responsibility in nursing and hence they developed the ability to self-evaluate. These findings are consistent with the literature, which describes self-assessment as a process that requires skills in identifying self-ability in comparison to the expected standards (Dearnley and Meddings, 2007). The findings also demonstrated that students conceptualised self-assessment as important in developing competence because they were not assessed on every act of practice. Besides, for self-assessment to be valuable students appreciated the need to compare their practice against standards. Going about learning in this way emboldens metacognition and is effective in promoting deep-level learning because it encourages reflection of students' own practice (Brown, 2004). Because of self-evaluation, students were able to realise that learning for clinical practice goes beyond the bounds of the curriculum as the curriculum fails to cover all aspects of clinical practice. The students began to align with clinical nurses rather than their lecturers or clinical instructors.

These findings correspond with those of other phenomenographic researchers such as Marton et al. (1993) and Raij, (2000). Category five of Marton et al. (1993) elucidated learning as seeing something differently. This category is in agreement with the students' conceptions in this category where learning involves reflection-allowing students to see their practice differently. Similarly, Raij (2000) had a category "reflecting and interpreting" which aligns with students' conceptions of learning in this category.

In summary learning processes in category 4 are inclusive of the learning processes in categories 1, 2 and 3. Assimilation, accommodation, reframing of the reference of mind, reflection and self-evaluation are the learning processes discovered to support the development of competence in this category.

5.8 Category 5 : Competence as positive outcome

Students' conceptions in category 5 represent the deepest level of awareness experienced by the students in this study. The findings suggest that students understand competence as a performance that yields positive patient care outcomes. Previous research supports the finding as it showed that students were concerned about their patients and they were happy when patients' conditions improved (Raij, 2000). In general this conception includes the other categories; as nursing tasks must be completed (category 1), assessments must be passed (category 2), and theoretical knowledge must be used in practice (category 3). The application of theory to practice in nursing must be done according to practice guidelines and standards as conceptualised in category 4 and result in positive patient care outcomes. Conceptions in category 5 are in line with the goal of nursing education, which aims to produce graduates who can positively influence healthcare outcomes (Tilley, 2008).

Students have always been in the clinical area but they could only understand nursing to the level of the responsibility that was assigned to them. These findings are consistent with Brammer's (2006) who posited that students cannot develop a full responsibility for nursing practice if they are always supervised and not allowed to practice independently. Raij (2000) indicated that student nurses with more experience were allocated more responsibilities and participated more as members of the nursing team. In a study by Chong et al. (2014), it was demonstrated that greater responsibility for patient care means that isolated nursing interventions such as wound care became part of overall care. With limited supervision of the students, it is very probable that students saw the need for deep learning. The students expressed the need to seek own understanding of practice. This allowed students to see what they described as the full picture of nursing practice. Consequently, students discovered that their level of knowledge and skills were not adequate to solve the clinical problems and more importantly to facilitate patient recovery. It appears that it is at this level when significant learning that supports the development of competence occurs. Benner, et al. (2010: 98) stated that; "It's what they learn after they know it all that counts". This statement asserts that the full understanding of the responsibilities of a professional nurse drove the students' learning process in this category.

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Expansion of the scope of understanding of nursing means that students begin to see themselves more as professional nurses. This change relates to the learning process of transformation of the habit of mind described by Mezirow (2000). The students started learning as professional nurses rather than as students. When students experienced situations that they didn't learn in class or were outside their curriculum the students gathered more information through personal study and consultation in order to solve the problems encountered. Students' conceptions showed that they were able to analyze clinical practices, select relevant information, verify its usefulness and integrate information from various sources to manage patients. Learning in this way involves the use of problem solving and critical thinking skills, which are not explicitly taught. According to Paliadelis and Wood (2015), the desire for students to perform at the level of the professional nurse triggers deep learning. The students stated that they had to reflect in and on their practice, which also required them to self-evaluate their performance against patient outcomes. Maynard (1996) explained real reflection as something that is stimulated by a personal need to comprehend and know more. The students wanted to learn more, beyond their curriculum dictates. This finding supports the previous findings on the role of reflection in deep learning approaches (Schon, 1983). Literature also highlights the role of preceptors in helping students engage in reflective learning (Duffy, 2009), but in this study most of the reflection among students was motivated by deeper understanding and a desire to develop competence in solving clinical problems.

Due to a lack of adequate support in learning critical thinking skills, students could not show critical thinking skills consistently until their final year in nursing studies. The findings of Maynard (1996) help explain this as they showed that critical thinking abilities of students remained relatively unchanged during the learning programme, changing only when one started practice as a professional nurse. This suggests that a full understanding of one's responsibilities and expected outcomes can trigger deep learning. In the study students indicated that they would not carry out any nursing intervention until they were sure that it was the correct or best intervention. Learning in this way demonstrates clinical reasoning and what Raij (2000) described as learning that focuses on finding the best way of intervening in a particular clinical situation. This

concurs with the findings of Hoffman and Elwin (2004), which revealed that as the level of competence improves, safety becomes important to the practitioner and hence hesitancy by students to carry out nursing care unless they were sure. Similarly, Larin et al. (2014) consider competent nurses as those who display a caring disposition.

It is important to note that all the students reached not all the conceptions of competence and learning in this category. The failure of students to reach category 5 in the development of competence is consistent with previous research findings. Students practice under supervision and focus on learning rather than on being professional nurses, therefore the students directed their learning efforts to meeting student requirements and not the demands of being a professional nurse (Kajander-Unkuri et al., 2014). In agreement, Wangensteen et al. (2008) reported that new graduates failed to understand the full responsibility of a professional nurse confirming that students graduate while they still consider themselves as students. This is also consistent with the report by Malouf and West (2011) who stated that upon graduation many students experience a reality shock and found that they were not able to 'fit into' the professional roles, for example lack of skills to respond to unanticipated events such as a worsening patient condition (Hartigan et al., 2010).

On the contrary, some students' conceptions displayed an understanding that demonstrated that of a professional nurse. These conceptions were more pronounced among students who were doing their fourth year (internship) just before the end of the learning programme. Two issues likely explain this finding, students on internship did not have the burden of preparing for any critical assessments and their clinical supervision from nurses was limited. These two aspects may have eliminated the umbrella of being a student and students considered themselves more like professional nurses. The internship acts as a transitional period in which the students begin to understand their responsibilities fully as professionals (Nash et al., 2009).

5.9 Conclusion of the categories of description

Based on the findings of this study, competence can be defined as the use of knowledge in clinical practice to complete nursing care tasks in accordance with the required standards resulting in better patient care outcomes. This definition outlines

what is required and how it should be used and what results should be produced. Even though this definition is not as detailed as some outlined in the literature it approximates the definitions given by Benner (1984); Takase and Teraoka (2011) and Wu et al., (2015). The findings did not show that students understood competence as context dependent and the need to engage in continuous learning in order to remain competent. These aspects which are absent in students' conceptions are outlined in the definitions of ICN (2009 2).

Despite not being taught explicitly the meaning of competence, students developed an understanding of competence. This understanding is progressive and improved as students transitioned through their learning programme. However, some students developed a deeper understanding of competence in their second year and some students had not developed a deep understanding even in their final year. The variations in the students' experiences are expected because it is unrealistic to expect all students to be at the same level at the same point in time. In addition, the current measures to support clinical learning have organisational and operational challenges and cannot significantly reduce the variation in learning among students (Baraz et al., 2015; Jamshidi et al., 2016; Rafiee et al., 2014). In addition, if students fail to understand competence in full, it is difficult for them to attain an outcome that they do not comprehend (Kirwa and Gakere, 2016).

The findings of this study suggest that very few students reach the required level of competence. This is demonstrated by the stress and anxiety suffered by nurses when they start working (Parker et al., 2014). Inadequate practical experience, poor critical thinking skills and insufficient comprehension of the clinical environment were found to contribute to the anxiety (Watts and Walker, 2018). The findings here may be consistent with Clare and van Loon's (2003) observation that expecting students to become competent in three or four years of education is ambitious and unattainable. Most clinical placements are too short for students to see the outcome of their care on patients and hence they may fail to appreciate the effect of their care on patient outcomes (Denehy, 1998).

In terms of the learning process, the five conceptions of learning that emerged correspond to conceptions of learning found in other phenomenographic studies in nursing and other non-nursing disciplines.

Table 5-1: Students' conceptions of learning from various studies

Marouchou, (2012)- Business studies	Raij, (2000)- Nursing	Marton et al. (1993)- Biological sciences	Study findings
Receiving subject knowledge	Collecting knowledge for knowing	Increasing one's knowledge	Familiarisation and memorisation
Memorising	Participating in nursing-doing	Memorising and reproduction	Strategic learning driven by assessment or facilitator requirements
Lecturer as a role model	Reflecting, interpreting-understanding	Learning as applying	Learning for application and understanding
Learning through involvement and understanding the subject	Problem solving , investigation	Learning as understanding	Learning for clinical practice
Learning as self-development of students into responsible human beings	Directing one studies	Learning as seeing something in a different way	Learning for positive patient outcome
		Learning as changing as a person	

5.10 The effect of the external environment on the development of competence

As alluded to in earlier chapters, the students' internal horizon (the act of learning and indirect object) is related to the external horizon. Therefore, the students' conceptions of learning are influenced directly and indirectly by the context in which learning takes place (Entwistle, 1991; Trigwell and Prosser, 1997). In the study, the perceptions of the key players in the learning process were explored to understand how they shaped the students' conceptions. According to Walker, Burk and Tarka (2010) the best learning

experience depends on the interaction of the student, preceptor (clinical nurse/ clinical instructor) and the lecturer. The aspects that emerged did not show any hierarchical relationship, but they were all structurally related to the act of learning. The findings indicated that the role of the facilitators, the theory-practice gap and clinical support received acted as an external environment that affected the students' experiences of learning and hence the development of competence.

5.10.1 Role of facilitators

It was shown in the study that facilitators consider their roles with regard to student teaching in a similar way, although they performed it differently (See section 4.9.3). The findings indicated that lecturers focused more on theoretical teaching, clinical instructors on simulation and clinical teaching while nurses focused on clinical teaching in the clinical setting, in addition to their role of patient care (See section 4.9.3). The roles of the clinical instructors and nurses are similar to those described by Kol and İnce (2018) and Bjork, Dunlosky and Kornell, (2013). The practice of using nurses as clinical facilitators is dominant especially when there is a shortage of clinical instructors (Bvumbwe and Mtshali, 2018; Mackenzie, 2009; Papastavrou et al., 2010). Nurses in this study readily accepted that they have a role to provide clinical teaching in line with findings from other studies (Anderson et al., 2018; Horton-Deutsch et al., 2014). Therefore, the findings confirm that there is some level of agreement over the roles of the parties involved in teaching students.

While there seems to be an agreement in principle, this study determined that both the nurses and clinical instructors experienced work overload (See section 4.9.3). The work overload limits the time available for clinical teaching, a sentiment shared by the nurses, clinical instructors and students. Studies conducted by Carlson et al. (2010) revealed that students see nurses as mostly preoccupied with the provision of patient care, leaving little time for teaching. Similarly, clinical instructors stated that they could not always be in the clinical area, meaning that there were times students had inadequate clinical support (See section 4.9.3). In a study carried out in Europe, students rated clinical availability for clinical teaching as low (Ironside et al., 2014). Other researchers have also found that clinical instructors did not have enough time for clinical teaching

(Esmaeili et al., 2014; McIntosh, Gidman, and Smith, 2014; Papastavrou et al., 2010). Despite the importance of clinical teaching, it is not being given the due consideration it deserves. Evidence has shown that this has a negative effect on student teaching (Esmaeili et al., 2014).

The gap in clinical support created by the unavailability of lecturers and clinical instructors in the clinical area was supposed to be covered by nurses. However, nurses in the study revealed that nursing care came first to teaching students (See section 4.9.3). Nurses articulated that in emergencies, in particular in the emergency department, they couldn't delay life saving measures in order to teach students. The literature suggests that nurses considered patient care as their primary responsibility (Carlson et al., 2013). While nurses do not deny the clinical teaching role, it appears they didn't take it seriously. The clinical instructors in this study thought that nurses should not treat clinical teaching and patient care as separate entities (See section 4.9.3). There is evidence to support that integration of patient care and clinical teaching is possible and has a positive effect on patient satisfaction (Barber-Parker, 2002). Although clinical nurses expressed commitment to clinical teaching, their reaction to the challenge of limited time suggests otherwise. The nurses expressed that clinical instructors and lecturers should be available most of the time to provide clinical teaching (See section 4.9.3). Therefore, it is clear that clinical teaching doesn't get adequate attention, compromising the development of competence in nursing students.

The hesitancy by clinical nurses to provide clinical teaching can be explained by their view that they are not empowered enough to manage students in the learning process. It is an admission that they lack the necessary preparation to manage clinical learning. Ronsten et al. (2005) and Yang and Jiang (2014) stated that clinical nurses lack the essential training to provide clinical teaching. This confirms the affirmation by Davidson and Rourke (2012) that nurses involved in the teaching of students must be well aware of the curriculum and all policies governing student learning to be better equipped to facilitate and manage student learning. These findings are expected because nursing education in Namibia and other African countries do not involve clinical nurses in all aspects of student learning. It is assumed that clinical expertise is adequate. However,

this seems to be changing with education programmes on preceptorship being implemented by the International Centre for Aids Care and Treatment Program (ICAP) in some sub-Saharan African countries (Middleton et al., 2014).

Being underprepared for clinical teaching is not the only logical explanation why nurses resorted to patient care at the expense of clinical teaching. Nurses felt communication between them and the lecturers and clinical instructors was poor as indicated in 4.9.1 under the roles of the facilitators. This corresponds with the findings of Liou et al. (2013) that communication is inadequate between the clinical nurses and facilitators. The poor communication explains why the nurses know little about the curriculum and school policies and hence struggle to manage student clinical learning. Nurses see their relationship with the lecturers and clinical instructors as embroiled in confusion and this confusion impacts negatively on student learning. Collaboration between the clinical nurses and the faculty has been found to have a positive influence on student learning (Bvumbwe, 2016; Kocaman and Arslan-Yürümezoğlu, 2015).

Nurses and facilitators do not complement each other in a manner that creates an excellent clinical learning environment. Both leave a gap in student supervision and hope that the other one will fill the gap. When clinical learning activities fail to occur, they shift the blame to the other and the students, describing the students as lacking the desire to learn. Hallin and Danielson (2010) support the views of nurses and the clinical instructors as they suggested that the students should initiate the learning process. Waiting for students to initiate learning is based on the assumption that students are self-directed and can take charge of their learning. However, this assumption may not be accurate as one study showed that not all students are self-directed and self-directedness is not an attribute that one acquires by being an adult learner but a skill the students need to acquire (Ajani and Moez, 2011). As a result, only self-directed students can find ways of learning in an environment where nurses seem to be occupied by what they consider as a priority. Due to these challenges, students' clinical learning experiences vary and the development of competence is not uniform.

While the facilitators and clinical nurses perceived students' failure to initiate learning as lack of motivation, students saw it as a lack of support and unwillingness on the part of

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the facilitators to teach (See section 4.9.2). Previous researchers have established that facilitators struggle to facilitate learning among students who lack the desire to learn (Dadgaran et al., 2012; Sedgwick et al., 2014). At the same time, nursing students revealed that students experienced a lack of support for learning from clinical instructors and nurses (Baraz et al., 2015). This literature supported the study finding which showed that clinical instructors do little clinical teaching and more of assessing of students or monitoring them. The hesitancy to initiate teaching by the clinical instructors and nurses could be the reason why students withdraw and show little desire to learn because it is the role of the facilitator to motivate students. Ip and Chan (2005) found that lack of clinical support negatively affected clinical learning and created a poor communication link between students and the clinical instructor and nurses. Hence, it is the failure of nurses and facilitators to provide enough support to students, leading to the breakdown in the learning process. Scully (2011) argues that clinical facilitators should act as role models and initiate the learning process for students before students can independently pursue learning. The study by Papastavrou et al. (2010) confirms that clinical supervision of student learning is found to be insufficient.

5.10.2 Theory-practice gap

The students in this study stated that the clinical instructors prepared evaluation tools based on theory and that this was different from nurses in practice who evaluate based on clinical experience (See section 4.9.1). This is an illustration that there is a gap between theory and practice. Results obtained from studies done elsewhere are consistent with the study findings. The studies showed that what was taught in theory was inconsistent with what was practised in the clinical area (Ajani and Moez, 2011; Benner et al., 2009; Dadgaran et al., 2012; Flood and Robinia, 2014; Scully, 2011). While these studies seem to suggest that the problem was in the theoretical aspects only, the findings of Breimaier, Halfens and Lohrmann (2011) and Leach and Tucker (2018) indicate that up to 40% of clinical practice is not based on evidence, further widening the theory-practice gap.

The students in the study expressed a three-pronged response to the existence of the theory-practice gap. Some of the students believed that competence was the

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application of theory to practice because lecturers and clinical instructors teach it, and therefore was more likely to be evidence-based and correct - a perception strongly supported by the lecturers and clinical instructors in the study. However, Critz and Knight (2013) and Schwartz (2014) suggested that some lecturers and clinical instructors do not apply evidence-based practice in their teaching. Similarly, nurses tend to teach based on their experience. Experiences of the some of the students in this study contradict some research findings, which suggest that students fear challenging clinical nurses, which results in them simply following the nurses (Zieber and Williams, 2015).

The other group of students consider competence as practising according to clinical standards; they trusted nurses' practice over their theoretical knowledge because nurses are seen as clinically competent as compared to lecturers and clinical instructors (See section 4.9.1). While the findings of Solum et al. (2016) correspond to the findings of this study in that students prefer learning from nurses, there is a difference in the reason that motivates this. In the study by Solum et al. (2016), students agreed with clinical nurses to avoid conflict. In the current study the students followed nurses based on the belief that the nurses' practice was correct. The students in this study demonstrated a lack of trust in the lecturers and clinical instructors' clinical skills. Recent research could explain the lack of trust in lecturers and clinical instructor as the findings posited that student nurses prefer a clinical instructor who is proficient in both theory and practice (Factor, Matienzo and de Guzman, 2017).

Some of the students' experiences showed that they believed that textbooks might be outdated and inconsistent with practice. In addition, the curriculum does not cover all aspects of clinical practice, so there is always more to discover in the clinical area. A literature review conducted by Kaphagawani and Useh (2013) revealed that what was taught in the classroom did not correspond with what was practised in the clinic, and students were not prepared for this theory-practice gap. Unfortunately, lecturers and clinical instructors use the curriculum as a guide for teaching and the textbooks as a source of information. Hence, practice changes and other subtle practice elements are not part of theoretical or simulated teaching. A similar line of thinking states that a

textbook cannot accurately describe clinical situations and that the curriculum fails to cater for all practical aspects (Dadgaran et al., 2012). Crookes, Crookes and Walsh, (2013), Flood and Robinia, (2014) describe the failure in linking didactic teaching to clinical practice. The findings of Heidari and Norouzadeh (2015) further explains the theory-practice gap as they found that there was a difference in students' expectations compared to that of nurses lecturers and clinical instructors.

Another group of students were of the perception that the theory-practice gap was negligible and felt that the minor differences experienced were caused by the expert performance of the nurses. These students believed that the expert performance was referred to as shortcuts. These findings are contrary to present evidence, which reveals that nurses engage in shortcuts to cope with the demanding workload, shortage of resources and staff (Msiska, Smith, and Fawcett, 2014). Despite the students dismissing the existence of the theory-practice gap, they did not suggest that it made their clinical learning any more comfortable. Current evidence supports the existence of the theory-practice gap and that it has a negative effect on student learning (Aktaş and Karabulut, 2016; Benner et al., 2010; Crookes, Crookes and Walsh, 2013; Flood and Robinia, 2014; Serçekuş and Başkale, 2016; Scully, 2010).

Regardless of the students displaying a variation in their opinions on the theory-practice gap, their ultimate coping mechanism seemed to be to avoid confrontation, specifically in assessment. The students practice followed standards they thought the assessor expected even though they might not have agreed. This underlines the importance of assessment in shaping student learning behaviour and emphasises the students' strategic approach to learning described in category 2 of the outcome space.

Students and nurses are of the view that there is poor communication between the clinical area and the school of nursing (See section 4.9.1). The faculty and the clinical nurses communicates poorly and this and contributes to the theory-practice gap (Hall-Lord et al., 2013). Students thought that lecturers and clinical instructors were responsible for the poor communication because they were the ones who needed to liaise with nurses. The nurses shared similar sentiments, but lecturers and clinical

instructors could not point to anyone as being responsible for poor communication. These findings correspond with studies by Taniyama et al. (2012), Bvumbwe, Malema and Chipeta (2015) who reported poor communication between lecturers and clinical instructors and nurses who are often excluded when teaching and assessment of students took place. This evidence is further confirmed by the nurses' assertion that clinical instructors come into the clinical setting and take students away from them without collecting any information from them about the students' progress.

Despite what appears as a 'blame game' in the theory-practice gap among the lecturers, clinical instructors, nurses and the student nurses, they share similar views on how to close the theory-practice gap. Students proposed that nurses should update facilitators on current practice, so that they can consolidate what is happening in practice with theory. These opinions suggest that the lecturers and clinical instructors were not clinically competent. In the same line of thinking, studies have suggested that students experienced a limited theory-practice gap when the lecturers and clinical instructors had up-to-date knowledge and were clinically experienced (clinically and theoretically) (Ajani and Moez, 2011; Dadgaran et al., 2012). The nurses feel that the theory-practice gap can be reduced if lecturers and clinical instructors become actively involved in clinical teaching by demonstrating nursing practice on real patients rather than continuing with theoretical teaching in the clinical area. The findings are consistent with the claim made by Baldwin et al. (2014) that clinical teaching is more than just giving theoretical knowledge. Similar research has suggested that clinical instructors should have the ability to demonstrate their clinical skills (Heshmati-Nabavi and Vanaki, 2010).

In addition, both nurses and students are of the view that a platform should be created where all parties can share experience and plan together on how to close the theory-practice gap. Participants in a study by Heshmati-Nabavi and Vanaki (2010) also shared this view. The findings showed that clinical nurses sought opportunities to meet with facilitators and address issues affecting student learning in practice. Contrary to the views of students and nurses, the lecturers and clinical instructors thought communication was good, and that there were already platforms to share students'

clinical learning challenges. This is an indication that lecturers and clinical instructors of may have limited insight into students' clinical learning challenges. Further research should be done to investigate the nature of relationships that can foster good communication between the faculty and nurses (Lee and Ha, 2015).

5.10.3 Clinical support

The study findings show that there are different patterns in students' clinical support from the facilitators and the clinical nurses (See section 4.9.3). In the early years of the programme, students viewed nurses as unsupportive while lecturers and clinical instructors were considered supportive. Roxburgh's (2014) findings agree with the students' views that in the first year students require more structured support than later because it brings new challenges they have not faced before. Similarly, it is argued that students in their early years of study require more nurturing and support from their nursing supervisors (Matthew-Maich et al., 2015). It seems the lecturers and clinical instructors had a better understanding compared to the nurses with regard to the students' challenges in the early years of studying nursing. On the other hand, nurses are of the belief that students in the first year have a limited practical scope, so they don't need much support. There is evidence, which revealed that nurses give students few opportunities for independent practice when they feel they have inadequate knowledge and skills (Carlson et al., 2010).

The pattern of support changed as students progressed in their studies with the lecturers and clinical instructors' availability for clinical learning decreasing and nurses' clinical support increasing. Findings showed that lecturers and clinical instructors viewed senior students as responsible and needing minimum support and some students echoed this view. This coincides with what Potter et al. (2016) described as increased student accountability in later years of education resulting in the students feeling more self-directed and confident to advocate for their learning. Additionally, other studies have found that the clinical facilitators gives students opportunities to practice if the facilitator felt that a student had developed skill and was dependable (Carlson et al., 2010). This may explain why students felt that the nurses' support had improved because they were given a chance to be involved in clinical practice. However, there is

a risk that students may end up delivering nursing care without the experience of learning from it, if supervision doesn't provide opportunities for self-reflection.

On the contrary, other students felt that the unavailability of lecturers and clinical instructors in the clinical area later in their education disadvantaged their ability to integrate theory and practice (See section 4.9.1). The students perceived that although the lecturers and clinical instructors may not have been available physically, students had access to them through telephone calls. However, this did not make students feel adequately supported. This is consistent with the findings, which indicate that students valued face to face clinical support rather than remote support (Courtney-Pratt, Ford and Marlow, 2015). Students also felt that in some follow-up sessions there were no learning activities; instead, lecturers and clinical instructors commented on what students considered non-academic issues, such as the uniform. While inspecting students' uniforms may form part of the professional aspect of student development, it should not dominate clinical teaching. The students' experiences suggested limited clinical support, something that approximates to current evidence. Studies have found that students received insufficient clinical support from the instructors who usually do not apportion sufficient time for clinical teaching (Esmaeili et al., 2014; Ip and Chan 2005; Warne et al., 2010).

5.11 The competence learning process

5.11.1 Development of a competence learning process model

The findings of the study indicated that the students' understanding of competence was related to the act of learning which in turn influenced their learning approach. Students experienced the learning process that supports the development of competence as hierarchical starting from the simple to complex, learning process. This structure also corresponds to the conception of competence, which developed from simple to complex. The outcome space that emerged showed hierarchical and structural relationships, and the learning processes showed similarities and differences to previous studies on students' conception of learning as shown in Table 5.1 above.

Based on the study findings and interpretations a "Development of a competence learning process model" was developed and subjected to a group of experts for critique. This section addresses objective six of this study,

- To develop a model on the development of competence in student nurses and to validate the model with a group of experts in nursing and the field of health professions education.

The model developed here extends the current body of knowledge in nursing education by proposing the "Development of competence learning process" model in Fig 5.1. The model is comprehensive and inclusive of the learning process, the level of competence, the frame of reference and the role of the facilitator. Therefore, in this section, the final model inclusive of the inputs from experts is presented and explained followed by the inputs from the experts.

5.11.2 Inputs from a group of experts on the model

This section summarises the inputs from the experts who reviewed the model. The table of expert inputs is attached as annexure (See Annexure D). As outlined in chapter 3, questions were posed to the experts. Their responses, general comments and my responses to their comments including how I incorporated them into the final model are briefly discussed. The experts were from the field of nursing and medicine with all of them possessing at least a PhD. They have published in the field of nursing education and health professions education.

All the experts agreed that the model was linked to the findings of the study and agreed that it covered the necessary aspects of the learning process as demonstrated by the findings. They also agreed that there was a logical flow in the model from stage one to stage five. One of the experts did not agree that the linkages between each stage of the model were clearly shown and the same expert also felt that the learning theories linked to the model were not relevant. In particular, the expert, suggested that there was no difference in stages three to five of the model.

Besides responding to specific questions that were posed, experts were asked to give input based on their expertise on the model. The suggested comments and how I

incorporated the inputs into the model are discussed here.Aspects that were related to the findings and not the model are not discussed . The name of the model was "competence development learning process" and expert 1 suggested that it be changed to "competence development process". However following deliberations with my co-researcher, I termed the model the "The development of competence learning process model". The repetition of learning processes at every stage was questioned, for example assimilation is in stage 1 and assimilation appears in stage 2 again. This was maintained because the repetition of the learning processes was to emphasise that the student still uses the learning process in stage one in addition to the ones in stage 2.

Expert 2 suggested that the language used in the description of the model become more technical and grounded in the field of health sciences education. To address this I changed some of the terms from the more general to the specific , for example the use of terms such as formative assessment, summative assessment, long life learning and self-directedness among others were incorporated.

Expert 3 raised the issue of the frame of reference which was similar between stages 1 and 3 as well as the matter of alignment of the stages of the model to the students' level of study. I changed the frame of reference to make it clearer; for example in stage 1 the frame of reference the student possesses non- nursing related knowledge and skills, while in stage 2 the knowledge and skills became nursing related but are not integrated. This knowledge and skills becomes integrated in stage 3's form of reference. With regard to alignment of level of study and stages of the model, the study findings did not show that there is a clear link between level of study and stage of development although the fourth year students tended to express the most sophisticated conceptions of learning. However, some second year and third year students showed deeper conceptions of learning.

According to expert four, there was no clarity on how the stages are linked to each other.The model suggested that all students developed to stage five before graduation. The model did not reflect the role of the teacher and suggested the use of regulatory focus theories and intrinsic motivation theories to support the model. In response the model has been improved by making clear distinctions between one stage and the next.

A statement was included to clarify that the model doesn't imply that all students achieve the expectations of level 5 before graduation. In addition the role of the teacher was added at every stage in the explanation of the model. The suggested theories did not adequately support the model and were not considered.

Based on the study findings and the inputs from the experts, the model was structured as shown in Fig 5.1 below.

5.11.3 The goal of the model

The goal of this model is to depict the learning processes that support the development of competence among nursing students and how these processes are related to the expanding skills (knowledge, skills and attitudes) set of the students and their understanding of competence.

5.11.4 Concepts and their operational definitions

There are five concepts that are key in understanding the model, viz. the frame of reference, learning processes, learning outcomes, points of view and habit of mind. These concepts will be explained in detail in the sections below. The frame of reference is the set of knowledge, skills and attitudes that a student possesses at every stage. It was assumed that students do accumulate knowledge and a set of skills as they progress in their study of nursing. It is this frame of reference that allows students to engage in the learning process to attain a learning outcome (level of competence) resulting in further expansion of the frame of reference. The habit of mind and points of view are part of the student's frame of reference as highlighted in the theory below and as they change through the learning process the student's frame of reference changes too.

Form of reference	Learning processes	Learning outcome

Stage 1

Non- related knowledge, skills and attitudes → Assimilation → Task completion

Stage 2

Non-integrated nursing related -knowledge, skills and attitudes → Assimilation Accommodation Establishing new viewpoints → Passing assessments

Stage 3

Integrated nursing related-knowledge, skills, attitudes → Assimilation Accommodation Establishing new viewpoints Elaboration of existing view points → Application of theory to practice

Stage 4

Integrated nursing related -knowledge, skills, attitudes, problem solving and decision-making → Assimilation Accommodation Establishing new viewpoints Elaboration of existing view points → Practice per clinical standards

Stage 5

Knowledge, skills, attitudes and clinical reasoning (critical thinking, problem solving and decision-making) → Assimilation and Accommodation Establishing new viewpoints Elaboration of existing view points Transformed point of view Transformation of habit of mind → Practice for positive patient outcomes

Figure 5-1: The development of competence learning processes

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5.11.5 Interpretation of the model

The boxes on the left show the frame of reference, the ones in the middle depict the learning process (the act of learning) while the ones on the right show the learning outcome/level of competence (direct object) associated with each stage. The expanding size of the boxes indicates an expansion or sophistication in the learning process and frame of reference. The horizontal arrows between the frame of reference and the learning process show that the frame of reference on the left directs the learning processes on the right and vice versa. Diagonal arrows serve to demonstrate that the learning processes contribute to the cause of changes in the frame of reference hence movement from one stage to the other. The arrow from the learning process to the outcome indicates that the level of competence is a result of the frame of reference and the learning process.

The development of competence learning processes model posits that the development of competence in an ongoing process and has five stages. The first stage is an awareness of the need to complete learning and nursing tasks and begins with the assimilation of nursing related knowledge, skills and values. By memorising knowledge and familiarising the self with nursing skills, students can carry out nursing tasks without understanding what they are doing and without learning from the process. The development of competence must be complemented by the second stage, passing an assessment. Assessment requirements and the need to pass, drive students and shift their learning approaches to strategies that suit the assessment requirements.

The third stage, application of theory to practice enhances the learning as students begin to integrate knowledge, skills and values from different areas so that they can use them in the clinical area. Learning is directed towards the need to use what has been learned in patient care not just to use for passing assessments. The fourth stage, practice according to clinical standards represents an integration of theoretical learning and clinical learning. Students bring theory into practice, and they learn more from practice than integrated clinical and theoretical knowledge, skills and values to nurse patients according to set standards. Lastly, the fifth stage, practice for positive outcomes is a synthesis of all the previous stages. The practice is not only aligned to

practice standards, but also to the outcome of patient care. More advanced skills or transferable skills of nursing are applied here, in particular, clinical reasoning.

The stages of the development of competence are dialectical, but not all students enter the nursing programme at stage one; some come in at a higher stage. In addition, not all students reach stage five before graduation. There is evidence in the data where students' excerpts in the second year of study displayed conceptions in category five and students in the final year displayed conceptions in a lower category, as low as category two.

5.11.6 Learning theory supporting the model

Mezirow's transformation theory supports this model of the development of competence. It is not the only theory that is linked to this model, but it forms the basis for understanding the model hence some of its critical components are discussed here. Mezirow described the frame of reference as

> '… structures of assumptions through which we understand our experiences … they set our line of action. Once set, they automatically move from one specific activity (mental or behavioural) to another' (Mezirow 1997:5).

Illeris, (2009), simplified Mezirow's description and described the frame of reference as a way of knowing. Three components make up the frame of reference, the form, habit of the mind and points of view (Mezirow, 2000). In this model, knowledge, skills, attitudes and clinical reasoning constitute the form. This form compares to the cognitive, conative and emotional components as put forward by Mezirow (2000). The form shapes the habit of the mind, which represents one's beliefs, way of thinking, feeling and acting. The ways students understand competence and learn to achieve competence reveal the nature of the habit of the mind. Points of view are the third and last component of the frame of reference and are the unstable beliefs; a way of thinking, feeling and acting one can display (Mezirow, 1997).

5.11.7 Full description of the model

Stage one

Students enter nursing education with a frame of reference constructed outside nursing. The students indicated that in their first year, they did not know what nursing was and learning was difficult for them. Therefore, the frame of reference directing students' learning was composed of non-nursing related knowledge, skills, and values (form). These students didn't know how to learn, what to learn and hence what was essential for them was to complete any given learning, and nursing tasks (habit of the mind). When the process of learning begins, it exposes students to nursing knowledge, skills, and attitudes. The information students learn in the early months of the nursing programme is mostly context-free and related to biological and social knowledge students are likely to possess although they do not understand it in the context of nursing.

Therefore, it means that the schemes and patterns of information in their mind can relate to the new information. According to Piaget (1978), when new information can fit into existing schemes, learning by assimilation is possible. Students in this study experienced their learning as memorisation and familiarisation resulting in the accumulation of information and skills required to complete nursing tasks. Continuous learning in this way built up nursing related but disintegrated knowledge, skills and values in the students' frame of reference. Assessment requirements and the need to pass motivated students to change the habit of mind from task completion to focus on passing assessments.

At this stage, the input of the facilitator is crucial in assisting students. Firstly, the facilitator should initiate the learning process and guide students on how to learn in nursing. Secondly, the facilitator should provide students with certain critical information that students entering a new field of study require as well as guide students to the right sources of information. Lastly, through giving assessments, the facilitator indirectly facilitates the students' shift in focus from task completion alone to passing assessments. Since most if not all, assessments may contribute to the overall course mark, students are encouraged to aim for at least a pass mark. The need to pass

examination triggers students to transition from stage 1 to stage 2 of developing competence.

Stage two

During this stage, a significant amount of nursing information and the disorienting dilemmas presented in the form of assessments triggers a change in the frame of reference. The form of the frame of reference changes from being dominated by non-nursing knowledge, skills and values to one dominated by nursing related knowledge, skills and values. The habit of mind changes from focusing on competence as task completion to competence as passing an assessment. Students reported that passing an assessment meant they were competent and vice versa. They also indicated that it was critical to perform according to the expectations of the facilitator. Consequently, learning at this stage is characterised by a strategic learning approach in which students orient learning approaches towards meeting assessment requirements (Biggs, 1999). This was clear from students' reports of preparing for an OSCE examination by memorising checklists because being able to recite the marking guide allowed them to pass, even if they did not demonstrate the correct skills. Also in clinical practice, students performed tasks according to the requirements of the assessor to satisfy different assessors. This strategic approach to learning applies to all stages as every student aims to pass the examination.

Concerning learning, besides assimilation, establishing new viewpoints (Mezirow, 1997) and accommodation are common learning processes at this stage. Adding new information to the existing non-nursing schemes and patterns becomes difficult. Utilising old schemes and old patterns to pass nursing assessments becomes a challenge. Subsequently, when assimilation fails, students start a process of establishing new nursing related ideas upon which they construct new schemes and patterns. To accommodate the new schemes and patterns students eliminated the old ones and started building new ones around nursing knowledge, skills and attitudes (Illeris, 2004). These learning processes are responsible for the change of form and the habit of mind and consequently change in the frame of reference. The demands of nursing responsibilities also stimulate the change in the frame of reference

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The role of facilitator is to establish the assessment standards, supervise or assess the student and provide feedback on student performance. The feedback will help students identify their weaknesses and learn from their mistakes. It is at this stage that the facilitator can direct students to integrate the right set of knowledge, skills and attitudes required to perform nursing competently. At the same time, assessments should be aligned to the required learning outcomes that match competent nursing practice. For example, in nursing it is important for a nurse to recognise early changes in a patient's condition so that the appropriate intervention is instituted. Assessing students to list or describe signs and symptoms of a disease does not equate to the student being able to notice these signs and symptoms when they appear in a patient. However, if the learning and assessments require integration and ability to perform, students are forced to start learning the right things, hence develop competence.

Stage three

Due to the expanding awareness of the demands of nursing care, the students' frame of reference became sophisticated. The form is now composed of nursing knowledge, values, and skills that are integrated. The habit of mind has its focus on the application of theory to practice. These changes shift students to a different way of learning, which includes assimilation, accommodation and elaborating existing points of view. Interchangeably, these learning processes also support the integration of nursing knowledge, values, and skills in the students' frame of reference. Students described it as learning to understand and putting theory into practice. In practice, students encountered different clinical problems; some clinical problems aligned with theoretical knowledge, and some did not. When students met clinical problems that correlated with their body of knowledge, values, and skills, they learnt by assimilation (Palincsar, 1998).

At this stage, students start to display lifelong learning skills. Students also reported that when they could not solve clinical problems or apply theory to practice, they went back and read books or consulted their facilitators and gained more information and understanding. Chinn and Brewer, (1993) described this as learning by accommodation. Similarly, it is comparable to learning by elaborating on existing points of view because students are hesitant to learn and understand from the clinical point of view, they always

referred to theory (Mezirow, 1997). Students considered the practice by nurses as incorrect and labelled it as shortcuts. This conception by students confirms that students believed that theoretical knowledge was the basis for nursing practice. This is consistent with the analogy that people are inclined to put aside information that cannot fit into their pre-existing knowledge; they consider it either useless or wrong (Mezirow, 1997).

However, due to the nature of clinical practice, various nursing problems always arose and the schemes and patterns built on theoretical knowledge alone could not solve such problems (Andrew et al., 2009). Now, students started learning by establishing new viewpoints. Contrary to Mezirow's (2000) description where establishing new viewpoints strengthened the existing frame of reference, the new viewpoints, in this case, generated clinical knowledge, which students assimilated.

Facilitators can support students by assigning them responsibilities that require students to put theory into practice. As an example, students can be tasked to go and study the clinical presentation and management of a patient with diabetes in the clinical setting in comparison to what has been learnt theoretically. An analysis of differences and similarities that students will pick up from different cases of diabetic patients can help students to understand how theoretical knowledge can be put into practice. In particular, the nurses are critical in guiding students how their theoretical knowledge and skills can be applied in clinical practice. A student may have learnt how to cannulate on a simulator, where the veins are visible, but in practice, the patients may have collapsed veins, hence the nurse can impart certain subtle clinical skills so that the student learns how to cannulate such patients.

Transitioning from stage three to four involves students understanding that theoretical knowledge cannot solve or match every clinical situation, it requires adaptation. With exposure to cases that are more clinical and facilitator-assisted reflections, a student can learn that two patients suffering from the same condition may respond differently to the illness and therefore require individualised care.

Stage four

When students accumulated a certain amount of clinical knowledge, they started building new schemes and patterns; they experienced a change in their frame of reference. The frame of reference now includes knowledge, skills, and values, problem-solving and decision-making skills as part of its form. Problem-solving and decision-making skills developed because of continuous exposure to challenging scenarios. The habit of the mind also started shifting towards practice in line with practice standards. The view of theoretical knowledge as the basis for practice changed and students considered both theory and clinical practice as a complementary whole. Findings of this study showed that students wanted to practice according to clinical standards and not theory alone.

The learning processes associated with this stage are assimilation, accommodation, elaboration of existing viewpoints, establishing new viewpoints and transformation of points of view. Transformation of points of view became a necessary learning process because students encountered unique nursing problems, which require a unique combination of knowledge, skills, values, problem solving and decision-making.

Students' experience showed that with more exposure to clinical practice they started realizing disadvantages when relying on theory alone. This process resembles self-critical reflection that leads to students considering the clinical environment and the practice standards as instrumental in the learning process. Garneau and Pepin (2015) report that reflection in and on action helped the development of competence. This transformation occurred when students consistently used clinical knowledge and theoretical knowledge as an integrated entity. Transformation of the point of view is said to have occurred here because the students now understand nursing as both theory and practice, with the goal of meeting practice standards (Mezirow, 1997). Problem-solving and decision-making skills are strengthened as part of their frame of reference.

This is a stage where the facilitator should not depend on textbooks alone, but should make use of clinical experience, clinical standards and practice guidelines. Looking at the example of immunizations, no textbook can keep up to date with the continuous changes; therefore, in class the facilitator helps students to learn more of a framework

for understanding vaccinations. However, the accurate and precise knowledge students require lies in clinical vaccine guidelines hence the facilitator needs to guide students through these clinical guidelines and protocols of vaccinations. When students reach the stage of reflecting on their practice in the context of clinical guidelines and standards, they start to focus on the outcome of their performance.

Stage five

Stage 5 is the epitome of students learning in the development of competence. More exposure to clinical problems and self-critical reflection helped the students to develop clinical reasoning skills. Students felt that they had developed a full understanding of nursing and appreciated the clinical challenges and critical thinking required to improve nursing care outcomes. Less supervision from the nurses helped students to look at themselves more as nurses rather than students. The fact that students were able to evaluate their nursing interventions and identify best interventions is an indication that they used their knowledge and experience to improve nursing care. This is brought about by repeated exposure to complicated clinical problems, which required the use of evidence-based information in critical thinking to solve clinical problems.

At this stage, the habit of mind is transformed resulting in a change in the frame of reference. Students have a full set of skills required for nursing practice. The learning processes become sophisticated and allow students to learn in most of the clinical situations with the goal of improving patient care outcomes. It is at this stage that the best learning takes place. Transformative learning is said to have occurred in this case because learners shifted their frame of reference to become more accommodating (Mezirow, 2000). According to constructivists, students learn through an active process of knowledge construction based on how they interpret their reality (Bruner, 1966). The more sophisticated the frame of reference the deeper the comprehension of reality and the better the learning (Mezirow, 2000). Furthermore, when the students experience variation in as many different aspects of the content of learning instantaneously, they experience the best learning (Marton et al., 2004). However as revealed in this study and in the literature not all students reach this stage before completing their education

(Benner, 1984; Brown and Crooks, 2016; Dlamini et al., 2014; Liou, Tsai and Cheng, 2014).

The facilitator needs to assign students more responsibility that requires the use of problem-solving and decision-making skills and guide students in a process of self-evaluation. Constructive feedback from the facilitator will help build student confidence and develop competence. While the facilitator has the responsibility to monitor and supervise student practice, the students equally have a responsibility to consult when there is need and seek feedback to verify their performance.

5.12 Conclusion

This chapter presented a discussion of the findings of the study, which examined the learning processes that best support the development of competence among nursing students. From this discussion, it can be concluded that students develop competence hierarchically and that not all students start at stage one and not all students reach stage five. Based on the model the development of competence among nursing students is not a mere progression from one stage to the other. It is a process of intense learning supported by various learning processes that transform students understanding of competence and expands their knowledge and skill base.

The next chapter will present the recommendations and conclusions of this study as well as their implications for practice and future research. The researcher will also give insights into how the model can be utilised in facilitating the development of competence among nursing students.

CHAPTER 6: SUMMARY, RECOMMENDATIONS, LIMITATIONS AND CONCLUSION

6.1 Introduction

This study aimed to explore the qualitatively different ways in which nursing students experienced the learning processes that best support the development of competence. In chapter four, the detailed findings of the study were presented in an outcome space with five categories; each category described one conception. In chapter five, the conceptions were discussed, and interpretations of the outcome space were provided resulting in the development of a competence learning process model.

In chapter one questions were raised about the lack of competence among the nursing students and their failure to meet work demands upon completing a nursing education programme. Questions concerning the learning processes that best support the development of competence were also raised. The lack of shared understanding of what competence is and how to develop it among the students, lecturers, clinical instructors and nurses was another area of concern highlighted in chapter one. Therefore, the discussion in chapter six will focus on how the outcomes of this study may provide insights into nursing education approaches that can address the questions above.

This chapter presents the summary, recommendations, limitations and conclusions of this study. Particular focus will be on the implications of the findings of this study for nursing education, student learning and nursing research. The limitations of the research are explained, and conclusions will be presented by looking at the contributions of this study to existing knowledge.

The objectives of this study were to:

1. To identify and explore learning processes that best support the development of competence among nursing students in Namibia.
2. To explore the views of the students as to what they see as the role of lecturers and clinical instructors in the learning processes that best support the development of competence

3. To explore the nurses' in practice views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia.

4. To explore the lecturers and clinical instructors' views of their roles in facilitating students' learning processes that best support the development of competence in nursing students in Namibia

5. To develop a model on the development of competence in student nurses and to validate the model with a group of experts in nursing and the field of health professions education.

6.2 Summary

The model describes the development of competence in nursing students through five stages, with each stage having three components, namely, the frame of reference, the learning process and learning outcomes. The students' conceptions showed that student nurses develop competence from the simple to the complex. Initially, students lack the necessary prior knowledge and skills as well as an understanding of competence and hence apply superficial learning approaches. When students acquire more knowledge and skills, their understanding of competence deepens and they use deep learning approaches. At the peak of the development of competence, students make use of more sophisticated learning approaches.

The development of competence is not an automatic process, it depends on what the student does and is influenced by the context or external horizon in which the learning occurs. Based on the findings of this study, suggestions are made to guide facilitators on the best possible course of action to ensure that students can attain competence before or at the point of graduation. The recommendations suggested pertain to how the model in chapter five can be used in a nursing education programme to ensure the best learning experience for nursing students.

However, before giving the recommendations the main study findings forming the basis of the recommendations are discussed here. The conceptions of the participants about the learning processes that best support the development of competence among nursing students were revealed in five categories. These categories are

- Category 1: Competence as task completion
- Category 2 : Competence for assessment /to satisfy facilitators
- Category 3: Competence as applying theory to practice
- Category 4: Competence as per clinical standards/guidelines
- Category 5: Competence as positive outcome

In each category, the 'what' or 'referential aspects' referred to the participants' conceptions of competence which is understood at five different levels. The simplest understanding being competence as task completion and the most sophisticated being competence as positive outcome. This understanding was closely related to the 'indirect object', which explained the level of competence students aimed to attain in their learning. Completing learning and nursing tasks was the lowest level of competence and performance to attain positive patient care outcome was the highest level of competence. The students' understanding of competence and their goal of learning was found to be closely intertwined with the 'act of learning'. The students' conceptions of the act of learning were shown as follows in Chapter 5;

- Familiarisation and memorisation
- Strategic learning driven by assessment or facilitator requirements
- Learning for application and understanding
- Learning for clinical practice
- Learning for positive patient outcome

Each conception of learning above corresponds to each of the five categories identified above.

Furthermore, the environment or the external horizon also influenced the students' conceptions of the learning process. It was found that the conceptions of the facilitators of the learning processes that best support the development of competence influenced students' conceptions of learning. Therefore, it can be concluded that the students' conceptions of learning are a product of their understanding of competence, the level of competence they seek to attain and the role of the facilitators in the learning process.

In addition, the following findings supports the conceptions above and are considered in the recommendations. Firstly, the study findings showed that the facilitators had different levels of understanding of competence and hence the goal of the facilitation of learning was different. Secondly, the conceptions of students showed that the development of competence was not uniform and did not follow an expected trajectory where the year of study corresponds to a certain level of competence. Some junior students had sophisticated conceptions of learning processes as compared to senior students. Thirdly, the findings also revealed that the best learning occurred when students had a deep understanding of competence and a full comprehension of professional responsibilities of a nurse. Fourthly, the theory-practice gap shown in the external horizon showed that there are gaps in the level competence of the facilitators, which resulted in the use of different standards for students' assessments. Lastly, there was also a gap in clinical learning practice support provided to the students because the communication among the facilitators was poor.

6.3 Recommendations

6.3.1 Recommendation 1: Conception of competence

The starting point in developing competence is establishing a shared understanding of what competence is and of the standards, which are used to measure the level of competence. In most cases, this understanding is not the same, even among the academics resulting in poorly coordinated efforts to promote the development of competence. The lecturers, clinical instructors and more importantly the nurses must come together and agree on what they refer to as competence and the standards of competence. The standards should be in line with those expected by employers and regulatory bodies thus creating a universal understanding of the term competence as it applies to graduate nursing students. If all stakeholders have a shared understanding of competence, facilitators are likely to adopt practices to enhance the development of competence. It will also reduce the practice-theory gap and differences in expectations regarding students' performance, i.e. employers expect students to perform at a certain level, which is usually higher than what they attain in the nursing programme.

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In practical terms, nurses and employers should draw up specific day-to-day nursing activities and the guidelines they apply in practice. Using these activities, and the scope of practice, the nurses, employers, the nursing council, lecturers and clinical instructors should come together to draw up competencies. The curriculum should then be revised to ensure that it addresses the agreed upon competencies.

Upon enrollment into nursing, the first issue to be covered should be to help students understand competence in the same way as the lecturers, clinical instructors and the nurses. If students understand that the goal of learning in nursing is to provide care that results in positive outcomes, they will have realistic expectations of learning. Having all key players in nursing education sharing a similar understanding of competence will help promote cooperation and application of efforts towards the same goal of developing competence in nursing students.

6.3.2 Recommendation 2:Promoting deep approaches to learning among students

The major role of the facilitators in nursing education is to manage the student learning experience in a manner that enables the students not only to understand the object of learning as expected by the facilitator, but also to adopt the right learning approaches. As revealed in the study, students did not always apply the right learning approaches in their studies. Even though students may get to fully understand the professional responsibility of a nurse and nursing competence, it doesn't automatically mean that they know how to learn. Being a self-directed and lifelong learner are not skills students just possess, but it is the responsibility of the facilitators to guide students in acquiring these skills. Students with learning skills are likely to have an expanded focus of awareness and hence engage in meaningful deep learning approaches that help students in the development of competence. It is the role of the lecturers, the clinical instructors and nurses to guide students into the right learning approaches required to attain competence.

The students' conceptions showed that they have the capacity to adopt deep learning approaches. However, some junior students understood competence at a higher level than senior students did and they used deeper learning approaches compared to the senior students. This scenario needs to be addressed such that all students can adopt

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meaningful learning approaches early in the nursing programme. The facilitators should design a programme on learning how to learn. When students enter the nursing education programme, they need to take the module on learning how to learn. In this module, facilitators should help students in developing deep learning skills. By doing so facilitators can help students to engage in meaningful learning that leads to the development of competence early in the nursing education programme.

Furthermore, facilitators must promote a culture of deep learning among the students throughout the learning process. The students' conceptions showed that students learning approaches were influenced by the facilitators approach to teaching and assessment requirements. Therefore, facilitators should apply teaching and assessment approaches that promote deep learning. For example instead of presenting lectures most of the time, a lecturer can give students authentic nursing problems that they should solve through self-study, group work and information searches and then report back to the lecturer for discussion. The discussion should include guidance on how students can improve the quality of their solutions to the problems they were given.

In the same manner assessments should always require students to apply deep learning approaches to get the right answers. This means that questions like 'list the signs and symptoms of tuberculosis' should be replaced with theoretical and practical scenarios where students are expected to identify the signs and symptoms. It is difficult for a student who has just memorised signs and symptoms to be able to identify the signs and symptoms; therefore, the student is forced to learn deeply.

6.3.3 Recommendation 3: Taking students from stage one to stage five.

The student conceptions showed that at stage five of the model, students fully understand nursing competence and adopt deep approaches to learning. It is at this level when students gain most of their competence, making stage five a critical phase in the development of competence. As revealed in the conceptions students develop their competence through five stages by expanding their knowledge and skills in nursing (frame of reference) and their understanding of competence. The increasing knowledge and improving understanding of competence influences their approach to learning. The implication for nursing education is that facilitators have a role to play in helping

students reach stage five of the development of competence learning process early in their studies.

A simple example of how students can be helped through the stages of the model is given here using the example of the topic blood pressure. Blood pressure is a basic vital sign which students learn early in the nursing programme. In stage one- competence as task completion, a student is interested in knowing what blood pressure is and how to perform the procedure following the necessary steps. This student may not progress to stage two if they don't gain more knowledge about blood pressure or if they are not challenged through assessments or facilitator feedback pushing the student into stage two. In the simulation, students can successfully measure blood pressure on mannequins and make the students feel they are ready for real clinical practice. When students move into the clinical area and begin to measure blood pressure on real patients they can discover shortfalls in their skills and knowledge like failing to handle certain patients, difficulties in picking the lub-dub sounds and ultimately accurate readings.

The realization that actual patients are different from mannequins and picking up the heart sounds on an actual patient may not be as easy as on a doll triggers students to move towards stage three-competence as applying theory to practice. The facilitators' role is to ensure that students are exposed to as many different clinical scenarios as possible where students can measure the blood pressure of patients in different positions and with different levels of blood pressure, low, normal and high. Role modelling and guiding students in gaining certain subtle skills in handling patients and picking up heart sounds especially in patients with a low blood pressure is the expected role of the facilitator.

After developing the ability to measure blood pressure and obtain accurate readings, students need to be guided into stage four-competence as per clinical standards/guidelines. Students cannot know or apply the standards of care or follow guidelines of which they are not aware. Clinical facilitators have a role to help students in terms of blood pressure protocols in a ward or nursing unit, the correct recording of

the values, interpretation and action they need to take based on the blood pressure readings as well as patient condition. One barrier to performing at this level is when students are expected only to report to a senior nurse, without them knowing what is supposed to be done. One should not assume that, at a later stage the students will learn and know what to do, it creates a situation where some students will learn and other will not.

A student can only move to stage five - competence as positive outcome, if the facilitator involves the student in stage four. The facilitator should allow the student to assess the response of the patient to the intervention compared to the desired outcome. For example in a patient with an elevated blood pressure, the intervention can be administration of a certain medication to reduce the blood pressure. Allowing the student to recheck the blood pressure and comparing it with the desired goal and assessing the general condition of the patient can help the student to understand competence as positive patient outcome.

While the example given here is simple, actual practice is more complex where maybe a student is monitoring all vital signs simultaneously; it is still relevant and applicable to complex learning situations. Repeatedly taking students through such a learning process in the early years of nursing education can help them to reach the highest stage of the development of competence learning process early. Resultantly they are likely to develop skills for deep learning approaches and reach the desired level of competence before they graduate.

6.3.4. Recommendation 4: Clinical support of student learning

The outcome space demonstrated that students' clinical learning support is fragmented. The clinical nurses, the lecturers and the clinical instructors do not complement each other well in supporting students' learning and this negatively affects students' approaches to learning. Support for clinical learning can be improved through coordinated planning and structuring of clinical learning and assessment activities for students among the clinical nurses, the lecturers and clinical instructors. It may be difficult to have full-time practicing nurses involved in student learning as suggested

above, but educating clinical nurses as preceptors can improve their competence in facilitating student learning. Studies conducted in Malawi and Ghana suggest that clinical nurses who are trained as preceptors positively influences students' clinical learning (Phuma-Ngaiyaye et al., 2017; Atakro and Gross, 2016). The recommendations above may help to establish similar standards of practice thereby reducing student confusion by trying to figure out who is wrong or correct among facilitators, who display differences in what they teach and practice. The measures above may enable a smooth transition of student learning from the classroom to simulation to clinical area and back to the classroom.

6.3.5 Recommendation 5: Competence level of the facilitators

The conceptions of participants in this study suggested that there are differences in the level of competence among the nurses, lecturers and clinical instructors. Lecturers and clinical instructors are considered to have better knowledge than nurses do but less practical skill as compared to the nurses. This widens the theory-practice gap and practice-theory gap limiting students' ability to apply theory to practice and vice versa. This requires that the clinical nurses should have full knowledge of the curriculum and policies governing students at the college and practice. Likewise, the lecturers and clinical instructors should have a full understanding of the clinical practice and standards of clinical practice. The level of skills regarding teaching for clinical nurses should be enhanced through professional development and skills for practice for lecturers and clinical instructors should be improved and maintained through regular structured practice in clinical situations. According to WHO (2016) maintaining competence in nursing practice and evidence-based nursing practice are key competencies of any nurse educator.

As revealed by the findings of this study, lecturers, clinical instructors and nurses in practice significantly contribute to student learning approaches and ultimately the level of competence attained. The external horizon of the outcome space showed that how facilitators go about their teaching and assessment of students influenced the students' understanding of competence and approach to learning. It is important for lecturers, clinical instructors and nurses in practice to understand how their teaching and

assessment activities affect student learning. The understanding can help them focus more on helping students and closely support the development of competence rather than blaming students for lacking the motivation to learn. Hence, facilitators of learning should be sensitized to the use of learner-centered approaches to teaching. The teaching should be directed to the development of competence that is the ability of students to be able to perform nursing practice rather than just know or understand. For example, a lesson on blood pressure should be directed towards students' abilities to measure the blood pressure accurately, interpret the findings and take appropriate action that can improve the health outcome of the patient.

6.4. Implications

6.4.1 Nursing education

Students' conceptions showed a disintegrated approach to learning where there was a weak link between theory and practice. As a result, students had difficulty in applying theory to practice. In light of this, there is a need to strengthen integration to ensure that theory and practice become strongly intertwined. Current evidence shows that the theory-practice gap still exists despite several studies that have looked at ways to narrow or close the gap. Therefore, suggestions given here cannot be the ultimate solution to the problem but a possible research area that may contribute to the closing of the theory-practice gap. The curriculum should be based on practice and evidence within the context in which nurses will be expected to practice. This process should involve conducting an audit of what is happening in all nursing practice settings so that the outcome of the audit informs the curriculum content. Designing a curriculum this way means that the programme of learning will address all practice requirements thereby reducing the theory-practice gap.

6.4.2 Nursing practice

The study revealed that nursing education and practice do not provide the best context in which students can develop competence. The clinical environment needs to be prepared to cater for both patient care and student learning. In particular, there is needed to look for practice models that can help nurses to provide equal attention to

both patients and student support. Mentorship programs or preceptorship models are possible options, which can be adapted to suit various situations.

6.4.3 Nursing research

The model of the development of competence suggested in chapter five needs to be implemented and tested to generate empirical evidence on its worth in nursing education. Testing this model can help in establishing its practicality, weaknesses and strengths. In addition, similar studies can be carried out among student nurses in different settings, at different levels of studies, undergraduate or postgraduate training for the purposes of comparing the findings.

Questions remain on the kind of relationships that can foster best student learning experiences. There may be need to investigate the nature of relationships that can foster good communication and relationships among students, lecturers, clinical instructors and nurses. Good communication and relationships will likely result in a better-coordinated learning environment that provides a good learning experience for the students. In addition, the study findings revealed that the use of logbooks or practical registers contribute to a surface learning approach among students. Therefore, it's important to evaluate the use of logbooks and to consider ways of using then in a manner that promote deep learning approaches.

6.5 Limitations of the study

1. The findings of this study; the qualitatively different ways of experiencing competence development are specific to the diploma in nursing and midwifery programme in Namibia and therefore no claim can be made that findings are generalizable to other contexts. However, the study answered some questions that may contribute to the understanding of the development of competence among nursing students in general. Therefore, the outcomes of this study may be transferrable to similar contexts and may be useful for comparison in similar situations.

2. First-year students were not included in this study. The conceptions of learning in first year were obtained from senior students who reflected on their learning from

their first year of study. However, participation of first-year students could have revealed more profound conceptions of learning at the beginning of the nursing programme.

3. My beliefs and judgements about learning and competence may have influenced the interpretation of data. As a lecturer it's difficult to completely say that my beliefs about leaning and competence could not have influenced the data analysis and ultimately outcome of this study. For this reason, code checking by a co-researcher was employed to limit my influence on the outcome of this study.

6.6 Conclusion

The recommendations were deduced from the conceptions of learning of the students, lecturers, clinical instructors and nurses. The recommendations suggest that the development of competence among nursing students may be better facilitated using the model if a shared understanding of competence is established among the students, lecturers, clinical instructors and nurses. In addition, the students must be taught how to learn as well as to understand the meaning of competence. The efforts of the facilitators must be coordinated to maximize student learning and the development of competence.

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APPENDICIES

Appendix A: Approval letter

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

<div align="right">

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

</div>

<div align="right">

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

</div>

<div align="right">

07 November 2016
Person No: 1343557
PAG

</div>

Mr T Munangatire
Paray School of Nursing
P O Box 2
Thaba Tseka 550
South Africa

Dear Mr Munangatire

Doctor of Philosophy: Approval of Title

We have pleasure in advising that your proposal entitled *Learning process that best support the development of competence among student nurses in practice* has been approved. Please note that any amendments to this title have to be endorsed by the Faculty'shigher degrees committee and formally approved.

Yours sincerely

Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences

Appendix B: University ethical clearance

R14/49 Mr Takaedza Munangatire

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M160780

NAME:
(Principal Investigator)

Mr Takaedza Munangatire

DEPARTMENT:

Centre for Health Sciences Education
Windhoek, Namibia

PROJECT TITLE:

The Learning Processes that Best Support Development of
Competence among Student Nurses and Nurses in Practice

DATE CONSIDERED:

29/07/2016

DECISION:

Approved

CONDITIONS:

South African Human Research Ethics Committees
(HRECs) have no standing outside South Africa. Ethics
approval is also required from local HRECs in Namibia

SUPERVISOR:

Prof Patricia McInerney

APPROVED BY:

Professor P Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL:

07/12/2016

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

DECLARATION OF INVESTIGATORS

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

Principal Investigator Signature   Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix C: Namibia ethical clearance

REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Private Bag 13198	Ministerial Building	Tel: 061 – 203 2562
Windhoek	Harvey Street	Fax: 061 – 222558
Namibia	Windhoek	E-mail: hnangombe@gmail.com

OFFICE OF THE PERMANENT SECRETARY

Ref: 17/3/3 TM
Enquiries: Ms. H. Nangombe

Date: 13 January 2017

Takaedza Munangatire
Private Bag 13198
Windhoek Health Training Centre

Dear Mr. Munangatire

Re: The learning processes that best support the development of competence among student nurses.

1. Reference is made to your application to conduct the above-mentioned study.

2. The proposal has been evaluated and found to have merit.

3. **Kindly be informed that permission to conduct the study has been granted under the following conditions:**

3.1 The data to be collected must only be used for academic purposes;

3.2 No other data should be collected other than the data stated in the proposal;

3.3 Stipulated ethical considerations in the protocol related to the protection of Human Subjects' should be observed and adhered to, any violation thereof will lead to termination of the study at any stage;

3.4 A quarterly report to be submitted to the Ministry's Research Unit;

3.5 Preliminary findings to be submitted upon completion of the study;

3.6 Final report to be submitted upon completion of the study;

3.7 Separate permission should be sought from the Ministry of Health and Social Services for the publication of the findings.

Yours sincerely,
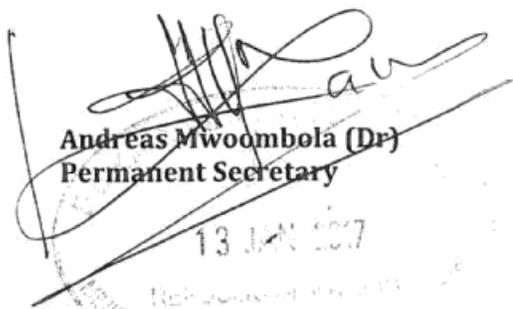
Andreas Mwoombola (Dr)
Permanent Secretary

13 JAN 2017

Appendix D: Table of inputs on the model from experts

Question	Expert 1 Nursing	Expert 2 Nursing	Expert 3 Medicine	Expert 4 Medicine
Is the model linked to the findings presented above?	Yes	Yes	Yes	Yes
Does the model flow logically from stage one to five?	Yes	Yes	Yes	Yes
Are the relevant links between stages clearly shown?	Yes	Yes	No	Yes
Does the model take into consideration most necessary aspects of the learning process?	Yes	Yes	Yes	Yes
Are the theories linked to this model relevant?	Yes	Yes	No	Yes
What is your overall impression and suggestions to improve the model?				
Expert 1	I feel the model is ok and links up different stages of the competence development and I find this well explanatory and helps to follow through the process			
Expert 2	There is logical flow from stage one to stage five, relationship is well described. Yes, the model depicts learning process and theories are relevant. I would like to recommend you to use more proper language of nurse educators to convince the readers you are an expert within the field.			
Expert 3	I think this is a potentially good model but make sure everything you have put here is from the respondents' voices. I don't see a difference between Stages 1 to 3 frames of reference.			
Expert 4	Thanks once again for the great work and developing the model. It looks great			

General comments	
Expert 1	**My responses**
1. At a certain stage – I feel you will need to define some concepts including external and internal horizon.	1. The terms were defined in chapter 3.
2. I would rather change this to competence development process rather than competence development learning process.	2. Title of model was changed to development of competence learning process.
3. Just wondering how important will be maintaining the learning processes from a lower stage i.e. stage one to two – had assimilation; stage two – three accommodation and establishing new viewpoints. Any need to maintain these as you move into stage two and so on.	3. The repetition serves to show the increasing nature in complexity of learning as explained in the model.
EXPERT 2	
1. You need to define what is referred as internal horizon and external horizon in your framework.	The comment is addressed in chapter 3
2. I would like to recommend you to use more proper language of nurse educators to convince the readers as an expert within the field.	Terms like formative assessment, summative assessment, long life learning and self-directedness among others were incorporated.
EXPERT 3	
1. Describing views will not necessarily lead to the assertions and conclusions in your model. You need to do more than describe. Remember describe is a lower order action that does not include explaining why things happen and linkages. Describing is merely reporting what you see without giving rationale. I am also wondering why the rest of your objectives focus on the roles…this is a departure from the topic.	Although the objectives were not changed, the way the objectives were addressed was sufficient to support the assertions and conclusions made in the model. The major objective remained objective one with others acting as supporting objectives or triangulations.

2.	I do not see a difference between Stages 1 to three frames of reference.	The frame of references adjusted to show the differences.
3.	Are the stages in the model related to the stage in nursing? Does it follow that Stage 1 happens in year one? If so, do you have supporting evidence? You would need to clearly show how you analysed your data to show that.	The study findings did not show any particular pattern with regard to alignment of stages with level of study.
EXPERT 4		
1.	There seems to be an overlap between stage 2 and stage 3. They seem to both talks about transitioning from theory to practice. Same thing between stage 4 and stage 5 that all seem to subsequently address better patient outcomes. You either need to make a clear distinction between these stages or at least try to show some linkage between them. For example, in your explanation, you will need to show how stage 1 links to stage 2 etc. In addition, are the stages linear or dialectical in nature? Is one stage a pre-requisite for the subsequent stage?	A clear distinction was made between the stages
2.	Your conclusion that students reach the highest level (stage 5) towards the end of the programme might not be applicable to all students. I suppose there are students who never complete all these stages even by the time they graduate.	I agree and the findings showed that not all students experienced this level. A statement to indicate this was included on stage five of the model.
3.	Your competence model seems to be silent on the role of the lecturer/teacher/tutor in all these stages of competence development and how the actions of the teacher actually facilitate students to go through these five stages. Did you try to look at this as well? How might teacher feedback come in here?	The role of the teacher was considered and discussed at every stage.

4. Stage 1 seems to be about students' intrinsic motivation while stage 2 seems to talk about extrinsic motivation from external sources. Would you be interested in linking these to Higgins motivational theory as well as the Regulatory Focus theory, especially when you bring the aspect of feedback to inform the learning process?	The suggested theories do not link well with the whole model without diverting it away from the study findings.

Appendix E: Participant information sheet for lecturers and clinical instructors

Study title: The learning processes that best support the development of competence among student nurses in practice.

Reference Number: ……………………..

Principal Researcher: Takaedza Munangatire

Address: Evergreen Flats, Evergreen Street, Dorado Valley, Windhoek, Namibia

Contact Number: +264817798094

Introduction

Good day,

My name is Takaedza Munangatire and I am a student at the University of the Witwatersrand studying towards a Doctor of Philosophy in Health Sciences Education. I am doing research on development of competence in nursing students. Research is a process of seeking answers or learning more about a particular problem or issue. In my study I want to explore the learning processes used in development of competence so that nursing education strengthened to improve learning.

Invitation to participate

I am inviting you to participate in a semi structured interview where you will share your experiences of learning as you develop competence in students in the diploma in nursing programme in your college. You are invited to participate in this study because you are facilitating learning in nursing students in Namibia.

Participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part without any penalty or loss of benefits which you may be entitled to.

What is involved in the study?

If you agree to participate, this qualitative study will take place between and December 2016 and July 2017 and you are asked to participate in this interview on a one basis with me. The Interview will take place at a venue in your school as provided by the school authorities and will take approximately 30 to 45 minutes. During the interview you are asked to fully share your views and experiences. During the session, no names will be used; instead numbers will be used for identification. For purposes of accurately analysing the date, the interview will be audio recorded. The record will be kept for two years after the publication of this study and for six years if the study is not published.

Risks and Benefits

There are no anticipated risks for participating in this study and there is also no direct benefit, but it is expected that the results of this study will help improve learning in nursing programmes in both under and post graduate levels as well as in continuous professional development programmes. If you would like to receive feedback on this study, I will send you the results of the study when it is completed.

Reimbursements for "out of pocket" expenses.

I will provide refreshments and there are no anticipated costs that you will incur.

Who to contact if you have been harmed or have any concerns

This study has been approved by the Human Research Ethics Committee (REC) at University of Witwatersrand as well as the Biomedical Research Ethics Committee (BREC) and Research Management Committee (RMC) of Namibia and will be conducted according to accepted and applicable national and international ethical guidelines and principles, including those of the International Declaration of Helsinki October 2008. If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please contact my supervisor Prof Trish McInerney at Patricia.McInerney@wits.ac.za , PV Tobias Building: 2nd Floor, Office 206 University of the Witwatersrand or Prof P Cleaton-Jones – Chairperson of the HREC in Steve Biko Centre for Bioethics, PV Tobias Building

(0117172301 or Peter.Cleaton-Jones@wits.ac.za or Ms Hilma Nangombe - Chairperson of BREC and RMC at Ministry of Health and Social Services, Harvey Street, Windhoek Namibia at (hnangombe@mhss.gov.na) or +264 61 272 286.

Confidentiality

I will take all the necessary measures to keep all personal information confidential, although absolute confidentiality may not be guaranteed. Furthermore, in case the results are published, it may lead to some form of identification which may not necessarily be individual records. All personal details regarding sex, age, signature and opinions will be anonymously processed into the research report.

If you are willing to participate in this study and be audio recorded, please read and sign the attached Declarations of Consent for participation and audio recording.

DECLARATION BY PARTICIPANT FOR PARTICIPATING IN THE STUDY

By signing below, I ……………………………..…………. agree to take part in a research Study entitled: The learning processes that best support the development of competence among student nurses in Namibia.

I declare that:

I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.

I have had a chance to ask questions and all my questions have been adequately answered.

I understand that taking part in this study is voluntary and I have not been pressurised to take part.

I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (place) ....…......……………. On (date) …………...……….. 2017.

Signature of participant

DECLARATION BY PARTICIPANT FOR CONSENT TO AUDIO RECORDING

By signing below, I …………………………….…………. agree to take have, my participation proceedings audio recorded in the research study entitled: The learning processes that best support the development of competence among student nurses in Namibia.

I declare that:

I understand that my participation in the focus group discussion is going to be audio recorded, records which will then be transcribed into written material for analysis purposes.

I also understand that the recordings are going to be solely used for the purpose of this research and agreeing to have the recording done is voluntary just like participation in this study

I understand that taking part in this study is voluntary and I have not been pressurised to take part.

I may request certain parts not to be recorded and will not be penalised or prejudiced in any way.

The handling of the recorded information and subsequent written one has been explained to me and I understand that it will be kept in confidence.

Signed at (place) ....…….........…………….. On (date) …………...……….. 2017.

Signature of participant

Appendix F: Participant information sheet for nurses

Study title: The learning processes that best support the development of competence among student nurses in practice.

Reference Number: ……………………..

Principal Researcher: Takaedza Munangatire

Address: Evergreen Flats, Evergreen Street, Dorado Valley, Windhoek, Namibia

Contact Number: +264817798094

Introduction

Good day,

My name is Takaedza Munangatire and I am a student at the University of the Witwatersrand studying towards a Doctor of Philosophy in Health Sciences Education. I am doing research on development of competence in nursing students. Research is a process of seeking answers or learning more about a particular problem or issue. In my study I want to explore the learning processes used in development of competence so that nursing education programs can be strengthened to improve learning.

Invitation to participate

I am inviting you to participate in a semi structured interview where you will share your experiences of learning as you develop your competence in nursing practice. You are invited to participate in this study because you hold a diploma in nursing and you are working as a nurse in Namibia.

Participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part without any penalty or loss of benefits which you may be entitled to

What is involved in the study?

If you agree to participate, this qualitative study will take place between and December 2016 and July 2017 and you are asked to participate in this interview on a one basis with me. The Interview will take place at a venue in your school as provided by the school authorities and will take approximately 30 to 45 minutes. During the interview you are asked to fully share your views and experiences. During the session, no names will be used; instead numbers will be used for identification. For purposes of accurately analysing the date, the interview will be audio recorded. The record will be kept for two years after the publication of this study and for six years if the study is not published.

Risks and Benefits

There are no anticipated risks for participating in this study and there is also no direct benefit, but it is expected that the results of this study will help improve learning in nursing programmes in both under and post graduate levels as well as in continuous professional development programmes. If you would like to receive feedback on this study, I will send you the results of the study when it is completed.

Reimbursements for "out of pocket" expenses.

I will provide refreshments and there are no anticipated costs that you will incur.

Who to contact if you have been harmed or have any concerns

This study has been approved by the Human Research Ethics Committee (REC) at University of Witwatersrand as well as the Biomedical Research Ethics Committee (BREC) and Research Management Committee (RMC) of Namibia and will be conducted according to accepted and applicable national and international ethical guidelines and principles, including those of the International Declaration of Helsinki (October 2008). If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please contact my supervisor Prof Trish McInerney at Patricia.McInerney@wits.ac.za , PV Tobias Building: 2nd Floor, Office 206 University of the Witwatersrand or the Prof P Cleaton-Jones – Chairperson of the HREC in Steve Biko Centre for Bioethics, PV Tobias Building

(0117172301 or Peter.Cleaton-Jones@wits.ac.za or Ms Hilma Nangombe - Chairperson of BREC and RMC at Ministry of Health and Social Services, Harvey Street, Windhoek Namibia at (hnangombe@mhss.gov.na) or +264 61 272 286.

ConfidentialityI will take all the necessary measures to keep all personal information confidential, although absolute confidentiality may not be guaranteed. Furthermore, in case the results are published, it may lead to some form of identification which may not necessarily be individual records. All personal details regarding sex, age, signature and opinions will be anonymously processed into the research report.

If you are willing to participate in this study have it audio recorded, please read and sign the attached Declarations of Consent for participation and audio recording.

DECLARATION BY PARTICIPANT FOR PARTICIPATING IN THE STUDY

By signing below, I ……………………………..…………. agree to take part in a research study entitled: The learning processes that best support the development of competence among student nurses in Namibia.

I declare that:

I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.

I have had a chance to ask questions and all my questions have been adequately answered.

I understand that taking part in this study is voluntary and I have not been pressurised to take part.

I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (place) ....….......…………….. On (date) …………...……….. 2017.

Signature of participant

DECLARATION BY PARTICIPANT FOR CONSENT TO AUDIO RECORDING

By signing below, I …………………………….…………. agree to take have, my participation proceedings audio recorded in the research study entitled: The learning processes that best support the development of competence among student nurses in Namibia.

I declare that:

I understand that my participation in the focus group discussion is going to be audio recorded, records which will then be transcribed into written material for analysis purposes.

I also understand that the recordings are going to be solely used for the purpose of this research only and agreeing to have the recording done is voluntary just like participation in this study

I understand that taking part in this study is voluntary and I have not been pressurised to take part.

I may request certain parts not to be recorded will not be penalised or prejudiced in any way.

The handling of the recorded information and subsequent written one has been explained to me and I understand that it will be kept in confidence.

Signed at (place) ....…......……………... On (date) …………...……….. 2017.

Signature of participant

Appendix G: Participant information sheet for student nurses

Study title: The learning processes that best support the development of competence among student nurses in practice.

Reference Number: ……………………..

Principal Researcher: Takaedza Munangatire

Address: Evergreen Flats, Evergreen Street, Dorado Valley, Windhoek, Namibia

Contact Number: +264817798094

Introduction

Good day,

My name is Takaedza Munangatire and I am a student at the University of the Witwatersrand studying towards a Doctor of Philosophy in Health Sciences Education. I am doing research on the development of competence in nursing students. Research is a process of seeking answers or learning more about a particular problem or issue. In my study I want to explore the learning processes used in the development of competence so that nursing education programs can be strengthened to improve learning.

Invitation to participate

I am inviting you to participate in a focus group discussion where you will share your knowledge and experiences of learning as you develop competence in the diploma in nursing programme in your college. You are invited to participate in this study because you are a student in nursing at Windhoek Training Centre here in Namibia.

Participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part, without any penalty or loss of benefits to which you may be entitled.

What is involved in the study?

If you agree to participate, this qualitative study will take place between and December 2016 and December 2017 and you are asked to participate in a focus group discussion with other students from your college. The focus group discussion will take place at a venue in your school as provided by the school authorities and will take approximately 45-90 minutes. During the focus group discussion, you are asked to fully participate and express your views without necessarily having to agree or disagree with any other participant. During the session, no names will be used; instead numbers will be used to identify the participants. It is expected that a total of 8 people will be part of the focus group discussions which will be audio recorded. If you are willing to participate in this study and have the discussion audio recorded, please read and sign the attached Declarations of Consent for participation and audio recording.

Risks and Benefits

There are no anticipated risks for participating in this study and there is also no direct benefit, but it is expected that the results of this study will help improve learning in nursing programmes. If you would like to receive feedback on this study, I will send you the results of the study when it is completed.

Reimbursements for "out of pocket" expenses.

I will provide refreshments and there are no anticipated costs that you will incur.

Who to contact if you have been harmed or have any concerns

This study has been approved by the Human Research Ethics Committee (HREC) at University of Witwatersrand as well as the Biomedical Research Ethics Committee (BREC) and Research Management Committee (RMC) of Namibia and will be conducted according to accepted and applicable national and international ethical guidelines and principles, including those of the International Declaration of Helsinki (October 2008). If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please contact my supervisor Prof Trish McInerney at Patricia.McInerney@wits.ac.za , PV Tobias Building:

2nd Floor, Office 206 University of the Witwatersrand or Prof P Cleaton-Jones – Chairperson of the HREC in Steve Biko Centre for Bioethics, PV Tobias Building (0117172301- or Peter.Cleaton-Jones@wits.ac.za or Ms Hilma Nangombe - Chairperson of BREC and RMC at Ministry of Health and Social Services, Harvey Street, Windhoek Namibia at (hnangombe@mhss.gov.na) or +264 61 272 286)

Confidentiality

I will take all the necessary measures to keep all personal information confidential, although absolute confidentiality may not be guaranteed in a focus group discussion. I cannot guarantee that other participants will not talk about the focus group afterwards. Furthermore, in case the results are published, it may lead to some form of identification which may not necessarily be individual records. All personal details regarding sex, age, signature and opinions will be anonymously processed into the research report.

If you are willing to participate in this study and have it, audio recorded please read and sign the attached Declarations of Consent for participation and audio recording.

DECLARATION BY PARTICIPANT FOR PARTICIPATING IN THE STUDY

By signing below, I ……………………………..…………. agree to take part in the research study entitled: The learning processes that best support the development of competence among student nurses in Namibia.

I declare that:

I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.

I have had a chance to ask questions and all my questions have been adequately answered.

I understand that taking part in this study is voluntary and I have not been pressurised to take part.

I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (place) ....…......……………. On (date) …………..……….. 2017.

Signature of participant

DECLARATION BY PARTICIPANT FOR CONSENT TO AUDIO RECORDING

By signing below, I …………………………………..…………. agree to take have, my participation proceedings audio recorded in the research study entitled: The learning processes that best support the development of competence among student nurses in Namibia.

I declare that:

I understand that my participation in the focus group discussion is going to be audio recorded, records which will then be transcribed into written material for analysis purposes.

I also understand that the recordings are going to be solely used for the purpose of this research and agreeing to have the recording done is voluntary just like participation in this study

I understand that taking part in this study is voluntary and I have not been pressurised to take part.

I may request certain parts not to be recorded and will not be penalised or prejudiced in any way.

The handling of the recorded information and subsequent written one has been explained to me and I understand that it will be kept in confidence.

Signed at (place) ....….......……………….. On (date) …………...……….. 2017.

Signature of participant

Appendix H: Semi-structured interview guide lecturers and clinical instructors

Date: …………………………

Time: ……………………….

Principal Researcher and Facilitator: Mr.Takaedza Munangatire

Welcome remarks

Our topic is... …………

Purpose of the research is…………….

The results will be used for...

You were selected because...

Questions (The probing / follow up questions are examples and may not need all to be asked. After the opening question, the interview will be guided by the views of the participants and probing questions.

1. *Please tell me what you understand by the term "competence"?*

2. *What is your view of your role in facilitating students' learning processes that support the development of competence?*

Examples of follow up questions:

      a. *Can you explain further?*
      b. *Please give examples*
      c. *What do you mean by that?*

Appendix I: Focus group interview guide for second year students

Date: …………………………

Time: ……………………….

Number of participants: ………..

Principal Researcher and Facilitator: Mr.Takaedza Munangatire

Welcome remarks

Our topic is... …………

Purpose of the research is…………….

The results will be used for...

You were selected because...

Ground rules of the focus group discussion

1. The discussion will be among you while I facilitate the process.

2. All participants will be given an opportunity to speak.

3. One speaker at a time while others listen as we are tape recording

4. The speaker will address the topic of discussion

5. No dialogue between any two participants

6. No option is wrong or irrelevant

7. You don't need to agree with others, but you must listen respectfully as others share their views

8. We ask that you turn off your phones. If you cannot and if you must respond to a call please do so as quietly as possible and re-join us as quickly as you can.

9. My role as moderator will be to guide the discussion

Adapted from Designing and Conducting Focus Group Interviews (Honey, Mumford 2000)

Questions for students (The probing / follow up questions are examples and may not all need to be asked. After the opening question, the interview will be guided by the views of the participants and probing questions will be used).

1. *What do you understand by competence?*
2. *What do you do in your learning to become competent?*
3. *What are your views regarding the role of lecturers, clinical instructors and nurses in practice in the learning processes that best support the development of your competence?*

Examples of follow up questions:

a. *Can you explain further?*
b. *Please give examples*
c. *What do you mean by that?*

Appendix J: Semi-structured interview guide for third and fourth year students

Date: …………………………

Time: ……………………….

Principal Researcher and Facilitator: Mr.Takaedza Munangatire

Welcome remarks

Our topic is... …………

Purpose of the research is…………….

The results will be used for...

You were selected because...

Questions for students (The probing / follow up questions are examples and may not all need to be asked. After the opening question, the interview will be guided by the views of the participants and probing questions will be used).

1. *What do you understand by competence?*
2. *What do you do in your learning to become competent?*
3. *What are your views regarding the role of lecturers, clinical instructors and nurses in practice in the learning processes that best support the development of your competence?*

Examples of follow up questions:

a. *Can you explain further?*
b. *Please give examples*
c. *What do you mean by that?*

Appendix K: Experts invitation letter

Study title: The learning processes that best support the development of competence among student nurses in practice.

Reference Number: ……………………..

Principal Researcher: Takaedza Munangatire

Address: Evergreen Flats, Evergreen Street, Dorado Valley, Windhoek, Namibia

Contact Number: +264817798094

Good day,

My name is Takaedza Munangatire and I am a student at the University of the Witwatersrand studying towards a Doctor of Philosophy in Health Sciences Education. I conducted a research on the development of competence in nursing students. In my study explored the learning processes used in the development of competence so that nursing education programs can be strengthened to improve learning. Following my data collection and analysis I developed a model, therefore as one of the experts in the field of health professions education I am seeking your input to analyze this model. If you are in a position to do so, please let me know so I can provide you with a set of questions, the study synopsis, the findings and the model for your consideration.

Kind regards

…………………

T.Munangatire