CHAPTER ONE

OVERVIEW OF THE STUDY

1.1 INTRODUCTION

This chapter provides an overview of the study and includes the background of the study, the problem statement, the purpose of the study, the research question and objectives, the significance of the study, the researcher's assumptions, theoretical and methodological assumptions, theoretical definitions, an overview of the research methods, measures of validity and reliability, ethical considerations and a summary of the chapter.

1.2 BACKGROUND OF THE STUDY

Clinical teaching is a complex component of nursing which involves assessing the student's behaviour, knowledge, attitudes and skills, all of which contribute to the student's professional and personal growth, and must ultimately ensure quality patient care.

For clinical teaching to be a success, it requires the adoption of effective approaches to familiarize the students with new knowledge and essential needs, and to minimize the gap between the theoretical and clinical nursing education (Heidari and Norouzadeh, 2014).

According to Potgieter (2012), clinical teaching requires a shift from content-based or problem-based curricula. It should allow nurses to reflect, think critically, self-critique, synthesise information, link concepts and become self-directed lifelong learners. Clinical practice requires critical thinking and problem-solving abilities, specialized psychomotor and technological skills and a professional value system of the student nurse (Jamshidi, 2012).

Teaching clinical skills is a process in which nurse educators are required to give constant facilitation, “on-the-spot” feedback and follow-up sessions to students. Assessing clinical competence in nursing is an essential, but complex, task. Clinical competence consists of the knowledge, skills, values and attitudes that students demonstrate in an authentic practice setting (Bruce, Klopper and Mellish.,2011). This implies that clinical competence is a necessity for safe practice as patient care includes clinical skills. Bifftu et al., (2016) describe nursing competence as the persons’ ability to perform nursing duties effectively in order to integrate cognitive, emotional, and psychomotor skills during nursing care.

Bruce et al., (2011) state that applied competence refers to the abilities that a student must demonstrate in an authentic context, as a result of learning. The abilities are referred to by the authors as practical competence, foundational competence and reflexive competence. Bruce et al: (2011:177) explain the types of applied competence as follows:

- “Practical competence refers to the student demonstrating the action and being able to make decisions concerning the task.”
- “Foundational competence refers to the cognitive underpinning of actions implemented by the student.”
- “Reflexive competence refers to the student’s ability to integrate actions and decision making with understanding and the ability to make necessary adaption if required.”

Not only should the student nurse show clinical competence, but clinical teaching also requires nurse educators to be clinically competent, continually updated and knowledgeable in clinical skills and be able to share their knowledge with students in clinical settings. Billings and Halstead (2012) are of the opinion that effective clinical teaching requires nurse educators to facilitate nurses learning clinical reasoning skills. Clinical reasoning is a process that enables a person to collect data, make sound decisions and judgments based on the data, solve problems and provide quality nursing care to patients (Billings et al., 2012).

For nurse educators to be successful in teaching clinical skills they need to be well organized and structured and they need to implement clinical sessions within a set of overarching course objectives. These sessions require direction and guidance. Clinical practice is an essential component of the nursing curriculum and is aimed at equipping nurses with the nursing skills they require for the practice of nursing. Competency of these clinical skills is deemed so important that it is a requirement for the student to pass the clinical component of their course. As the need for nurse training increases, the load on the educator's increases and time available for accompaniment with each individual nurse becomes more of a challenge. In spite of the challenges, clinical competency is essential for safe practice and thus cannot be neglected during training. Nurse educators have a responsibility to explore all teaching and learning methods for preparing their students to be competent clinical practitioners.

The researcher wanted to compare facilitator-assisted teaching (FAT) and peer-assisted teaching (PAT) for teaching clinical skills by measuring the student nurse's clinical competency outcomes and establishing their preference of teaching method. This study could serve to be valuable to nurse educators as one of these teaching methods could prove to be an alternative option for teaching skills. Alternatively both methods could be taught in combination.

The facilitator-assisted method is a teacher-centred approach and involves the nurse educator to demonstrate the procedure to the students. This method of teaching makes use of one-way communication. The nurse educator acts as practice educator and the student learns the skill based on the nurse educator's knowledge and experience by observation and imitation (Palsson, et al., 2017).

Literature describes peer teaching as teaching by "people from similar social groupings, who are not professional teachers, helping each other to learn and learning themselves by teaching" (Seenan, Shanmugam and Stewart 2016:40). The use of PAT increases depth of learning and retention and thus benefits the student and the educator.

According to Billings et al., (2012), the clinical environment is multifaceted and allows the student nurse to grow professionally; therefore, the bedside is the ideal place where cognitive knowledge should be applied. Rush et al., (2012) posit that teaching in simulation offers advantages by providing a safe environment for high-risk procedures and exposure to rare but complicated clinical events. Simulation creates training opportunities, rather than waits for a suitable situation to arise, thus provides immediate feedback to students and an opportunity to evaluate their performance.

During clinical skills training, the nurse educator facilitates and demonstrates procedures to students. The students then practice the procedures until they become competent.
Traditionally, this was done under the direct supervision of the nurse educator but more

recent literature shows that peer teaching can be carried out successfully (Seenan et al., 2016). The students continue to be evaluated by the nurse educator to ensure clinical competence before they enter the clinical settings. This ensures that they render safe nursing care.

Clinical skills taught in nursing colleges should be reinforced in the clinical practice by commencing clinical accompaniment with the student nurses very soon after they enter the clinical setting, encouraging good clinical standards. Student nurse accompaniment enhances the student's opportunities to apply the cognitive knowledge together with the practical skills, thus reducing the possibilities of the student nurse being influenced by poor practice in the clinical environment. Henderson (2011:197) emphasizes that "the student nurse and the neophyte learn by observing the actions and the practice of nursing which can in turn be applied to their own practice."

1.3 PROBLEM STATEMENT

In South Africa, nurse educators are faced with high ratios of student nurses per nurse educator, a ratio of one educator to thirty five students (Donough and van der Heever 2018), Time constraints and the expectations of producing clinically competent student nurses is challenging as the number of students per intake are increasing and the available time for the nurse educator to teach these skills is limited. After each block student nurses are expected to go back into the clinical fields clinically competent for each year of study. These challenging tasks call for nurse educators to look for additional measures to provide clinical competency.

1.4 RESEARCH QUESTION

Would changing the method of teaching clinical competence alleviate the present challenges, without compromising the level of competence of student nurses?

1.5 AIM OF THE STUDY

To compare two teaching methods, FAT and PAT, for teaching clinical competency to student nurses.

1.6 RESEARCH OBJECTIVES

The objectives of the study were:

- To compare FAT with PAT to achieve clinically competent student nurses.
- To explore which of the two teaching methods was preferred by the student nurses.

1.7 SIGNIFICANCE OF THE STUDY

Clinical competency is a requirement that all nurses need to master, as clinical nursing impacts directly on patient care. Because of large numbers of student nurses, the amount of time nurse educators can spend on clinical demonstrations and accompaniment with each student nurse is limited. If additional methods of teaching clinical competency can be successfully implemented, each student nurse would benefit from an increased amount of supervised time in preparation for competency evaluations. If both FAT and PAT methods prove successful, training towards clinical competency could be increased as clinical time is utilised more efficiently. It would offer different methods of teaching which could be used by nurse educators to meet different situations. Student nurses may also enjoy the stimulation of PAT.

PARADIGMATIC PERSPECTIVES

A paradigm is a set of rules or a model for understanding something. It is "an overarching philosophical framework of the way in which scientific knowledge is produced", according to Brink, Van der Watt and Van Rensburg (2012:25).

A perspective refers to a point of view and a paradigmatic perspective is the point of view created by a specific paradigm. The context in which the term is used enables one to determine what is meant. Assumptions are the basic principles that we accept on faith, take for granted or assume to be true without proof or verification (Polit and Beck, 2012).

According to Brink et al. (2012), research assumptions are embedded in the philosophical base of the framework, design and interpretation of findings, and they influence the logic of the study. They are basic underlying truths from which theoretic reasoning proceeds. They are often embedded in thinking and behaviours and require introspection and a strong knowledge base in the research area that is to be uncovered (Brink et al., 2012).

In line with Polit and Beck (2012), the meta-theoretical assumptions of nursing comprise the person, the environment, health and nursing, applied in this study to the field of nursing education and, more specifically, clinical supervision and teaching.

- Persons

The persons in this study are the first-year bridging student nurses who are doing both theoretical and clinical components for eventual registration as a general nurse. The second person is the nurse educator. These two persons interact in this context. A student nurse, who is an adult, actively participates in the learning process. The nurse educator and the student nurse are closely connected in both internal and external learning environments.

The nurse educators share their knowledge and expertise and support students using different teaching methods.

- Environment.

The education environment for student nurses is a dynamic, creative, constantly evolving environment. It creates diverse opportunity for interaction between the student nurses, nurse educators, clinical facilitators and other multidisciplinary team members. The environment in this study includes the classrooms and the clinical simulation laboratory, which contain all the necessary learning resources, clinical, diagnostic and therapeutic equipment and a range of manikins. Once the student nurses have mastered the skill in simulation, they are placed in the hospitals where they are exposed to reality. They are then required to apply the theory learnt in the classroom to real-life situations. Clinical settings can be very challenging for the student nurses as these environments are complex, specialised, unpredictable and rapidly changing (Potgieter, 2012; Jamshidi, 2012). The clinical setting itself is not the only challenge for the student nurse. Other challenges in clinical teaching are limited clinical facilities, decreased acute care admissions and shortage of nurse educators (Potgieter, 2012).

- **Health**

Maintaining one's own health is important during the process of studying. This is particularly true when the workplace is a hospital environment where the student nurse is responsible for the health of others. The psycho-social wellbeing of the student nurse is monitored and supported by nursing educators. A positive and effective experience during student nurse education allows the student nurse to stay motivated and encourages the will to learn. An effective nursing education process should be one that involves the continuous maintaining and promoting of the wellbeing of the student nurse. This not only entails the theoretical component of the curriculum, but also includes the clinical skills.

- **Nursing education**

Nursing education refers to the specific training a nurse receives to obtain a professional registerable qualification in order to nurse patients. According to Boore and Deeny (2012), nursing education provides a strategic guide and practical focus to curriculum planning and development. It meets both professional and academic requirements, integrates theory and practice and enables student nurses to achieve the skills and competencies they need for professional practice. It also includes different methods of teaching and learning. In nursing education, the classroom and clinical environments are linked because student nurses need to apply in the clinical practice what they have learnt in the classroom (Jamshidi, 2012). Because of the shortage of nurse educators and the ratio of student nurses to nurse educators, the time available for individual student nurse accompaniment and repetitive supervision is limited.

Nursing education requires commitment and dedication from student nurses. This includes striving for excellence in both clinical and theoretical competence. Education of the student nurse plays a pivotal role in maintaining the health of patients.

In this study, two different teaching methods are facilitated by the nurse educators in clinical training at a private institution in the Western Cape.

1.8.1 Theoretical assumptions

Grove, Gray and Burns (2015) describe theoretical assumptions as a set of concepts and statements that presents a view of a phenomenon. Theories are abstract, rather than concrete, meaning that theoretical assumptions are an expression of an idea, apart from any specific instance (Burns and Grove, 2011).

1.8.2 Definition of concepts

Clinical competence: This is defined by Bifftu et al. (2016) as particular knowledge, attitude and skill to perform a specific task in a manner that yields desirable outcomes. Student nurses are required to achieve competency in certain clinical skills during every year of training. The skills identified in the first year bridging course are skills of interest. In this study the physical assessment of a patient and the taking and interpretation of an ECG was utilized.

Clinical facilitator: In this institution clinical facilitators assist student nurses to attain clinical skills in their clinical environment to accomplish their learning outcomes and ensure quality nursing care. They are the "gatekeepers" to ensure quality of clinical skills (Stuart, 2013). The researcher worked in close collaboration with the clinical facilitator because of the close link of integration of theory and clinical components to achieve competence of the student nurses.

Clinical skills: Clinical skills are developed by student nurses when they engage in providing nursing care to patients by performing planned and unplanned procedures in the clinical settings. Clinical skills are engrained with repeated practice, repetition and exposure to a variety of experiences (Schupbach, 2012).In this study the clinical skills were demonstrated in the clinical blocks in the nursing college by the nurse educators. Two clinical skills were used to evaluate the outcomes of the methods of teaching.

Clinical training: Clinical training is a complex task which involves teaching student nurses clinical skills using different teaching methods to ensure clinical competence, and it involves many dimensions (Heidari et al., 2014). It may take place at the bedside or in simulation. For this study the clinical training was taught in simulation at a private nursing college.

Nurse educator: In this study a nurse educator is a specialist nurse who holds a qualification in nursing education, is a professional individual who possesses expert knowledge and skill in a specific field attained through formal education and experience. The nurse educator uses the knowledge to attend and facilitate clinical learning of student nurses (Jamshidi et al., 2012).
In this study two teaching methods were compared and are defined below:

Facilitator-assisted teaching: This is a teacher-centred approach and involves the nurse educator demonstrating the procedure to the students. In this study this method of teaching required the nurse educator to demonstrate the required procedures and behaviours, followed by practice of these same skills by the students with the nurse educator facilitating the student.

Peer-assisted teaching: Peer-assisted teaching postulates that individuals learn from observing the behaviours of others (El-Sayed, Metwally and Abdeen, 2013). Seenan et al., (2016:40) define peer-assisted teaching as "people from similar social groupings, who are not professional teachers, helping each other to learn and learning themselves by teaching". In this study peer teaching involves students at the same cognitive level, teaching one another.

1.8.3 Methodological assumptions

According to Brink et al. (2012), methodological assumptions guide and influence the researcher's investigation. Methodological assumptions explain the methods the researcher uses to understand the phenomenon. This study made use of a crossover design to test clinical competency after subjects respondents were subjected to two different methods of clinical teaching.

Research methodology is a scientific process which includes steps, procedures and strategies to obtain data that need to be analysed. It provides answers to questions and provides guidelines to deal with difficulties arising during the research process (Burns and Grove (2011).

It is recognized that all researchers bring assumptions to their research consciously or unconsciously and investigators decide whether they are going to view their study from a post-positivist (quantitative) or constructivist (qualitative) perspective (Munhall, 2012).

1.9 RESEARCH METHODS

The type of research design selected for this study and methods used to carry out the study are described in the research methods.

1.9.1 Research design

The study consisted of a quantitative, concurrent, quasi-experimental approach with a crossover design. Open-ended questions completed the data in order to establish which method of teaching the students preferred and why.

A quantitative design was chosen for this study. A quantitative design is described by Brink et al. (2012) as a systematic, controlled method of collecting and analysing numerical information. Since, the competency of respondents would be measured in order to compare the methods of teaching, this seemed the appropriate design.

In phase one of the research design the respondents were placed in two groups, both performing the clinical skill, “Physical assessment of a patient”. The two groups were then crossed over and assessed on a second skill, “Taking and interpretation of a ECG”.
In phase two of the research design the respondents were requested to complete a questionnaire.

A quasi-experimental design is a design which facilitates the search for knowledge in situations in which complete control of a study design is not possible (Grove et al., 2013). Due to the number of respondents who had to be evaluated, there were two groups, each with their own facilitator. The facilitators evaluated the same teaching method across both groups. In other words, Facilitator One evaluated the respondents using the PAT method in both groups and Facilitator Two evaluated the FAT method in both groups. This maintained consistency in the evaluation process.

According to Burns and Grove (2011), a concurrent study involves the collection of data for the original study and its simultaneous replication to provide a check of the reliability of the original study. All respondents were subjected to both methods of clinical teaching in order to validate the findings.

A crossover design was used as it includes the administration of more than one treatment to each subject and the treatments are provided concurrently. Comparisons are then made from the results of the different treatments on the same subject (Grove et al., 2013).

The researcher explored the crossover design using simple random sampling. Each group of respondents was used to serve as both the control group and the experimental group (Parahoo, 2014).

1.9.2 Study setting

The study was conducted at a nursing college of a large private hospital group in the Western Cape. The college has a four-bed clinical simulation laboratory where all procedures are demonstrated, practiced and assessed. It is equipped with a range of simulation manikins and clinical and therapeutic equipment required for first-year bridging procedures. The department is controlled by the nursing educators and continuously evaluated according to the needs of the student nurses and the staff using it. Student nurses make bookings to utilize the simulation laboratory during block periods or during the days they are not scheduled to work in the hospitals. The first-year bridging student nurses are required to attend three weeks of clinical skills during the year. This takes place at the nursing college. A professional and clinical atmosphere is created and maintained for student nurses, replicating the hospital setting.

1.9.3 Population and sample

The target population included all the first-year bridging student nurses registered at a private nursing college who are required to undergo clinical training. The accessible population was 92.

As this was a census sample the sample consisted of all the student nurses who commenced the first-year bridging course in the 2017 intake. This census sample consisted of 88 respondents. Three students did not avail themselves for inclusion and one student resigned from the course and thus could not be included in the study. Random sampling was carried out. All students selected a number as they entered the classroom. The students who received an odd number formed group one and the students who received an even number formed group two. The fact that two groups of individuals have their differences and whether or not these differences change the outcome is unknown (Parahoo, 2014).

1.9.4 Data collection

Data collection was undertaken by the researcher and a nursing colleague. The colleague is a nurse educator with a nursing degree. She worked at the same private institution as the researcher and was responsible for clinical and theoretical facilitation. The researcher and her colleague met and confirmed the interpretation and allocation of points according to the criteria laid out in the evaluation tools (Appendices 6 and 7). Competency was assessed accordingly. The inclusion of marking criteria decreases the subjectivity of the observer. It allows the observer to be fair, consistent and accurate when assessing (Franklin and Melville, 2015).

Because PAT was one method of teaching used, a request from the respondents to allow peers to observe the evaluation was considered and permitted on the verbal agreement of all the respondents.

Group one was initially selected for the PAT method and Group two for the FAT method.

According to Burgess and Mellis (2015), the purpose of accurate clinical skill assessment and feedback is to improve student nurses' knowledge, skills or behaviour and narrow the gap between actual and desired performance. It ensures that student nurses remain on target and reach their objectives.

The data collection was divided into two phases. Phase one contained two steps and was the focus of this study. The respondents were randomly selected into two groups by selection of numbers. Group one was initially selected for the PAT method and Group two for the FAT method.

Since PAT was a new experience for these respondents it was considered pertinent to obtain some information from the respondents about their experience of PAT at the same time. A second phase was thus included. This phase included four questions regarding the experience of the respondents.

1.9.5 Data analysis

The results from both step one and step two in phase one were subjected to statistical analysis, including the two closed ended questions (questions four and five) The quantitative data from phase one which are numeric in nature were analysed using descriptive, inferential and comparative statistical measures. The data were considered as non-parametric data due to the small sample size**.** This was analysed and interpreted with the assistance of a statistician.

In phase two the conventional content analysis of Hsieh and Shannon (2005) was utilized and the open-ended questions (questions six to nine) were read and analysed by the researcher and supervisor to unfold what it was about each method of teaching the respondents enjoyed and what they found challenging. The data was analysed until sense was derived, highlighting words to capture key concepts. From these concepts coding was carried out and categories emerged.

1.10 VALIDITY AND RELIABILITY OF THE STUDY

Validity refers to the degree to which the intended concept is accurately measured. It is concerned with measuring the concept as well as the accuracy of the measurement. The validity of an instrument is a determination of how well the instrument reflects the abstract concept being examined (Grove et al., 2015). The clinical evaluation instruments that were used in this study to test competency were those used routinely by the teaching institution to measure the competency of students' practical skills.

Reliability is achieved when a particular instrument measures what it purports to measure (Cohen, Manion and Morrison, 2011). It is concerned with precision and accuracy. Reliability in this study was measured by using the same clinical evaluation instruments which had been tested by a quality assurance group and had been in use for a number of years. The instruments are aligned to the practice standards for first-year bridging student nurses, thus enhancing the reliability and validity.

1.11 ETHICAL CONSIDERATIONS

Before commencing the study, the following were done:

Approval was obtained from the University of Witwatersrand, Faculty of Health Sciences Assessors Committee to conduct the study.

Ethical approval for this research project was obtained from the Human Research Ethics Committee (Medical) of the University of Witwatersrand; clearance certificate number **M150776** was obtained (Appendix 1).

Permission was then obtained from the private institution research committee with approval number **UNIV-2015-0065** (Appendix 2).

All respondents received a letter of information before participating (Appendix 3). This letter was given to the respondents three weeks before the commencement of the study. Respondents were given enough time to reflect if they wanted to participate in the study or ask any questions. Informed consent was obtained from all the participants (Appendix 4). The researcher clarified all information with the respondents. Neither the researcher nor her colleague are line managers or supervisors of the students. The results of the skills assessed during this study were not used for purposes of course evaluation. No pressure was applied to obtain consent; participants were guaranteed that they could withdraw from the study at any time without any consequences.

Anonymity and confidentiality were guaranteed to all the study respondents. Total anonymity could not be guaranteed as students were known to each other and the educators. The assessment tool contained no means of identification of the respondents. The respondents were free to withdraw from the research at any stage. The groups were selected randomly as explained in the data collection. The assessment tools were numbered to maintain anonymity. The data held by the researcher is stored on a password protected computer. The raw data will be kept locked in the supervisors office. All research documentation will be kept for a duration of six years or until publications have been submitted.

1.12 OUTLINE OF THE DISSERTATION

Chapter layout of the thesis is as follows:

Chapter one	Overview of the study
Chapter two	Literature review
Chapter three	Research methods
Chapter four	Results
Chapter five	Discussion, recommendations, limitations and conclusions

1.13 SUMMARY

This chapter presented an overview of the study. The problem statement, purpose of the study, research objectives and significance of the study were described. The assumptions of the researcher were discussed and the operational terms defined. An overview was given of the research methods, validity and trustworthiness of the study and the ethical procedures adhered to.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

In the previous chapter, a general overview of the study was provided. It included the background to the study, the problem statement, the research question, the purpose of the study, the research objectives and the significance of the study. It also briefly described the theoretical framework and the meta-theoretical assumptions, research methods and ethical considerations briefly.

In this chapter, a literature review is conducted to generate an understanding of what is known about a particular situation, phenomenon or problem and to identify the knowledge gaps that exist. Grove et al. (2013) and Brink et al. (2012) explain a literature review as a picture that generates what is known and not known about the research problem.

In this chapter, the researcher has engaged with available literature that may contribute to the aim of this study and help identify whether different teaching methods, particularly the facilitator-assisted teaching and peer-assisted teaching can be used to prepare first-year bridging course student nurses for clinical competency.

2.2 SEARCH METHODS

An electronic literature search was conducted using CINAHL, EBSCO, Ovid Medline, Science Direct, Pubmed, Scopus and MeSH. In addition, key articles and reports were searched for relevant references. Key words for data searching included: clinical teaching, clinical settings, clinical challenges, peer-assisted teaching and facilitator-assisted teaching.

2.3 CURRENT CONTEXT OF NURSING EDUCATION IN SOUTH AFRICA

In April 2011, a National Nursing Summit was convened with the purpose of reconstructing and revitalising the nursing profession for a "Long and Healthy Life for All South Africans" (National Strategic plan for Nurse Education, Training and Practice, 2012/13 – 2016/17.
This included nursing education and training. A ministerial task team (MTT) was tasked with developing the strategic plan to accomplish the goals identified. Of paramount importance was to place 'institutions of higher education' within the 'higher education sector'. This implies that they would have to comply with the Higher Education Act, No. 101 of 1997 (as amended 2016). At present, the institution in this study does comply and was awarded higher education institution status in Diploma in Nursing HEQSF Aligned, NQF Level 6, 360-Credits: Contact Mode) [A,B,D,E,F].

Health care in the South African setting is mainly nurse based and thus requires sufficient competent nurses to provide this health care to the nation. A sound nursing education system that includes clinical competency is a necessity. (Blaauw, Ditlopo and Rispel., 2014). and Mulandzi et.al 2012.

The present health needs exceed the output of competent nurses by the nursing colleges. This creates a challenge for nursing colleges and nursing education in general. There is a need to increase the intakes of students; however there is not a simultaneous increase in nursing educators. (Armstrong and Rispel, 2015).

Armstrong and Rispel (2015:5) state that there are problems related to the clinical training which include "lack of supervision and mentoring of students". These authors posit that the shortage of nurse educators created a significant challenge in the nursing colleges.

2.4 CLINICAL TEACHING

Today, clinical teaching provides many challenges for student nurses and their nurse educators due to the changing of the healthcare system, which is a complex system. Nursing is a profession with demands on the student nurses such as the need for creative and reflective thinking, critical thinking, as well as skills to create a therapeutic and caring environment for patients (Potgieter, 2012). Educators need to transform and encourage active, creative and collaborative ways of teaching nursing skills (Bruce, 2018).

In addition to these challenges in nursing education in South Africa, is the transitioning of the nursing education programmes and institutions to higher education. The nursing education institutions will be required to meet the accreditation criteria of the Council for Higher Education (CHE) before they would able to offer the professional nurse courses.

According to CHE, the nursing education programmes must be continuously reconstructed and revitalized to strengthen the nursing education training in the nursing profession in South Africa. The strategy in South Africa must create nurses of high calibre to contribute and address the healthcare needs of all South Africans.

Clinical teaching involves teaching invasive and non-invasive procedures that differ in complexity (Bai, Nicholson & Smith-Han, 2016). For clinical teaching to be a successful process the nurse educator needs to base clinical teaching on theoretical knowledge and apply it in the nursing practice. According to Seenan et al, (2016), learning and teaching strategies are often focused on content curricula, and process curricula are neglected, which have a negative impact on the student nurses' clinical skills, as their clinical attributes, including communication and working with others, are affected.

Clinical teaching occurs when the nurse educator provides student nurses with opportunities to apply theoretical knowledge to patient care by applying critical thinking objectives. The clinical aspect of nursing requires the nurse educator to accompany the student nurse to a clinical area or simulation laboratory to demonstrate and coach nursing care on a patient or manikin.

Clinical teaching can be challenging for nurse educators. Nursing educators need to have an approved education and training programme at an accredited Nursing Education Institution (Stellenberg, 2013; Geyer, 2013). They need to know their subject matter well, be organised and know their institution's procedure standards. The nurse educators have to lead by example and be role models. Jamshidi, (2012) states that the clinical environment is complex and rapidly changing with a variety of new settings and roles in which nurses must be prepared to practice. Educators are increasingly using simulation due to limited resources, time, personnel, equipment and supplies intended for patient care in the clinical environments (Bruce et al., 2011). This highlights the need to keep abreast of changes in the hospital environment.

There has been global growth in the development and technological advancement of simulation laboratories in nursing education over the past decade, due to increased student intakes at nursing colleges and the decrease in learning opportunities at the bedside.

A nurse educator has limited time to visit the clinical setting because they often have to teach the theoretical component and the clinical component of the nursing course. The registered nurses in the clinical settings are also required to maintain their roles as educators and assist and support the student nurses with the clinical component of their training.

2.5 FACILITATOR-ASSISTED TEACHING

FAT is referred to as a behaviourism-based teaching method based on passive learning (Stone, Cooper and Cant, 2013) and has been used for years to teach clinical skills to students in the nursing profession. It is teacher centred; the nursing educator prepares a nursing procedure according to a nursing standard and then demonstrates it to the student nurses. This may lead to technical mastery, but does not stimulate the development of critical thinking (Potgieter, 2012), as the educator provides the students with the information and demonstration and students observe and then practice the procedure until they feel confident to be assessed. According to Bai et al., (2016:43) "Practice through repetition and exposure allows for mastery of a repertoire of procedural skills".

The advantage of the facilitator-assisted method of teaching is that it allows the nursing educator to determine the aims, content organisation, pace and direction of the presentation. However, this method of teaching does not give the educator certainty on how much the students have retained. Initially, the student nurses have a passive role in this method of teaching as they only observe the clinical demonstration. Practice and reflection on the technique of the skill occur later, which hinders learning (Manyama, et al., 2016).

Facilitator-assisted learning also encourages one-way communication which can make it difficult for the educator to become aware of academic weakness (Manyama et al., 2016). This method of teaching can become monotonousness and boring for students and they lose concentration. According to Potgieter (2012), nurse educators should engage with new methods of teaching clinical skills, which enforce critical thinking skills and allow students the opportunity to ask questions.

2.6 PEER-ASSISTED TEACHING

PAT can be thought of as a formalisation where students assist one another with learning (Williams, et el., 2012). Stone et al. (2013) describe PAT as a teaching method in which peers learn from one another. It involves active student participation, where the students take responsibility for their own learning (Stone et al., 2013).

Seenan et al. (2016) suggest that PAT is a method where "people from similar social groupings, who are not professional teachers, are helping each other to learn and learning themselves by teaching".

According to Gharib sabaq, Farouk and Ismail (2016), peer-teaching postulates that individuals learn dramatically by observing other individuals. The process may be formal, such as one-on-one tutoring or informal, where students help each other outside the formal environment.

PAT is described as a process during which students rotate roles from teacher to student and back. This method of teaching transforms learning from a private activity to a social activity (Manyama et al., 2016). In PAT, there is a focus on the relationship between the teacher and the student nurse in the learner role. It is a bi-directional process during which the student can learn to enhance, recognise and respond to learning opportunities (Rush et al., 2012). El-sayed et al. (2013) state that PAT can be effective in clinical nursing as it can reduce the workload of the faculty and the nurse educator, allowing the nurse educator more opportunity to observe and provide feedback to students.

PAT is not only utilized when teaching nurses clinical skills, but it is also used by medical students. Studies in the United Kingdom (Mills et al., 2014) and South Africa (Manyama et al., 2016) explain that senior medical students are teaching anatomy to junior medical students in the clinical laboratories. It was positively reported as developing confidence, knowledge and clinical skills among the medical students.

PAT and assessing, however, does not come without challenges and it is initially a complex skill for students, until the student nurse understands the skills that are involved in judging their own work and that of their peers (Rush et al., 2012).

Stone et al. (2013) state that one of the barriers to advancement of peer learning is the lack of consistency in its definition as it is known by interchangeable titles, for example mentoring, peer review, peer coaching and team learning. PAT can be viewed negatively or positively by students receiving it. Its popularity is influenced by assessment characteristics and teaching environment, particularly if there are elements of peer assessment involved (Mills et al., 2014).

Mills et al. (2014) explain that there is limited evidence of how satisfied students are with the PAT method compared to how satisfied a faculty member is, and how receptive students are to feedback from peer student teachers on their skills.

Manyana et al. (2016) state that although peer-assisted teaching enables students to direct own learning and promote collaboration and communication, it can cause students to feel overwhelmed, which could lead to impaired completion of objectives. Mills et al. (2014) believe that peer-assisted teaching can have added value with other teaching methods when trying to foster cooperation and social interaction among students when teaching clinical skills (Manyama et al., 2016).

2.7 EDUCATOR–STUDENT RELATIONSHIP

The relationship between the educator and the student is very important in achieving the student's learning outcomes. Potgieter (2012) describes the educator as someone who needs to be a change agent, coach, facilitator and role model and there has to be mutual respect and trust in this relationship. Judgement must be withheld to allow student nurses to explore, discover and feel free to ask questions in a safe learning environment.

Nurse educators need to provide a safe, positive learning environment in which students can learn clinical skills, one in which student nurses do not feel threatened in any way.

2.8 CLINICAL SETTINGS

The environment provided in which student nurses learn clinical skills is the clinical simulation laboratory in the nursing college or in the clinical hospital environments. The clinical simulation laboratory is an area where the student nurses are first exposed to the practical aspect of nursing care of patients. It is considered a safe environment for practice purposes before being taken into the clinical environments. Generally, the clinical simulation laboratory is structured as closely as possible to the wards to create a realistic environment and thus enhance clinical teaching. Student nurses practice in these clinical simulation laboratories before entering the clinical settings. This allows them practice time and to gain experience and confidence on specific nursing procedures.

Simulation is being used with increased frequency in nursing education. It is said to accelerate learning of complex critical judgement, it provides a safe environment for the nurses for high-risk procedures and allows for simulation of rare situations, rather than having to wait for such cases to arise (Rush et al., 2012). Simulation or modelling imitates the real situation and is generally effected by means of role playing and the use of technical equipment or advanced models.

The simulation of clinical reality can be less stressful to students since there is little or no risk to the patient or students involved and the assessor or educator can create the same set of circumstances for many groups of students.

Learning clinical skills is an intricate process which demands clinical competence. Bifftu et al. (2016) define clinical competence as "someone's performance regarding knowledge, attitude and skills, who performs a specific task in a manner that yields desirable outcomes." This nurse can perform the clinical skills effectively and integrate the cognitive, emotional and psychomotor skills required during nursing care.

Student nurses are exposed to various multidisciplinary team members when sent to the clinical environment. The clinical environment is fast paced, with a high workload (Schupbach 2012) and a complex environment (Stuart, 2013).

2.9 SUMMARY

In this chapter, a broad literature review was done to ensure a clear background on the concepts of clinical preparation used to train nurses. Two teaching methods were explored, facilitator-assisted and peer-assisted teaching. Headings that were included were research methods, current content of nursing education in SA, clinical teaching, facilitator-assisted teaching, peer-assisted teaching, educator-student relationship and clinical setting.

The following chapter will discuss the methodology of the study, research design, settings, population, sample and sampling technique, inclusion and exclusion criteria, data collection method and ethical issues.

CHAPTER THREE

RESEARCH METHODS

3.1 INTRODUCTION

In the previous chapter, the literature was discussed. In this chapter, the study methods will be discussed, including the study design, setting, population and sample, inclusions and exclusion criteria, description of the instrument, data collection, data analysis, and ethical considerations.

3.2 AIMS AND OBJECTIVES OF THE STUDY

The aim of this study was to compare two teaching methods, FAT and PAT for teaching clinical competency to student nurses.

Objectives:

- To compare FAT with PAT teaching methods to achieve clinically competent student nurses.
- To explore which of the two teaching methods was preferred by the student nurses.

3.3 RESEARCH DESIGN

A research design is the blueprint or the structural design of a study. It guides the researcher in how to plan, implement, collect, analyse and interpret data results (Brink et al., 2012; Grove et al., 2013). The design and methods used in this study will be discussed.

A quantitative, concurrent, quasi-experimental, crossover design inclusive of open-ended questions was utilized in this study. Each individual study determines the best-suited methodology according to the research question. The design was based on the purpose of the study, which was to compare FAT and PAT to establish whether both methods enable student nurses to achieve clinical competency and then to explore which method the student nurses preferred.

Concurrent

Grove et al. (2013:123) are of the opinion that if “two concepts occur simultaneously, the relationship is concurrent.” In this study, the respondents were divided into two groups and the clinical procedure was demonstrated. The practicing of these skills to become competent utilized different teaching methods simultaneously.

Quantitative research

Grove et al. (2013:23) describe quantitative research as a “formal, objective, rigorous, systematic way of collecting data which describes new concepts or situations in the world”, and Polit and Beck (2014) describe it as a controlled scientific process of gathering data and examining numerical information, focusing on a small part of the human experience in one study. The researcher found this to be applicable for this study as it is aimed at comparing two teaching methods to establish whether both would render clinical competency as well as establish which teaching method the student nurses preferred.

Quasi-experimental

According to Burns and Grove (2011), a quasi-experimental design allows for investigating knowledge and circumstances where the researcher does not have complete control. Brink et al. (2012:9) describe a quasi-experimental design "as a true experimental approach except that it lacks either all the characteristics of randomisation or control of the experimental situation". This type of design was found to be the most appropriate to control as many threats as possible and ensure validity of the study. The first potential threat identified was that some assessors mark stricter than others. To ensure validity of the study and fairness to the student nurses, both the researcher and assistant went through both the assessment tools that were going to be utilized and discussed each evaluation point on the assessment tool, reaching consensus of the expected outcomes. The second potential threat identified was that nurse educators could be biased and favour one teaching method over the other. Researcher and assessor agreed to stay focused on the aim of the study, which was to compare the FAT and PAT method in terms of achieving clinical competency for student nurses.

Crossover

The crossover design is explained by Grove et al. (2013) as the administration of more than one treatment to each subject and then making comparisons of the effects of the different treatments on the same subject. This crossover design was implemented and the competency level was evaluated. After the respondents had been exposed to both methods, they were asked which method they preferred.

3.4 RESEARCH SETTING

The study was conducted at a private nursing college of a large hospital group in the Western Cape. The nursing college's simulation laboratory setting was utilized for this study. According to evidence Botma (2014) suggests that learning in simulation ultimately has a powerful impact on the quality of healthcare when these clinical skills are transferred to clinical settings. The setting consisted of a four-bed ward where all procedures were demonstrated by the nurse educators. The student nurses used the same facility for practicing and for assessment by nursing educators. The simulation laboratory was equipped with simulation manikins and clinical and therapeutic equipment for nursing procedures to be demonstrated and practiced. The four-bed simulation laboratory was an open-plan setting with good air-conditioning and ventilation facilities. The setup equated to a four-bed ward in the clinical setting of a hospital ward. This atmosphere created in the simulation laboratory was an attempt to make the clinical experience for student nurses as close to reality as possible.

3.5 POPULATION

Brink et al. (2012) describe the population as the whole group of persons that is of interest to the researcher. According to Burns et al. (2011), it includes the total sets of human units that possess all the eligibility criteria for being selected to participate in a study. The target population for this study consisted of all first year bridging student nurses who were registered for the course leading to registration as a general nurse. The accessible population is that portion of the population that is easily available and accessible to the researcher (Brink, 2014). The accessible population for this study comprised student nurses in the first year of study of the bridging course in 2017.

3.6 SAMPLE AND SAMPLING

A sample refers to a group of people that are selected to conduct a study. A sample should represent a population of people. Burns et al. (2011) and Brink et al. (2012) suggest that a sample is a subset of the population that is situated to represent the population.

According to Brink et al. (2012), sampling is a process through which the researcher selects and forms an easily accessible group of elements to represent the population under investigation regarding a phenomenon of interest. Cohen et al. (2011) describe it as the population on which the research will focus. A census sample was selected for this study and included all the first-year bridging students of the 2017 intake at a private nursing college. This sample consisted of 92 accessible respondents however, five respondents did not attend the evaluation during the data collection and one withdrew from the course.

3.6.1 Inclusion criteria

The inclusion criteria are explained by Grove et al., (2013) as characteristics that a subject must possess to be part of the target population .The following were inclusion criteria for this study:

• First-year bridging students of 2017.

3.6.2 Exclusion criteria

These criteria are described by Grove et al. (2013) as characteristics that cause a person to be excluded from the target population. According to the author, it is encouraged to have no exclusions from a study as the exclusion criteria limits the generalization of the study findings. The only exclusion criteria for this study was voluntary absence of the respondents on the days of data collection.

3.7 DATA COLLECTION

Grove et al. (2013) refer to data collection as the “precise, systematic gathering of information relevant to the research purpose”. The data collection plan for this study was carried out as follows:

- Inviting and informing the respondents of the study.
- Identifying the two respondent groups.
- Carrying out the two steps of phase one of data collection.
- Completing phase two of the data collection.

Approval of the study was granted by the university’s Human Research Ethics Committee with approval number M150776 (Appendix A). In addition, permission was obtained from the institution’s research committee. The first-year bridging student nurses were all invited to participate in the study.

Selection of respondent groups

Selection into group one or two was done by a simple random sampling method; the lottery or hat method, ensuring all the respondents had an equal chance of being selected into group one or group two. Numbers from one to 92 were written on identical cards and placed in a box. The box was shaken well to mix the numbers. All respondents were asked to draw a number. Those who received an odd number, joined group one and those who received an even number, joined group two.

Description of colleague/educator

In order to evaluate the respondents timeously, the researcher obtained the assistance of a colleague. The researcher collaborated with her colleague, an educator, on the process of collecting the data to ensure consistency, validity and reliability. The colleague holds an

Honours Degree in Nursing Education from Stellenbosch University. She completed her studies in 1987 and has years of nursing education experience, including clinical assessments.

Description of phase one

Phase one consisted of two steps. Step one was the demonstration, practice by either the FAT or PAT method and evaluation of the first clinical skill. Step two was the demonstration, practice by the alternative method and evaluation of the second skill. This is described below. Assessment for competency using the institution's tools was carried out after respondents had practiced using the selected method. The tools require a mark allocation of greater than 85 per cent to establish competency.

Step one

During day one of data collection, all the respondents were given a demonstration by the researcher and her colleague on how to carry out the physical examination of a patient. The demonstration was done in the simulation laboratory making use of a manikin. The respondents were then divided into their allocated groups. These groups remained the same for the duration of the data collection.

Group one attended the PAT method while group two attended the FAT method of practicing. Group one was overseen by the colleague, an educator, with minimal guidance as the respondents supervised and guided each other. When the respondents were ready to be assessed, the researcher's colleague assessed the respondents on the following day, accompanied by one of the respondent's peers as an observer. The respondents felt that observing the evaluation could be helpful to their teaching role.

In group two, the respondents were supervised and guided individually by the researcher. They practiced independently with no interaction or assistance from their colleagues. Once the respondents were ready, they were assessed by the researcher on the following day.

Step two

In step two of data collection, all respondents attended a demonstration in the simulation laboratory by the researcher and her colleague. The skill demonstrated was the taking and interpretation of an electro cardiograph (ECG). As required by the crossover design, group one was now subjected to the FAT method in this step and were supervised and guided by the researcher. They were assessed by the researcher on the following day. The researcher had facilitated this teaching method with group two in step one.

Group two were then exposed to the PAT method with little input from the educator. Fellow respondents supervised and guided each other. The respondents were assessed on the following day by the colleague of the researcher as group one had been in step one.

Allowing the same person to oversee the same teaching method for both groups allowed for continuity. The variable of receiving guidance from different facilitators on the skill was thus eliminated.

Table 3.1 Explanation of phase one

<table>
<tr><th colspan="3">PHASE ONE</th></tr>
<tr><td colspan="3">Step one</td></tr>
<tr><td colspan="3">Random selection of sample into two equal groups
Letter of information was given to the respondents three weeks before the research commenced. Letter of consent was obtained on the first day of research.</td></tr>
<tr><td><u>GROUP ONE</u></td><td></td><td><u>GROUP TWO</u></td></tr>
<tr><td>Peer-assisted teaching – day one</td><td></td><td>Facilitator-assisted teaching – day one</td></tr>
<tr><td colspan="3">Demonstration and practice of Physical Assessment clinical skill.</td></tr>
<tr><td>Assessment by educator/colleague the following day – day two</td><td></td><td>Assessment by researcher the following day – day two</td></tr>
<tr><td colspan="3">Step two
CROSSOVER OF TEACHING METHODS</td></tr>
<tr><td>Facilitator-assisted teaching - day three</td><td></td><td>Peer-assisted teaching – day three</td></tr>
<tr><td colspan="3">Demonstration and practice of Taking and Interpretation of ECG Demonstration</td></tr>
<tr><td>Assessment by researcher the following day – day four</td><td></td><td>Assessment by educator/colleague the following day - day four</td></tr>
</table>

Description of phase two

On the last day of data collection, day five all the respondents were seated in a classroom in their two groups. They were presented with a questionnaire and requested to complete it. The questionnaire was explained to the students by the researcher and questions of clarification were answered. A sealed collection box was placed in the classroom by the researcher for the completed questionnaires.

The questionnaire

According to Polit and Beck (2012), a questionnaire is a document used to gather self-reported data and is usually done by self-administration. Grove et al. (2013) describe a questionnaire as a printed self-report document which is designed to elicit information from a respondent’s written response. The questions that were posed to the respondents on the questionnaire were in alignment with the aim and objectives of this research. Questions one and two comprised demographic data to establish the details of the population participating in the study. Question three was a closed-ended question to establish the years of nursing experience the respondents had. Questions four and five ascertained which teaching method the respondents preferred. Questions six to nine consisted of four open-ended questions to gather data to establish what it was about each teaching method that the respondents enjoyed and what it was about each teaching method the respondents found challenging. According to Wasik and Hindman (2013) open ended questions evoke the need of an individual to explain and express themselves in detail.

Table 3.2 Explanation of phase two

<table>
<tr><th colspan="3">PHASE TWO</th></tr>
<tr><th>GROUP ONE</th><th></th><th>GROUP TWO</th></tr>
<tr><td>Respondents were given a questionnaire with an envelope to complete and seal.</td><td></td><td>Respondents were given a questionnaire with an envelope to complete and seal</td></tr>
<tr><td colspan="3">Sealed questionnaires were placed in a box (placed at back of classroom as questionnaires were handed out) once the respondents had completed them</td></tr>
</table>

3.8 DATA ANALYSIS

Data analysis is analysing the information and results obtained from data collection.

This technique is used to reduce, organise and give meaning to the data (Burns et al., 2011). The results in this study were subjected to descriptive and inferential data analysis. The statistical data analysis software used by the statistician was the Stata. The open-ended questions (questions six to nine) were analysed using content analysis (Hsieh et al., 2005). Descriptive statistics are statistics that allow the researcher to organise data in ways that give meaning and facilitate insight (Burns et al., 2011). Brink (2012) states that descriptive statistics gather data sort it and convert it into organised information. The data can be divided into measurements of central tendency or variability (Polit and Beck, 2017). Inferential statistics use descriptive data to estimate population parameters. The researcher is able to use the information to generalise beyond their own data (Brink, 2014). Inferential statistics are statistics that allow the researcher to make judgements about groups or populations (Burns et al., 2011). The data were considered as non-parametric data due to the small sample size (n=92) and no assumptions were required regarding the selected population. Once the data were collected, they were sent to a statistician for statistical analysis. The open-ended questions were read and analysed according to Hsieh et al.,(2005) content approach. Lock and Seele (2015:32) state, "Content analysis is a systematic, quantitative process of analyzing communication messages by determining the frequency of message characteristics." It is a tool for analysing and describing communicative messages. Content analysis focuses on the specific communication of the message and considers the message creator.

3.8.1 Method of data analysis

PHASE ONE

Step one

In step one of the data collection, the respondents were evaluated for competency using the standardised and validated tool of the institution for the '*Physical assessment'* skill. Both group one (PAT method) and group two (FAT method) were evaluated using the same tool. After the crossover of methods, in step two, each group was once again evaluated for competency, this time using the institution-validated tool for '*Taking and Interpretation of an ECG'*.

The respondents were required to obtain 85% in each evaluation to be considered competent. The information was captured onto a Microsoft Excel® spread sheet, by researcher and checked by colleague educator before being sent for statistical calculations. All information was password protected.

The results of these competency tests were analysed using descriptive and inferential statistics. Descriptive statistics were calculated for frequency and percentages. Multivariate logistic regression was used to test for association between method of teaching and the competency rate.

Step two

The data questionnaire was checked for completion. The information was captured on a Microsoft Excel® spread sheet for statistical calculations. The first three questions related to demographic data. Descriptive statistics for frequency and percentages were calculated for the group sample and demographic data. This included age and gender. Data on years of experience were collected but because of an error in the selection options on the questionnaire, this result was excluded from the results. Questions four and five established which teaching method the respondents felt they learnt the most from and which teaching method they preferred. These questions were also analysed using descriptive and inferential statistics. Descriptive statistics were used to describe the demographic data of the responses. The data are presented in the form of contingency tables, Pearson's Chi-square and T-tests. Descriptive statistics are explained in means (*M*) standard deviations (*SD)* and percentages (%).

The results were then analysed with the use of inferential statistics. Inferential statistics are explained to describe the differences in the variables by the use of a Pearson's chi-square test.

The Pearson chi-square test was used to determine the chance of a difference between the competency results in groups one and two. The student t–test was utilized to identify significant differences in data as the study population was split into two separate groups. “The t-test is used to discover whether there are statistically significant differences between the means of two groups” (Brink et al., 2012). The data obtained in this study were then analysed and interpreted with the assistance of a statistician.

PHASE TWO

Content analysis according to Hsieh et al., (2005) is a method that is being used commonly in health studies. It is a method which consists of three different approaches to interpret meaning of the content of text data. For this study the conventional content analysis was the most appropriate method as it allowed the researcher to read the content data repeatedly word for word to extract meaning of the whole. This approach gains direct information from the respondents without imposing preconceived categories.

Questions 6 to nine 9 were open-ended questions to confer what it was about each method of teaching that the respondents enjoyed and what they found challenging. The information given in these four questions was analysed. Initially, the data was read and highlighted to capture key concepts, these were grouped into content. coding units such as words and phrases to classify the content. Categories were then identified and confirmed by a peer group of colleagues. The categories were revisited and condensed where necessary in order to obtain meaning from the information.

3.9 RESEARCH RIGOR

Research rigor comprises both validity and reliability. They are both measurable mathematically and statistically. According to Grove et al. (2013), rigor is referred to as “striving for excellence in research through the use of discipline, scrupulous adherence to detail and strict accuracy.”

Grove et al. (2013:389) describe stability and reliability “as repeated measures of the same attribute with the use of the same scale or instrument over time.” In this study, validation of the instruments were established by the nursing experts of the private nursing education institution when introducing them as evaluation tools. They are reviewed and revised if necessary every year by the clinical experts. These validated evaluation tools were used in this study. Stability and reliability were established by using the same evaluation instruments for each group of respondents in this study.

Inter-rater reliability is described by Grove et al. (2013) “as a method of measuring for equivalence when the design calls for it”. In this research, both the researcher and colleague assessed by observation, evaluating consistently, the same method in each group. Brink et al. (2012) explain anonymity as the process whereby the researcher keeps the respondents’ identities a secret. This was not fully possible during the skills assessment since respondents were known to each other as well as to the researcher and colleague. The assessment tools used in phase one were the standard evaluation tool for that skill and was the same for each group. In phase two, the questionnaires, were anonymous and respondents were asked not to identify themselves on the form when they returned it. All respondents were invited to participate in the study and willingly signed the consent. Respondents were assured that they could withdraw their participation from the study at any stage without affecting their studies. in anyway.

3.10 SUMMARY

In this chapter, the research design and methods were described. The research design was carefully explained in order to meet the purpose and objectives. The methods of data collection and analysis were also described. The next chapter will present the research findings.

CHAPTER FOUR

RESULTS

4.1 INTRODUCTION

This chapter presents the research findings. It includes presentation, interpretation, analysis as well as a description of the results. The purpose of this study was comparing two teaching methods, FAT and PAT, to teach clinical competency. If successful, it could alleviate present challenges without compromising the level of competence of student nurses. At the same time we could establish which method of teaching the students preferred.

4.2 APPROACHES TO DATA ANALYSIS

The study followed a quantitative design, making use of descriptive and inferential statistics followed with content analysis using a questionnaire in order to establish which teaching method the respondents learnt the most from and why, and which teaching method they preferred.

Descriptive statistics were used to describe the demographic data of the respondents teaching methods the respondents believed they learnt the most from and which method the respondents preferred were analysed using content analysis. The data is presented in the form of distribution descriptive statistics with tables, Pearson chi-square and t-tests. The data were analysed for interpretation with assistance of an accredited statistician. Descriptive statistics are explained in means (*M*) standard deviations (*SD)* and percentages. Inferential statistics are explained to describe the differences in the variables by the use of a Pearson's, chi-test. The one way analysis variance, a parametric procedure, was utilized to test the variances between the two groups (Brink et al., 2012).

As explained in chapter three, having the whole study group together provided the researcher with the opportunity to obtain information on the respondents preference of the teaching method.

The questions posed to the respondents in the questionnaire were as follows:

- Which method of teaching clinical skills did you learn the most from?
- If you were given a choice which teaching method would you choose?
- What did you enjoy about facilitator-assisted teaching method?
- What did you find challenging about the facilitator-assisted teaching method?
- What did you enjoy about peer-assisted teaching method?
- What did you find challenging about the peer-assisted teaching method?

Table 4.1 Representation of data collection: phase one

Phase One	**Phase One**		**Phase One**	**Phase One**
Step One			Step Two	
Group One	**Group Two**		**Group One**	**Group Two**
Peer Assisted Teaching Method. Demonstration Practice Assessed	Facilitated Assisted Teaching Method. Demonstration Practice Assessed	CROSS OVER	Facilitated Assisted Teaching Method. Demonstration Practice Assessed	Peer Assisted Teaching Method. Demonstration Practice Assessed

Table 4.1 gives a breakdown of each group showing how the crossover was carried out to expose both group one and group two to both types of teaching methods in phase one. Once the respondents were exposed to both teaching methods they practised until they felt competent and were then assessed for competency. The results were sent to a statistician for statistical analysis.

Table 4.2 Representation of data collection: phase two

Phase Two
Questionnaires completed by respondents

Table 4.2. explains phase two where the respondents completed a questionnaire on the fifth day of data collection. The questionnaire consisted of closed and open ended questions. The closed questions (question four and five) were sent for statistical analysis. Questions six to nine where interpreted by researcher and supervisor using content analysis.

4.3 RESULTS

Table 4.3 Distribution of respondents into groups

Group	**No**	**Percentage**
One	**46**	**50%**
Two	**45**	**50%**
Losses	**1**	**Resigned from course**
All	**91**	**100%**

Ninety two respondents consented to take part in this study. The respondents were randomly divided into two groups, group one and group two. Each group initially consisted of 46 respondents (Table 4.3).

After commencing, one student in group two terminated her studies on the second day of the data collection. During the data collection respondents were intermittently absent from class resulting in the number of respondents differing between 88 and 89 on some days as shown in the tables thus altering the sample number. Since anonymity was maintained identifying the evaluation tools for withdrawal purposes was not possible.

4.3.1 Demographic characteristic data

Descriptive statistics were used to describe the demographic data, including age and gender of the respondents.

Table 4.4 Demographic characteristics of respondents

	Group one		**Group two**		**All**	
Q1 Age	**N**	**Column %**	**N**	**Column %**	**N**	**Column %**
18-29	35	76.09%	3	6.67%	38	41.76%
30-39	8	17.39%	28	62.22%	36	39.56%
40-49	0	0.00%	14	31.11%	14	15.38%
50-65	3	6.52%	0	0.00%	3	3.30%
All	46	100.00%	45	100.00%	91	100.00%
Q2 Gender		**Group one**		**Group two**		
Female	41	89.13%	42	93.33%	83	91.21%
Male	5	10.87%	3	6.67%	8	8.79%
All	46	100.00%	45	100.00%	91	100.00%

In Table 4.4 the results showed that in group one, 35 (76.09 %) respondents were in the age range of 18-29 years, eight (17.39%) in the age range of 30-39 years with three (6.52%) respondents in the 50 to 65 year old range.

In group two, 3 (6.67%) respondents in the 18-29 year range, 28 (62.22%) in the 30-39 age range and 14 (31.11%) in the 40-49 age group.

Overall the results showed that 38 (41.76 %) of respondents were in the age range of 18 to 29, 36 (39.56%) ranged between 30 to 39 age range, 14 (15.38%) ranged between 40 to 49 and a small number three (3.30%) of respondents were in the 50 to 65 age range.

The gender in group one reflected that, 41 (89.13%) were female respondents and five (10.87%) were male respondents. This data concludes that group one had a big difference in age ranging from 18 to 65 years of age with a large number of the respondents being younger than group two. The female respondents reflect 42 (93.33%) and three (6.82) were male respondents.

The data shows that group two had a larger ratio of older respondents than group one 30 to 49 years of age and more of the respondents from the total population were females 83 (91.21%) whilst male respondents accounted for eight (8.79%).

PHASE ONE RESULTS

Table 4.5 Competency results of group one and group two according to teaching method

Group	Teaching Method	Competent / Non - Competent	Percentage
Group One	PAT (Physical Assessment) Step One	39 Competent	88.36%
		3 Non Competent plus 2 absent	11.37%
		n =44	
	FAT (ECG) Step two	43 Competent	97.73%
		1 absent	2.27%
		n=44	
Group Two	FAT (Physical Assessment Step One	44 Competent	97.78%
		1-absent	2.22%
		n= 45	
	PAT (ECG) Step two	40 Competent	90.91%
		2 Non competent plus 2 absent	9.09%
		n=44	

Table 4.5 shows that when group one was exposed to the PAT method 39 (88.36%) respondents achieved competency and five (11.37%) were found non-competent. Two of these respondents were absent. When the respondents in group one were exposed to the FAT method they achieved 43 (97.73%) competency and one absentee (2.27%) was documented non-competent.

When group two respondents were exposed to the PAT method 40 (90.91%) and 4 (9.09%) were found non-competent. Of these, two respondents were absent. When exposed to the FAT method 44 (97.78%) were found competent and 1 absentee (2.22%) was documented as non-competent. Overall the FAT method achieved a higher competency level in both groups.

The probability of competence versus non competence for step one (Table 4.6) then for step two (Table 4.7) was calculated on the total sample.

Table 4.6 Step one: Probability of competence vs non competence for the skill of *Physical assessment of a Patient.*

Level	**Count**	**Probability**
Competent	83	0.93258
Non Competent	6	0.06742
Total	89	1.00000

Table 4.6 compares the respondents who were competent and non-competent in the skill physical assessment.

Three of the respondents were absent from this assessment on the day of data collection thus the total respondents in step one was 89. When the students were collectively assessed for competence in the procedure of physical assessment of a patient 83 (93.25%) of the respondents were found competent and six (6.74%) were deemed non-competent.

In step two, respondents were crossed over to expose them to the second method of teaching clinical skills. The clinical procedure demonstrated to the respondents in this step was taking and interpreting an ECG. The probability of competence versus non competence was calculated on the entire group again after step two.

Table 4.7 Step two: Probability of competence vs non competence for the skill of '*Taking and interpreting an ECG.*

Level	Count	Probability
Competent	83	0.94318
Non Competent	5	0.05682
Total	88	1.00000

Table 4.7 compares the respondents who were competent and non-competent.

When respondents were collectively assessed for competence in the procedure of taking and interpreting an ECG, 83 (94.3%) respondents were found competent and 5 (5.6%) were deemed non-competent (Table 4.7 and Figure 4.1). Three respondents were absent on this day of data collection thus the total respondents for step two was 88.

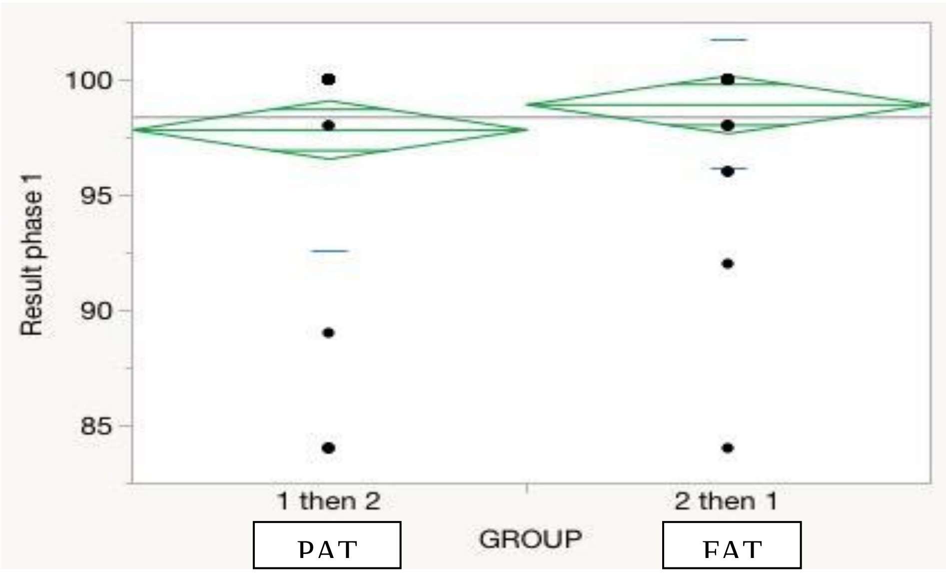


Figure 4.1 One way analysis of mean results of step one by group (Physical assessment)

The mean competency value or mark of group one using the PAT method was slightly lower than the mean mark of the combined group. The FAT method, used in this skill by group two, obtained a mean mark greater than the mean of the combined group. (98.93%) The mean mark was (98.39%).

Table 4.8 Analysis of variance of mean values in step one

Source	DF	Prob > F
Group	1	0.2247

The F (probability) value was 0.2247 which is above 0.05, the 95% confidence level, meaning that there was no statistically significant difference between the means of group one and group two.

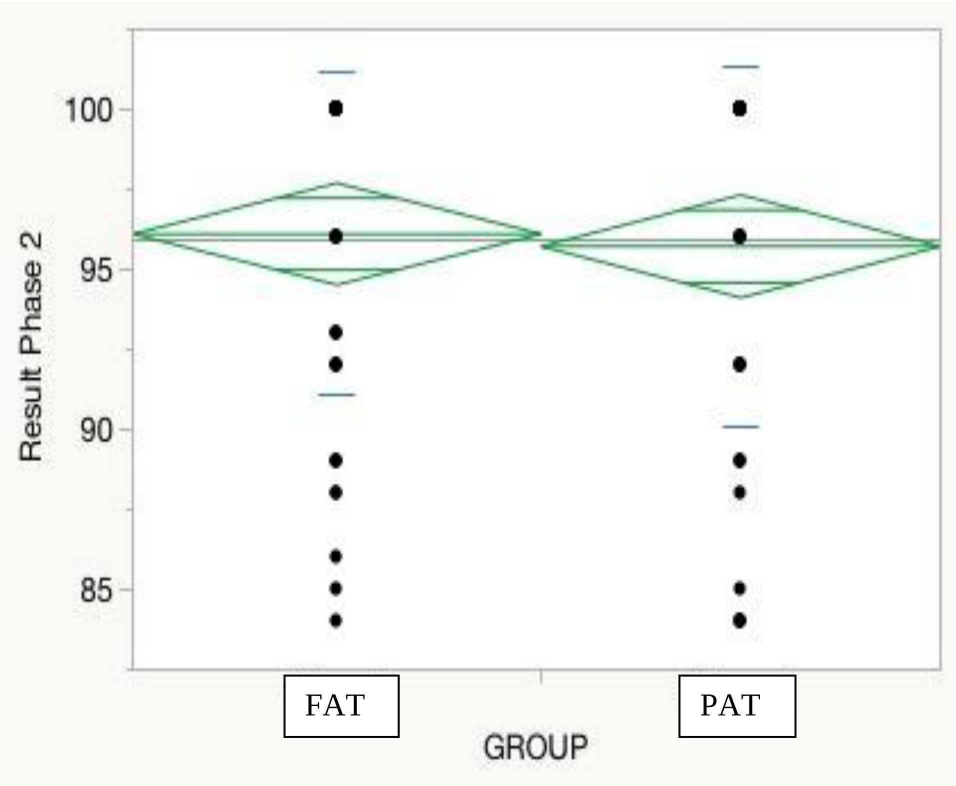


Figure 4.2 One way analysis of mean results of step two by group. (Taking of ECG)

Figure 4.2 above shows the mean value of the combined group for this skill as 95.92%.

In step two (ECG) the mean value of group one was 97.73% whilst the mean value of group two was lower at 90.91%. Once again the FAT method used in this skill by group one resulted in the higher value or mark.

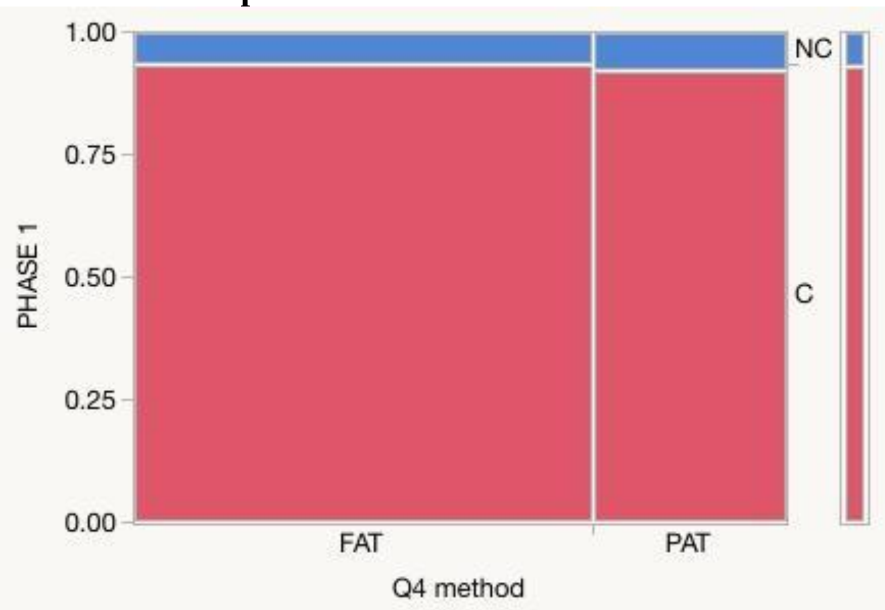
The purpose of the study was to compare methods of clinical teaching without compromising the chances of competency of students. Since emotions and challenges also affect a student's learning, it seemed a good opportunity to explore how these respondents had experienced the different teaching methods. Exploratory questions were therefore included in the questionnaire.

Association between respondents' comments and competency levels were calculated for both step one and step two as the skill was different in these steps.

4.3.2 Step one: Teaching method that the respondents believed that they learnt more from versus competence and non- competence.

Making use of Mosaic Plots, contingency analysis was carried out to examine the relationship in each teaching method between the responses to the question on which teaching method they had learnt more from and the results of competence. This was done for each step.

Mosaic Plot: Step one



NC – non-competent **C - competent**

Figure 4.3 Step one: Association of teaching method respondents learnt more from versus competence and non-competence

The mosaic plot (Figure 4.3) shows the association between the two teaching methods and the respondents perception of their learning experience compared to competence. The results show that in step one there was a 93.55% competency in the FAT method of teaching and

93.18% competency in the PAT method of teaching when 70.45% said they had learnt more from the learning experience offered by the FAT teaching method and 29.55% considered they had learnt more from the PAT method.

Table 4.9 Analysis of teaching method respondents learnt more from versus competence and non-competence in step one.

Count	Competent	Non-Competent	Total
FAT Count Total % Column % Row %	58 65.91 70.73 93.55	4 4.55 66.67 6.45	62 70.45
PAT Count Total % Column % Row %AT	24 27.27 29.27 92.31	2 2.27 33.33 7.69	26 29.55
Total Percentage	82 93.18	6 6.82	88

Table 4.9 indicates the associations between the respondents who felt they had learnt more from facilitator-assisted teaching and respondents who were competent and non-competent; and between respondents who learnt more from peer-assisted teaching method and respondents who were competent and non-competent.

The result shows that of the 62 respondents that stated that they had learnt more from the FAT method 58 (93.55%) were found competent and four (6.45%) were found non-competent.

The result shows that of the 26 respondents that stated that they had learnt more from the PAT method 24 (92.31%) were found competent and two (7.69%) were found non-competent.

Of the total respondents that were assessed for competence 82 (93.18%) of respondents were found to be competent and 6 (6.82%) were non-competent.

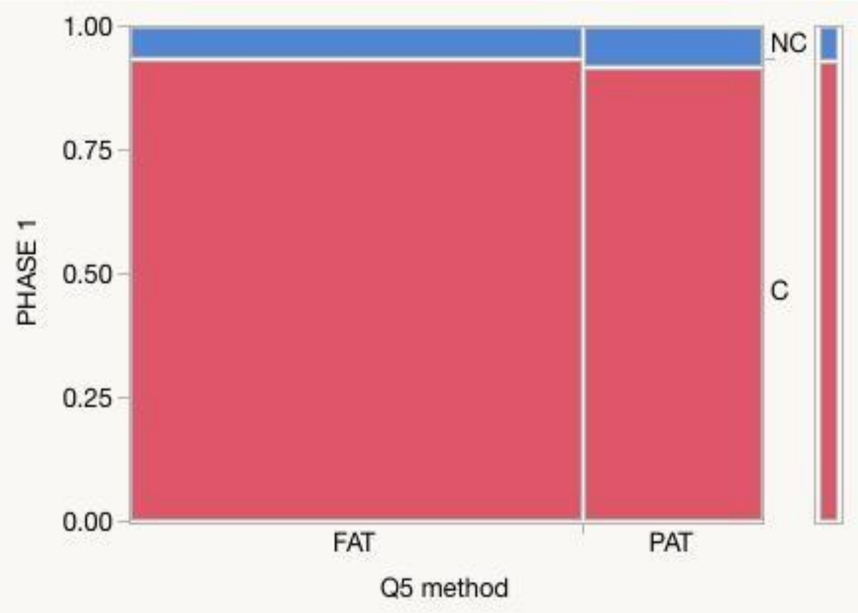
To determine if the association between the teaching method the respondents learnt more from, versus competence and non-competence was statistically significant, the Pearson chi-square test was utilized to examine whether there was an association between the variables. A probability value (p-value) was produced which indicates statistical significance if the calculated p-value is smaller than 0.05 or no statistical significance if the p-value is higher than 0.05.

The results revealed (Table 4.11) that there was no significant association between the two variables. The p-value of the Pearson chi-square test was p=0.8331. This means the levels of competence did not differ significantly between FAT (93.55%) and PAT (92.31%) therefore there was no difference of association between the teaching method and competence.

4.3.3 Choice of teaching method versus competence and non-competence in step one.

This Mosaic Plot determines the association between the teaching method the respondents indicated they would choose versus competence and non-competence.

Mosaic Plot: Step One



NC – non-competent **C - competent**

Figure 4.4 Association of teaching method respondents chose versus competence and non-competence

Figure 4.4 shows the association between the two teaching methods and the respondents' choice of method compared to competence. The results show that there was 93.65% competency in the FAT method of teaching and 93.18% competency in the PAT method of teaching.

Table 4.10 Analysis of teaching method respondents chose versus competence and non-competence in step one.

Count	Competent	Non Competent	Total
FAT Row %	59 93.65	4 6.35	63
PAT Row %	23 92.00	2 8.00	25
Total	82 93.18	6 6.82	88

Of the 63 respondents that chose the FAT method 59 (93.65%) were found competent and four (6.35%) were found non-competent (Table 4.10).

Twenty five respondents that chose the PAT method 23-(92.00%) were found competent and two (8.00%) were found non-competent.

Of the total respondents that were assessed for competence 82 (93.18%) of respondents were found to be competent and six (6.82%) were non-competent.

To determine if the association between the variables is statistically significant, the Pearson chi-square test was used. A probability value (p-value) is produced which indicates statistical significance if this calculated p-value is smaller than 0.05 or no statistical significance if the p-value is higher than 0.05.

Table 4.11 Pearson Chi-Square test for association between choice of method versus competence and non-competence in step one.

Test	**ChiSquare**	**Prob>ChiSq**
Pearson	0.077	0.7817

The results revealed that there was no significant association between the variables (Chi-square value = 0.077, df =1, p =0.7817). Thus there was no significant difference between the 59 (93.65) competent participants who chose FAT and the 23 (92.00%) competent participants who chose PAT.

When examining whether the proportions of one variable changes based on the value of the second variable, the Fisher's exact test was used.

The Fisher's exact test of independence is utilized when you have two nominal variables and you want to see whether the proportions of one variable are different depending on the value of the other variable. It is used when the sample size is smaller than 1000. (McDonald, 2014).

The Fisher's test was used to compare the two group variables.

Table 4.12 Fisher's exact test examining an alternative hypothesis

Fisher's Exact	Probability	Alternative Hypothesis
Left	0.7794	Prob(Step one =NC) is greater for =FAT than PAT
Right	0.5504	Prob(Step one=NC) is greater for =PAT than FAT
2-Tail	1.0000	Prob(Step one =NC) is different across the method

The Fisher's exact test in Table 4.12 shows that there was no statistical difference in proportions of competence in either teaching method.

An Independent T-test was then used to establish the relationship between the variables and test for significant differences between the means of group one and group two.

Table 4.13 Means for Oneway Anova Step One

Level	Number	Mean
One	44	97.8409
Two	45	98.9333

The means for the groups was used for analysis to determine the difference in means of results of step one scores. Group two had a higher mean (98.93%) when compared to group one (97.84%) but to ascertain if there was a statistically significant difference, a Welch's test was conducted. The Welch's test was computed when the variances of the results of step one scores for the two groups were not homogenous (equal).

Table 4.14 Welch Anova testing: Means Equal, allowing Standard Deviations which are Not Equal

F Ratio	DFNum	DF Den	Prob>F
1.4762	1	64.777	0.2288

Table 4.15 Assuming equal variances

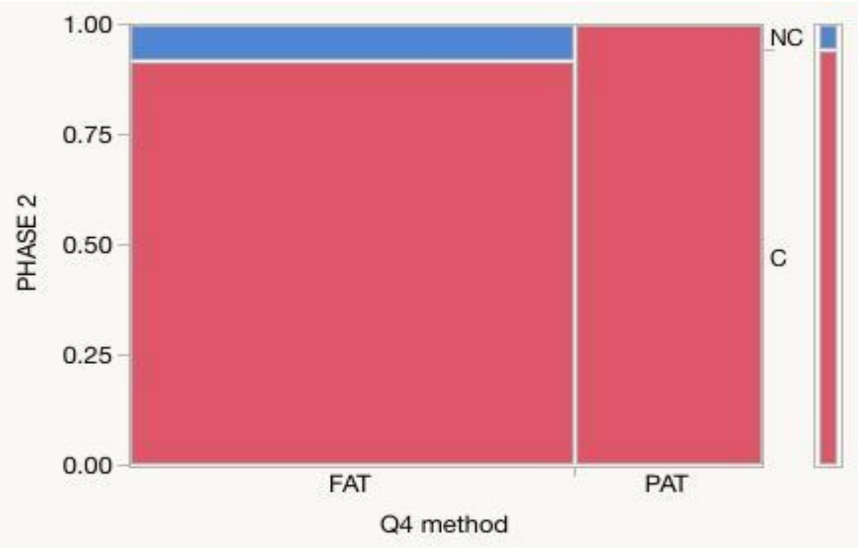
Difference	1.0924 t Ratio	1.222836
Upper CL Dif	2.8681 Prob > |t|	0.2247
Confidence	0.95 Prob < t	0.8877

An independent t-test (Table 4.15) assuming equal variances was computed. It indicated that there was no significant difference in the means of results of step one between group one and group two (t=1.22, df=87, p= 0.2247).

4.3.4 Step two: Teaching method that respondents believed they learnt more from versus competence and non-competence.

The respondents were crossed over to the second method of teaching and to the second procedure.

Mosaic Plot



NC – non-competent **C – competent**

Figure 4.5 Step two: Association of teaching method which respondents believed they learnt more from versus competence and non-competence

Figure 4.5 shows the association between the two teaching methods and the respondents perception of their learning experience compared to competence. The results show that in step two there was a 91.94% competency in the FAT method of teaching and 100% competency in the PAT method of teaching.

Table 4.16 Analysis of teaching method respondents believed that they learnt more from versus competence and non-competence in step two.

Count	Competent	Non-Competent	Total
FAT Count Row%	 57 91.94	 5 8.06	 62
PAT Count Row%	 26 100.00	 0 0.00	 26
Total	83 94.32	5 5.68	88

Table 4.16 indicates the association between the respondents who learnt more from facilitator-assisted teaching and respondents who were competent and non-competent; and between respondents who learnt more from peer-assisted teaching method and respondents who were competent and non-competent.

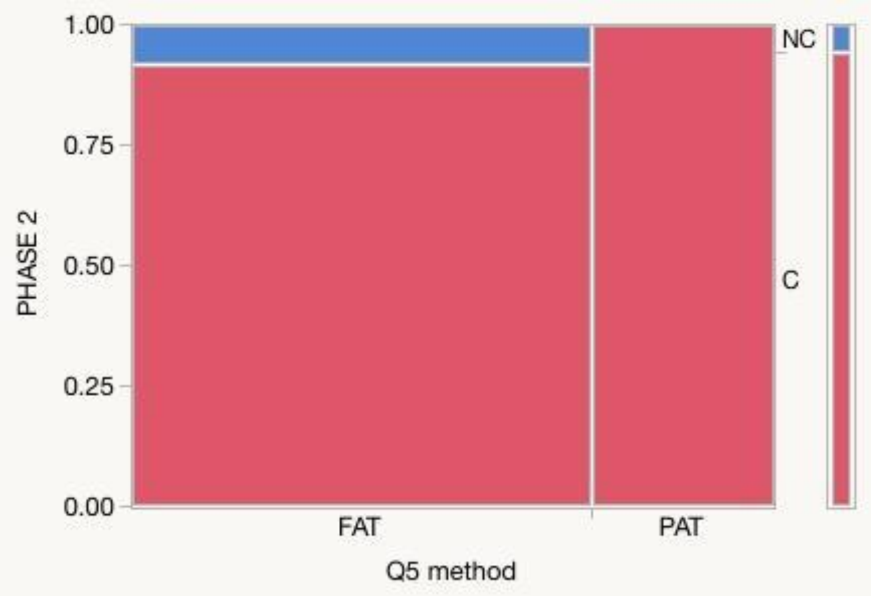
Table 4.16 shows that of the 62 respondents that learnt more from FAT method 57 (91.94%) were found competent and five (8.06%) were found non-competent. Twenty six respondents that learnt more from the PAT method (100%) were found competent and none were found non-competent.

Of the total respondents (88) who were assessed for competence, 83 (94.32%) of respondents were found to be competent and five (5.68%) were non-competent in step two.

To determine if the association between the teaching method the respondents believed they learnt more from versus competence and non-competence was statistically significant, the Pearson chi-square test was utilized to examine whether there is an association between the variables. The p value was 0.1360 thus there was no significance between the competency of FAT and PAT teaching method.

4.3.5 Choice of method versus competence and non-competence.

Mosaic Plot



NC – non-competent C – competent

Figure 4.6 Step two: Association of teaching method respondents chose versus competence and non-competence.

Figure 4.6 shows that there is a difference in competency levels between respondents who chose FAT (92.06%) and respondents who preferred PAT (100%).

Table 4.17 Analysis of teaching method respondents' chose versus competence and non-competence.

Count	Competent	Non Competent	Total
FAT Count Row%	 58 92.06	 5 7.94	 63
PAT Count Row%	 25 100.00	 0 0.00	 25
Total	83 94.32	5 5.68	88

Table 4.17-indicates the associations between the respondents who chose FAT o PAT method and respondents who were competent and non-competent.

The results show that of the 63 respondents that chose the FAT method 58 (92.06%) were found competent and five (7.94%) were found non- competent. Twenty five (100%) of respondents that chose PAT method (100%) were found competent.

Of the total respondents that were assessed for competence 83 (94.32%) were found to be competent and 5 (5.68%) were non-competent.

To determine if the association between the teaching method the respondents chose versus competence and non-competence was statistically significant, the Pearson chi-square test was utilized to examine whether there is an association between the variables. A probability value (p-value) is produced which indicates statistical significance if this calculated p-value is smaller than 0.05 or no statistical significance if the p-value is higher than 0.05.

4.4 PHASE TWO

4.4.1 Respondents experiences of teaching methods

The additional four open-ended questions (questions six to nine) on the respondents questionnaire was analysed by the researcher and supervisor. These questions posed to the respondents explored what they enjoyed about each method and conversely what the respondents had found challenging about each method. This provided the researcher the opportunity to obtain information which could be considered when reviewing the teaching methods.

The first step in content analysis according to Hsieh and Shannon (2005) was organizing the data by reading through all the questionnaires and getting a general idea of the responses. The responses were read and studied and categories were deduced by the researcher and the supervisor.

Table 4.18 Categories extracted from open-ended questions

Questions	Categories
Explain what you enjoyed about facilitator-assisted teaching method.	● One- on-one facilitation with educator ● Lecturers experience and level of Knowledge enhances safety and security
Explain what you found challenging about facilitator-assisted teaching method.	● Overwhelming experience ● Having to work alone
Explain what you enjoyed about peer-assisted teaching method.	● Peer collaboration ● Confidence building due to repetition of procedures
Explain what you found challenging about peer-assisted teaching method.	● Overwhelming experience ● Critiquing peers at the same level

4.4.2 What respondents enjoyed about the FAT method.

- **"One-on-one facilitation"**

One-on-one facilitation in this study refers to a student working one-on-one with the educator in the clinical simulation laboratory. The educator demonstrates the clinical procedure to the student. In this study the student was exposed to FAT either in step one or two of phase one. The student then worked and practiced independently under direct or indirect supervision of the educator. If and when the student required assistance they collaborated one-on-one with the educator. One-on-one teaching allows students' to express their learning experiences and feelings in the clinical environment, which leads to self-confidence, promotes socialization and encourages professional development. The results indicated that 65 (71%) of the respondents enjoyed this method of teaching clinical skills. This is evidenced by a selection of respondent's verbatim responses.

R 35 stated "*I enjoyed one-on-one teaching*",

R 17 shared "*I was one on one and could get individualised attention and feedback".*

R 75 responded by saying "*Learnt more, more focused, and feel comfortable with facilitator, to monitor me. When I have concerns, she can give me clarity".*

- **"Lecturers experience and level of knowledge".**

Students feel vulnerable during clinical sessions. A safe and secure environment with sensitive experience allows for easier and more positive learning. Nurse educators serve to enhance nursing students' experiences and expectations. In this study the respondents' feedback suggested that the respondents felt safe in the care of the nurse educators because of the knowledge and high standards. This was evidenced by the respondent's verbatim responses.

R 27 stated the experience as "*It was more thorough and a higher standard was maintained*.

R 54 shared the experience as "*I was able to ask questions and receive effective knowledge*."

R 71 emphasised the experience as "*Facilitator-assisted teaching method is more thorough and more skilled*".

4.4.3 What respondents found challenging about the FAT method.

- **"Overwhelmed "**

Interestingly, overwhelmed came up as a challenge with both FAT and PAT. The students felt overwhelmed in general whether it was in front of the educator or their peers.

R 51 explained the experience as *"The challenging thing was I was intimidated by* [the] *facilitator as this was all new to me.*

R 12 explained the challenge as *"The fear of facing the educator and* [to have to] *interrupt.*

- **"Working alone"**

In this study working independently refers to a respondent working alone.. The ~~respondent~~ was exposed to the FAT method and the individual attention of the nurse educator. This may cause some concern by the respondent about what he/she has remembered. The respondents are then required to practice until they feel competent to be assessed by the educator.

The respondents expressed their experiences as follows:

R9 stated *"Your peers are not there to assist you, you just do your own thing".*

R 22 *"The pressure I put on myself when I need to do procedures in this method".*

4.4.4 What respondents enjoyed about the PAT method.

Repetition of procedures is achieved during PAT as the respondents teach one another and practice with each other.

- **"Peer Collaboration"**

Collaboration between colleagues and groups encourages team work and support of each of the members. Peers enjoyed the collaboration between each other and this was confirmed when examining the responses.

R 50 expressed the experience as "*It felt comforting knowing that I could learn and experience mistakes with my fellow students.*

R 79 states *"I enjoyed every minute, I* [learnt] *a lot and I wasn't nervous"*

R13 responded by saying he/she enjoyed "*the communication and the interaction*".

R 46 stated *"Peer teaching builds confidence if you have a professional peer with you"*.

- **"Confidence building due to repetition of procedures"**

Learning and practicing clinical skills helps respondents to develop confidence, build on their independence and become competent professionals.

R 13 enjoyed PAT and stated "*Witnessed the procedure a few times which helped a lot".*

R 63 was pleased and stated *"To be given the opportunity to practice."*

R 82 *"Enjoyed practicing repeatedly until* [he/she] *understood certain things".*

4.4.5 What respondents found challenging about the PAT method.

- **"Overwhelmed "**

Participants felt overwhelmed when it came to practicing, demonstrating and assessing one another. In this study the respondents' practised with their peers in the clinical simulation laboratory without supervision or assistance from the educator. The presence of the peers was overwhelming.

R 51 explains "*The challenging thing is to do the procedure in front of your peers".*

R 14 states "[I] *found it very challenging with my peer group because we had to do it in front of each other and they had to show where you are wrong."*

Some students felt that their peers were unreasonable and unfair when evaluating each other and this was evident in the responses on the questionnaire.

R 20 stated it as a *"Feeling that you're not being marked off fairly".*

R 19 commented by stating *"*[Peers] *asking questions that not even my facilitator would* [ask].

- **“Critiquing others”**

Respondents found the experience of critiquing each other as a challenging task, considering they were on the same level cognitively.

R 24 stated *“Having to grade my own peer, wanted to help her but [I was] not able to give the answer.”*

R 91 said it was challenging *“Not being able to verbally tell peers their downfalls.”*

They asked whether they could participate in the clinical evaluation of each other to gain some experience. This was allowed with consent from all, but the peer remained an observer. The feedback was then shared with the participant by the educator and the peer.

4.5 SUMMARY

This chapter presented the results of descriptive and inferential statistics used to describe and analyse the data collected. The data was presented in contingency tables and graphs.

The following chapter will present the study, the main findings and discussions, conclusions and recommendations.

CHAPTER FIVE

DISCUSSION, LIMITATIONS, RECOMMENDATIONS AND CONCLUSIONS

5.1 INTRODUCTION

In the previous chapter Phase one data was statistically analysed and presented in table formats, mosaic plots and contingency tables. Phase two was presented as content analysis according to Hsieh et al, (2005). This final chapter will present the summary of the study, discussion of the results from the previous chapter supported by literature. The limitations of the study have been highlighted. Conclusions and recommendations have been made.

This study focused on comparing two different teaching methods to obtain clinical competency. If both methods were acceptable, options in alleviating current challenges faced by educators and students may be available, adding time for nurse educators to observe students in the work place and provide on the spot training and constructive feedback. By introducing clinical sessions that are more student focused one may promote peer support. Prompt feedback can be motivational for students to improve their skills and performance.

5.2 SUMMARY OF THE STUDY

Teaching clinical skills for nurse educators is a continuous journey of striving to achieve quality nursing care and competent nurses. According to Hakimzadeh *et al*., (2012:171) "Clinical competence is the ability to effectively integrate cognitive, affective and psychomotor skills when delivering nursing care". Because the ratio of nurse educators to students is low, this requires a considerable amount of time on the part of the nurse educator when preparing the students. If peer-assisted teaching could be substituted in place of the traditional facilitator-assisted teaching method, the nurse educator could spend more time on corrective and remedial teaching.

The preference of the students is important because the confidence of students during the learning process increases their motivation to learn, increases self-efficacy and reduces students anxiety (Palsson *et al.*, 2017)

A census sample was used and data were collected from evaluating respondent assessment outcomes and extracting information from questionnaires. To achieve the study objectives a quantitative, concurrent, quasi-experimental, cross over design was used. A confidence level of 95% accuracy and a margin of error of 5% were ensured.

Descriptive and inferential statistics were analysed and presented in table formats, mosaic plots and tables.

The aim of this study was to compare two teaching methods, FAT and PAT to establish if either method is better than the other or if both teaching methods could be used in conjunction when teaching clinical competency to student nurses.

The objectives for the study were:

- To compare FAT and PAT to achieve clinically competent student nurses.
- To explore which of the two teaching methods was preferred by the student nurses.

5.3 DISCUSSION OF RESULTS

5.3.1 Demographic data

Two groups of respondents were randomly selected. Age, gender and experience were documented. The demographic data were documented to examine whether the results might be related to this data. The information on experience was withdrawn since there was an error on the data collection tool. The only valuable information that could be extracted was that most of the respondents had six months to 5 years of experience.

Group one indicated that 35 (76.09%) of the respondents were in the 18 to 29 year age range. Eight (17.39%) fell in the 30 to 39 year age range and only 3 (6.52%) in the 50 to 65 year age range. Group one thus consisted of largely young respondents 35 (76.09%).

In group two, 3 (6.67%) respondents were in the 18 to 29 year age range, 28 (62.22%) in the 30 to 39 year age range and 14 (31.11%) in the 40 to 49 year age range. Group two consisted of older respondents 42 (93.33%) when compared to group one with most of the respondents ranging between 30 to 49 year of age. In this study age was not influenced as the groups were randomly selected into two equal groups.

A recent study done by Luhanga, (2018) revealed that older respondents felt they needed to practice more than younger respondents, they felt they needed more repetition before feeling as confident as the younger respondents, this study supports Derksen *et. al.*, 2014, where it was found that older respondents start with an inferior performance compared to younger respondents due to normal age related processes in learning and memory such a changes in the frontal lobes of the brain, but as tasks progress older respondents catch up. However the above findings are contradictive to Kim and Kim (2015), where it was found that the older a nurse the higher his or her nursing competency is.

In this study there was no significant relationship between age and clinical competence. This is in keeping with literature (Hakimzadeh *et al.,* 2012).

The gender dominance for group one reflected 41 (89.13%) to be female and five (10.87%) were male respondents.

The gender dominance for group two was 42 (93.33%) female and 3 (6.67%) males.

The greater number of female respondents is in line with the norm for the nursing profession in South Africa. In a study done by Hakimzadeh *et al.*, (2012) it was determined that the average score of clinical competency in females was significantly higher than the males' mainly due to their higher level of accuracy and skill. This was not supported by Heidari et, al.,(2014)whose findings indicated that male students were more positive when it came to clinical education and thus that these characteristics in male nurses would translate into a higher score of clinical competency.

5.3.2 Objective One `

The first objective was to compare FAT with PAT to achieve clinically competent student nurses.

In step one, the skill of "physical assessment" was demonstrated. In this step group one was exposed to PAT whilst group two was exposed to FAT. In step one a majority of 93.25% of the respondents were found competent and a minority of 6.74% were not competent when they were assessed on this skill. The total of 88.36% of the respondents in group one (PAT) were found competent whilst 11.37% were found not competent.

In group two (FAT), 97.78% were competent whilst only 2.22% were not found to be competent.

The competency rate in group one (PAT) method was less than in group two (FAT) method but not significant and so the method of teaching this skill made no difference to the competency rate.

The groups were then crossed over to see what difference the change of teaching method created if any.

In step two group one was exposed to the (FAT) method and group two was exposed to the PAT method.

In step two the majority of 94.32% of the respondents were found competent whilst a mere 5.68% were found to be not competent when they were assessed on this skill. In group one (FAT) method a majority 97.73% were competent and only 2.27% were not competent. In group two (PAT) method 90.91% were competent and 9.09% was not competent.

The difference in the competency rate in group one (PAT) method was less than in group two (FAT) method but not significant only 6.82% and so the method of teaching this skill made no significant difference to the competency rate.

According to Bruce *et al.*, (2013) clinical competence involves performance, integrative knowledge, psychomotor skills and attitude of students when performing a clinical procedure which is measured and interpreted by the educators. The interpretive aspects involve the integration of critical thinking, clinical skills and interactive, interpersonal skills to exercise clinical judgment. Kim *et.al.,* (2015) explains nursing competency as the personal and internal quality that encourages the nurses to perform effectively in certain situations and is manipulated in behaviour and language to be measured and this makes nursing competency complex. Kim *et al.,(2015)* further elaborates by stating that evidence shows that nurses that keep learning and practising clinical skills have a higher level of nursing competency.

In this study the overall facilitator-assisted teaching method revealed a higher competency result to that of peer-assisted teaching. The results of the Pearson Chi-square value (p-0.8331) showed no evidence that either one of the teaching methods had achieved significantly greater competency outcome. A study done by Gharib sabaq et al., (2016) finds that peer teaching was preferred by the respondents and there was an improvement in performance scores, the respondents were less anxious when performing the procedures, more communicative and interactive with their peers. In this study the opposite was true as the respondents preferred facilitator-assisted teaching where they worked one on one with the educator and had no interaction with their peers.

5.3.3 Objective two

The second objective was to explore which of the two teaching methods the respondents preferred.

When respondents were asked which method of teaching they preferred, collectively 66 (72.53%) of respondents preferred facilitator-assisted teaching as opposed to 25 (27.47%) who preferred peer-assisted teaching. These findings reflect a large percentage of respondents who preferred facilitator-assisted teaching to peer-assisted teaching.

When the two teaching methods were compared to the competency results of the respondents neither one of the teaching methods had a significantly higher competency result. The study is thus in congruence with Grasha (2002) that no one teaching method is better than the other but that variation in the use of teaching styles can enhance deep learning. Clark and Latshaw (2012) propose alternative approaches to teaching in an effort to ensure good learning that supports the gaining of new knowledge. The findings of Gharib et al., (2016) reflected that peer teaching had an obvious improvement in performance scores, better acquisition of communication, improved sense of responsibility, mature sense of receiving honest feedback, and better problem solving skills.

The results differ in this study and show that the respondents in this study remained dependant on the educators guiding and teaching of clinical skills and were reluctant to take the independent role of self-learning. Educators should reconsider teaching methods where learners use only habitual methods of learning and cannot self regulate, self examine or self direct (Potgieter, 2012).

Potgieter (2012), believes that teaching clinical skills should be like a process of discovery and through “assimilation and accommodation” new constructs can be formed engaging students in clinical learning.

- The respondents comments regarding the two teaching methods.

The content of the respondent’s comments were extracted from the four open ended questions and sorted into categories.

One to one facilitation with the educator

Facilitator-assisted teaching is the approach that has been traditionally used in which the educator works with the student, provides the student with information and demonstrates the clinical procedures which gets memorized and imitated by the student (Potgieter, 2012).

Respondents indicated that they enjoy one to one facilitation as they get individualized attention, immediate feedback and learn more. They are more focused and when they have concerns they can ask for clarity.

Respondents explained that the lecturers experience and level of knowledge enhances safety and security as they feel vulnerable during clinical sessions. Knowledge and maintaining standards increases their confidence.

Overwelming experience

Feelings of being overwhelmed when having to face the educator were clarified in a recent study done by Manyama (2016), where the respondents stated that they felt over -whelmed which lead to impaired completion of objectives.

The respondents in this study also felt they were anxious when they had to demonstrate and answer questions in front of the educator. Interestingly enough this also came up as a challenge for peer-teaching challenges.

The respondents felt challenged when they had to work independently, during facilitator-assisted teaching, they had to think for themselves and be totally accountable for their own decisions.

Peer collaboration

According to Williams (2012), Seenan *et al.,* (2016) peer-assisted teaching is where students assist one another to learn and learn in the process by teaching, as in this study. This was verified by the respondents' responses once they had been exposed to the peer-assisted teaching method. The respondents expressed that they enjoyed peer-assisted teaching because of the collaboration they shared with their peers and the confidence they gained by practising the procedures themselves, by guiding their peers and witnessing their peers practising the procedures repeatedly. "Self-confidence can be gained when teaching others and assuming a role of authority" (Seenan *et al.,* 2016: 41). An advantage for the student is that they witness the procedure being demonstrated and practiced numerous times by their colleagues. The student gets the opportunity to learn and develop their skills (Hiino and Vehvilainen-Julkunen 2012).

Overwelming experience in peer-assisted teaching

Respondents expressed that they felt overwhelmed and anxious when they were exposed to peer-assisted teaching for the first time as it was new to them. Respondents found it difficult initially to critique their peers when giving them feedback on their clinical procedure outcomes due to lack of confidence and being at the same level as their colleagues. Rush et al., (2012) confirms this in their study as the respondents also experienced difficulty in learning how to give and receive constructive criticism from their peers, they felt they did not have the deeper understanding and knowledge that a lecturer has.

In summary in this study the results show that the respondents learnt more from the FAT method and preferred the FAT method. The respondents also expressed what they enjoyed and found challenging for both teaching methods and so objective two was met.

5.4 WHAT THIS STUDY ADDS

Ineffective clinical nursing is a global concern as it concerns patient care and patient satisfaction. Nurse educators need to constantly keep updated and utilize opportunities when teaching clinical skills.

The researcher in this study compared two methods of teaching clinical competence (facilitator-assisted and peer-assisted teaching) to establish if alternative teaching methods could maintain standards and levels of competency of students and in doing so, perhaps assist nurse educators in South Africa to alleviate the pressure of being faced with high ratios of student nurses, time constraints and the expectations of producing clinically competent nurses, without compromising the students.

The results in this study established that neither teaching method jeopardises the success of the respondents nor did either teaching method change the competency levels, so both methods are equally acceptable in producing competent nurses. Nurse educators can consider utilizing either teaching method or a combination of the teaching methods to improve respondents' clinical competencies.

The respondents preferred the facilitator-assisted teaching method where they play a passive role imitating the procedures. This is not similar to other study findings where peer teaching is favoured more by the respondents (Gharib sabaq *et al.*, 2016, Palsson *et al.*, 2017).

5.5 LIMITATIONS

The following limitations were acknowledged by the researcher.

This study was only carried out at one private nursing college in one province and the sample numbers were small.

This was the first time that these respondents had experienced PAT and some were unsure of their classmates. With more exposure to the peer-assisted teaching their opinions might change.

The results of this study cannot be generalised based on these limitations however replications may be conducted using a larger sample.

5.6 RECOMMENDATIONS

The clinical environment is a complex, diverse, rapidly changing area where nurses are expected to practice and function independently. Nurse educators need to constantly strive to keep updated and utilize every opportunity to update and keep their clinical practice current. Nurse educators are challenged by these elements to explore different methods of teaching clinical skills in an attempt to develop skilled, autonomous nursing practitioners. Clinical teaching is not only the responsibility of the nursing educators, the registered nurses in the clinical field according to the Scope of practice instituted by the South African Nursing Council R2598 states explicitly that the registered nurse also has a teaching role. Further study can be done by combining both teaching methods to establish if this will improve respondents' clinical competence, and alleviate nurse educators from direct supervision of respondents, allowing them more time to observe, give on the spot training and constructive feedback or remediation.

5.6.1 Recommendation for nursing teaching practice

More research can done to explore why student nurses prefer educators to facilitate them and reluctant to find information for themselves and become self-motivated.

Nursing educators should encourage student nurses to critically analyse, question, look for additional answers and develop exploring minds and not to rote learn to achieve clinical competence.

Nursing educators could explore how characteristics of nursing educators in facilitation could enhance clinical skills in students.

5.7 CONCLUSION

This study investigated two methods of teaching clinical competence. The results showed that neither one of the teaching methods made a difference to the respondents assessment competency outcomes.

The results showed that the respondents felt they learnt more from facilitator-assisted teaching method and when asked which method of teaching they would prefer most stated facilitator-assisted teaching.

The respondents had not been exposed to peer-assisted teaching prior to this research, so additional research would be appropriate. There may be other ways to teach clinical skills that improve the competency and make learning enjoyable and this requires nurse educators to conduct further investigation.

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Appendix 1

R14/49 Charmaine R. Killen

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M150776

NAME: (Principal Investigator)	Charmaine R. Killen
DEPARTMENT:	Health Science Nursing Education Netcare Western Cape
PROJECT TITLE:	A Comparison of Two Methods of Teaching Clinical Competence
DATE CONSIDERED:	31/07/2015
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Andrea Hayward
APPROVED BY:	Professor P Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	07/09/2015

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 Secretary in Room 10004, 10th floor, Senate House, University.
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.**

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix 2

Netcare Hospitals (Pty) Ltd

Tel: +27 (0)11 301 0000
Fax: Corporate +27 (0)11 301 0499
76 Maude Street, Corner West Street, Sandton, South Africa
Private Bag X34, Benmore, 2010, South Africa
www.netcare.co.za

RESEARCH OPERATIONS COMMITTEE FINAL APPROVAL OF RESEARCH

Approval number: UNIV-2015-0085

Ms Charmaine Kilian

E mail: Charmaine.Kilian@netcare.co.za

Dear Ms Kilian

RE: A COMPARISON OF TWO METHODS OF TEACHING CLINICAL COMPETENCE

The above-mentioned research was reviewed by the Netcare Research Operations Committee's delegated members and it is with pleasure that we inform you that your application to conduct this research at Netcare Education Western Cape Campus, has been approved, subject to the following:

i) Research may now commence with this FINAL APPROVAL from the Netcare Research Operations Committee.

ii) All information regarding Netcare will be treated as legally privileged and confidential.

iii) Netcare's name will not be mentioned without written consent from the Netcare Research Operations Committee.

iv) All legal requirements with regards to participants' rights and confidentiality will be complied with.

v) Netcare must be furnished with a STATUS REPORT on the progress of the study at least annually on 30th September irrespective of the date of approval from the Netcare Research Operations Committee as well as a FINAL REPORT with reference to intention to publish and probable journals for publication on completion of the study.

vi) A copy of the research report will be provided to the Netcare Research Operations Committee once it is finally approved by the relevant primary party or tertiary institution, or once complete or if discontinued for any reason whatsoever prior to the expected completion date.

APPENDIX 3

Information letter: Research Respondent

Hello

My name is Charmaine Kilian. I am a postgraduate student at the University of Witwatersrand in the Department of Nursing Education, reading for the degree of Master of Science in Nursing. The title of my study is: “A comparison of two methods of teaching clinical competence” Ethics Certificate M150776.

The aim of this study is to compare facilitator-assisted teaching with peer-assisted teaching in achieving clinically competent student nurses.

The objectives of my research are to compare facilitator-assisted teaching with peer-assisted teaching methods to achieve clinically competent student nurses and explore which of the two methods is preferred by the students.

You will be selected into one of two groups. Each group will be supervised by a nursing educator. Each group will be exposed to both teaching methods. During the teaching the nursing educators will demonstrate a procedure. You will be given time to practice the procedure. The facilitator-assisted group of participants will practice under the direct supervision of the nursing educator (one on one) and the peer-assisted group will practice with their peers with minimal guidance from the nursing educator. Once you feel competent with the procedure you will be assessed by the nurse educator who accompanied you during the practicing. The private institution assessment tool will be used to assess your competence.

Participation in this research is voluntary. If you wish to withdraw at any point, you are free to do so.

Confidentiality will be guaranteed to all the respondents. Since neither I, (the researcher) nor my colleague is your manager or your supervisor, the results of this study will be kept confidential and will not compromise your progress in any way. These marks are purely for the purpose of the research and not for purposes of evaluation.

The results of this research may offer alternative clinical teaching methods for nurse educators, clinical facilitators and student nurses in enhancing the student's clinical competencies.

Thank you for taking time to read the information letter. Should you require any further information regarding the study or your right as a respondent, you are welcome to contact either me or my supervisor.

- Charmaine Kilian
  Netcare Education Western Cape Campus
  4th Floor Sanbel Building
  Old Paarl Road
  Cape Town
  7530

- Supervisor
  Andrea Hayward
  Department of Nursing Education
  Faculty of Health Sciences
  University of Witwatersrand
  0114884271

APPENDIX 4

Consent agreement between Researcher and student candidate

I nurse ____________________ willingly consent to participate in this Research on

"A comparison of two methods of teaching clinical competence".

I understand that I am free to withdraw from this research project at any stage during the year and that my participation or choice not to participate will not negatively affect my academic progress at the college.

____________________	____________________
Student	Researcher
____________________	____________________
Date	Date

APPENDIX 5

Questionnaire - Students' experiences on Facilitator-assisted teaching and Peer-assisted teaching.

Questions 1 – 5 Please circle the appropriate answer only.

Questions 6 – 9 Please answer the questions truthfully and honestly.

Definitions of the two types of teaching methods

Facilitator-assisted teaching

This method of teaching is when the nursing educator demonstrates the clinical procedures, facilitates the entire process, practices the procedures with the student nurses and then assesses the student nurses' clinical competence**.**

Peer-assisted teaching

This method of teaching is when the nursing educator demonstrates the clinical procedures, the students are given the opportunity to practice with their peers, with little supervision of the nurse educator. The student nurse will be assessed by nurse educator and a peer that was with you in your peer group.

Demographic Data	Circle the appropriate answer.
1. Age	1. 18 – 29 2. 30 – 39 3. 40 – 49 4. 50 – 65
2. Gender	1. Female 2. Male
3. How long have you been nursing as an enrolled nurse?	1. 1 – 6 months 2. 6 months – 5 years 3. 5 – 10 years 4. 10 years or more
4. Which teaching method did you learn the most from?	1. Facilitated Assisted Teaching

	2. Peer Assisted Teaching
5. If you had a choice, which of these two methods of teaching clinical skills would you choose?	1. Facilitated Assisted Teaching 2. Peer Assisted Teaching
	Answer Questions honestly.
6. Explain what you enjoyed about the facilitator-assisted teaching method.	
7. Explain what you found challenging about the facilitator-assisted teaching method.	
8. Explain what you enjoyed about the peer-assisted teaching method.	
9. Explain what you found challenging about the peer-assisted teaching method.	

APPENDIX 6

PHYSICAL ASSESSMENT

NAME OF STUDENT: ____

DATE ____

A Critical point is indicated with an "F". If you fail a critical point, you will fail the procedure. This means that you are not yet competent to perform this procedure. You will have to repeat the procedure. Compliance is 85%.

C= Compliant

NC = Non-compliant

N/A = Not applicable

Verbal consent obtained from patient Yes No

	C	**NC**	**NA**
Greet the patient and introduce yourself			
Perform a social hand wash		F	
Identify the patient with admission document and Identification band		F	
Access the indications for the relevant procedure according to the patient diagnosis		F	
Confirm the prescription according to date frequency and relevant signatures		F	
Explain the procedure to the patient			
Obtain verbal consent from the patient			
Maintain a therapeutic environment			
Ensure patient privacy throughout the procedure		F	
Ensure safety of patient throughout procedure		F	
Maintain communication and health information with the patient			

Obtain medical, surgical history and current reason for admission		F	
Check for allergies		F	
Perform social hand wash and don gloves if needed		F	
Supply patient with dressing gown			
Perform urine analysis and interpret correctly		F	
Obtain baseline vital data =, weight height and pain/blood glucose		F	
Place patient in supine position			
RESPIRATORY SYSTEM			
Assess respiration rate		F	
Auscultate breath sounds		F	
Apex beat			
Assess chest pain and location			
Assess cough if productive/unproductive			
Observe 02 therapy which patient is receiving			
Dress patient, and ensure comfort of patient			
Remove gloves and perform a social hand wash		F	
Record and report all findings		F	
Charge stock used			
Integration of practical and theoretical knowledge			

Competent	
Not yet competent	

Mark / **Percentage**

COMMENTS:

____

____

____

____

____

SIGNATURE:

STUDENT

SIGNATURE:

ASSESSOR

APPENDIX 7

TAKING AND INTERPRETATION OF A 12 LEAD ECG

NAME OF STUDENT: ____

DATE ____

A Critical point is indicated with an "F". If you fail a critical point, you will fail the procedure. This means that you are not yet competent to perform this procedure. You will have to repeat the procedure. Compliance is 85%.

C= Compliant

NC = Non-compliant

N/A = Not applicable

Verbal consent obtained from patient Yes No

	C	NC	NA
Greet the patient and introduce yourself			
Perform a social hand wash		F	
Identify the patient with admission document and Identification band		F	
Access the indications for the relevant procedure according to the patient diagnosis		F	
Confirm the prescription according to date frequency and relevant signatures		F	
Explain the procedure to the patient			
Obtain verbal consent from the patient			
Maintain a therapeutic environment			
Ensure patient privacy throughout the procedure		F	
Ensure safety of patient throughout procedure		F	

Maintain communication and health information with the patient			
Ensure all cell phones are switched off			
Plug the ECG recorder in the electrical supply and switch on			
Record vital data and pain rating		F	
Perform a social hand wash		F	
Place patient in supine position			
Only expose the skin in areas necessary for electrode placement			
Prepare the skin appropriately			
Place the precordial electrodes on the kin			
V1 – 4th intercostals space right sterna border		F	
V2 – Fourth intercostals space left sterna border		F	
V3 – Equidistance between V2 and V4		F	
V4 – Fifth intercostals space left of sternum along the mid-clavicular line		F	
V5 – Fifth intercostals space left of the sternum along the anterior axillary line		F	
V6 – Fifth intercostals space left of the sternum along mid – axillary line		F	
Limb leads are positioned as follows:			
L on left shoulder/wrist		F	
R on right shoulder/wrist		F	
LL on left hip/foot/ankle		F	
Neutral on right hip/ankle		F	
Connect ECG leads correctly to electrodes		F	
Selects appropriate settings			
Paper speed – 25mm/sec			
Sensitivity – 100 MV			
12 Lead ECG plus rhythm strip			
Filter on			
Request patient to lie still during procedure			
Baseline centre		F	

Initiates paper movement			
Assess the quality of the ECG recording			
Disconnect leads and prepare equipment for further use			
Ensure patient comfort			
Perform a social hand wash		F	
Tidies the environment and place patient in a comfortable position			
Records			
Patients Name		F	
Date and Time		F	
Indication for doing ECG		F	
Blood pressure and heart rate		F	
Drugs of importance		F	
Chest pain – rate out of 10		F	
Interpret the ECG and report abnormalities			
Record and report all relevant information		F	
Charge all equipment			
Integration of theory and clinical knowledge			

Competent	
Not yet competent	

Mark **/** **Percentage**

COMMENTS:

____

____

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____

____

____

____

SIGNATURE:	SIGNATURE:
STUDENT	ASSESSOR