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Primary Health Care nursing students' perceptions of the case-based learning approach employed at a selected Nursing Education institution in Durban: An exploratory-descriptive study

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Primary Health Care nursing students' perceptions of the case-based learning approach employed at a selected Nursing Education institution in Durban: An exploratory-descriptive study

**A dissertation submitted
to the Department of Nursing at the
University of KwaZulu-Natal in partial
fulfilment of the requirements for the
degree of Master's in Nursing Education**

BY

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DECLARATION

I DECLARE THAT THIS IS MY OWN UNAIDED WORK. IT IS BEING SUBMITTED FOR THE DEGREE OF MASTER'S IN NURSING EDUCATION AT THE UNIVERSITY OF KWAZULU-NATAL, DURBAN. IT HAS NOT BEEN SUBMITTED FOR ANY OTHER PURPOSE. ALL SOURCES HAVE BEEN ACKNOWLEDGED BY MEANS OF REFERENCING.

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DEDICATION

THIS DISSERTATION IS DEDICATED TO MY HUSBAND SHIVASH GIASI, MY PARENTS MR AND MRS S. HARRICHARAN, MY BROTHER RAJEEV, MY SISTERS, RASHIKA AND RAVIKA, MY SISTER-IN-LAW, SEEMA, MY BROTHERS-IN-LAW, ISAAC AND WINESHEN, MY NEPHEW KESHAV AND MY NIECES' RADHIKA, VIGNESHWARI AND DARSHANA FOR ALL THEIR LOVE, ENCOURAGEMENT AND SUPPORT.

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I would like to thank the School of Nursing and the facilitators of the three groups (Durban, Port Shepstone and Pietermaritzburg) for granting me permission to conduct this study. I am very grateful for the cooperation and interest of the nurse educators and participants who took part in this phase of my study.

To my husband, Shivash, who prayed for my success and encouraged me throughout my studies, to my parents, Mr and Mrs S Harricharan, who instilled in me the philosophy that education was the key to success; to my brother and sisters, my brothers-in-law and sister-in-law, not forgetting my nieces and nephew; once again I thank you all for your tolerance, encouragement, love and understanding during my years of study.

ABSTRACT

Background: Case-based learning (CBL) is one approach which is gaining popularity. The selected School of Nursing adopted this approach to learning in 2000. The school reviewed all the old case studies and introduced new ones in 2010. These new case studies were used for the first time with the 2011 Decentralised PHC programme. Hence, the need for a study that explored students perceptions towards case-based learning.

Research Methodology: A quantitative approach and descriptive exploratory design were adopted in this study. A total number of 101 students were from the three Decentralised Primary health care (PHC) programme participated in this study. Data was collected from three decentralised sites used to offer PHC programme to students; Durban, Port Shepstone and Pietermaritzburg. Data was collected by means of a questionnaire – a self-reporting instrument which included 62 structured questions. Data was analysed statistically for frequency distributions and the relationship between the results from three sites were explored using a Chi Square Pearson Test, with a p value set at .005.

Results: The results of this study show that, overall, students view case-based learning in a positive light. Although the majority reported that cases were distributed in case study booklet form (n=66) 65.3%, other modes such as cases presented to students in each class session using transparencies (n=52) 51.5% as well as through emails was reported. Regarding benefits about (n=90) 90.1% of the respondents stated that cases presented added a lot of realism. The researcher also explored to see if there were any variations of results across the three delivery centres. The findings of this study demonstrated that there was a significant difference for seven items, some of these items included teachers feedback and advise after class was

relevant for students to cope on their own p<.000; case studies preparing student for working in PHC institutions in South Africa p<.042; preferred lectures more than CBL p<.003 and CBL was too demanding in terms of preparation and the content p<.004.

Discussion: Students enjoyed the experience but also identified their own limitations and mistakes. They were able to plan their own learning needs. The students experienced personal and professional growth using cases which represented the real-life challenges. They had the opportunity to apply the theory, their experiences and their newly developed skills from the use of CBL in there clinical practice. The end product was visible and of benefit to the clinical settings as students was now competent in analyzing cases and solving practical problems systematically. Providing a real-life challenge to students in CBL instead of teaching a predominantly theoretical course proved to be beneficial.

Recommendations: The researcher felt that a follow-up study, taking into account all six sites where students are placed could result in a difference in the students' perceptions of CBL as a teaching methodology, as the students in the other three sites are in the more rural areas which limits their resources. There was some inconsistency with presentation and distribution of cases also feedback to students, staff may require development with teaching skills to co-ordinate all centres in a similar way. Port Shepstone and Pietermaritzburg struggle with CBL, maybe they are not incline with Self directed learning (SDL), therefore a follow up study in these centres would assess in students are inclined with SDL.

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LIST OF ABBREVIATONS AND ACRONYMS

BEH: Bachelor of Emergency Health

CBL: Case-based learning

KZN: KwaZulu-Natal

IPE: Interprofessional education

NEI: Nursing Education Institution

PBL: Problem-based Learning

PHC: Primary Health Care

SANC: South African Nursing Council

SAQA: South African Qualifications Authority

SDL: Self-directed learning

SPSS: Statistical Package for Social Sciences

UKZN: University of KwaZulu-Natal

ZPD: Zone of Proximal Development

CHAPTER 1

1. INTRODUCTION

Primary health care programme also referred to as Clinical Nursing Science, Health Assessment, Treatment and Care, according to South African Nursing Council (SANC) Regulation 48 of 1982, as amended, came into existence following the 1976 uprising in Soweto. A number of local primary health care clinics closed down because many skilled health workers resigned or opted for placement in other health institutions areas as they were unable to safely enter the township (Kautzky &Tollman, 2008). In response to this crisis, Baragwaneth Hospital senior doctors initiated clinical training course for nurses to provide services in local primary health care clinics. Paediatric and adult nurse clinicians were trained to undertake some responsibilities which were executed by general practitioners. These nurses were trained to take a comprehensive history of the patient's health, conduct comprehensive physical examination, diagnose disease, prescribe treatment and dispense medication (Evian 1998:112). Primary Health Care training programme was then recognized by South African Nursing Council as a short course and later as a post basic diploma ((Evian 1998:112). Some nursing education institutions, including the University of KwaZulu-Natal, refer to this programme as Primary Health Care programme because that is how they have it accredited by the Council on Higher Education (CHE). Critical from graduates of this programme is that they are expected to be skilled in clinical reasoning, which requires them to be critical reflective thinkers and problem solvers. This is achieved through a number of teaching methodologies, including case-based learning.

1.1 BACKGROUND TO THE STUDY

The South African Qualifications Authority Act (SAQA), Number 58 of 1998, requires that the facilitators of education and training programmes for students implement teaching strategies that facilitate critical reflective thinking and lifelong learning. This demand has led

to a paradigm shift in nursing education from the traditional teacher-directed method to a more student-centred approach. A case study is one example of a student-centred approach which meets this demand in clinical nursing because of the need to integrate theory into practice. Sandstrom (2006) indicates that case-based teaching enables students to develop a clearer understanding of disease, how it affects patients and their needs, and how patients respond to their illness.

Case-based learning (CBL) is one of several Problem-based learning (PBL) fusions (others include patient-centred learning) that is modelled upon a student-centred philosophy. As case-based learning is derived from PBL, it has similar characteristics (working in small groups and independent study) (Williams, 2009). These teaching and learning methodologies are conceptually supported by the same educational theories used in PBL, influenced by Dewey (1916), Piaget (1968), Bruner (1966), and Vygotsky (1978) and are based upon cognitivism, constructivism and perceptions of social learning relationships. The basis for these theoretical frameworks allows students to discover learning that is meaningful to them, while scaffolding and constructing new information based on their new learning structures and resources provided by the teacher.

All teaching methods are, of necessity, pragmatic and context-dependent. Teaching approaches lack a firm scientific underpinning because of the paucity of scientific evidence about optimal learning. Despite substantial advances in our understanding of human cognition during the last few decades, our teaching methods are still mainly based on expert opinion (Kassirer, 2010). Seventy years ago, John Dewey, the great educator and pragmatist, outlined criteria for teaching that have stood the test of time. One fundamental principle which seems almost mundane today is that experiences are critical determinants that

influence the quality of learning, and that the teacher has an obligation to provide optimal experiences. Dewey believed that teaching experiences should arouse curiosity, enhance personal initiative and allow free expression of students' ideas. As in Dewey's formulation, adult learning theory holds that people learn new knowledge and skills most effectively when these are presented in the context of the application of new knowledge to real life situations (Kassirer, 2010).

The growing interest in the use of the case study and case presentation as a teaching and learning facilitation strategy suggests that knowledge, skills, attitudes and values in clinical nursing education are inseparable and integral components. This strategy has taken the form of complex real and/or hypothetical narratives grounded in actual problems and challenges that occur in real nursing care environments where integration of theory and practice should occur (Draude, 1996; Sandstrom, 2006). The learning environment created in case-based learning promotes an autonomous learning stance for students and allows teachers to encourage students to take responsibility for their learning. It also shifts the responsibilities of teachers, who now take an active role in listening and facilitating, not interrupting and directing the students, but instead, providing sound advice and guidance with learning resources (Albanese, 2000).

In agreement with Albanese (2000) maintained that when used effectively, CBL can facilitate a systematic, theoretical approach to client problems, empower students to become their own teachers, and engage students and their teachers in analytical dialogue about clinical nursing situations. Furthermore, Albanese (2000) indicated that the small-group class structure in case-based learning elicits active participation from the students and supports professional practice goals by encouraging relatively egalitarian learner-teacher interactions. Students'

self-direction has to increase as the teacher's imposed structure decreases (Ulrich & Glendon, 1995; Kaddoura, 2001). Case-based learning is rivalled only by PBL in terms of popularity, as an approach for helping students to develop independent and critical thought, as well as preparing them for the reality of clinical nursing practice. The literature regarding the use of the case study as a learning facilitation strategy focuses primarily on the outcome of the learning process, and on the ability of this strategy to equip nursing students with the desired learning skills.

Case-based learning is promoted in many universities, according to Merseth (1991), because it teaches these important concepts and facts within the context of authentic or real world situations. Context is thought to be more motivational to students as it provides a concrete framework from which complex concepts can be more easily understood. Senior (1998) and Stern (1998) as cited in (Kaddoura, 2001), asserts that CBL enables students to explore, analyse and examine representations of an actual classroom, which may include large or small group discussions, role-playing situations, analysis, or team-based discussion (Kaddoura, 2001). In cases, the bulk of student learning takes place (as novices) – in where students can assimilate, elaborate, and debate the theoretical content (thinking as experts) amongst themselves (Kaddoura, 2001). Jonassen, Mayes and McAleese (1993) believe that using a case-based learning approach allows students to immerse themselves in meaningful learning and improved meta-cognitive processes.

The case study approach to teaching facilitates learning and helps students to integrate the biological, behavioural and nursing theoretical knowledge as they interact directly with patients (DeSanto-Madeya, 2007). Case-based instruction provides a conceptual background for the acquisition of skills as an aspect of certain teaching strategies, and contributes to the

knowledge students will need to enter the real world of health care delivery (Demarco et al., 2002). Irrespective of whether the case study is an individual or small group encounter, it encourages student involvement, and also provides substantive data and processes essential to the analysis of a specific situation, while allowing the student to recognise the complexity and ambiguity of the real practical environment. Therefore, the case study has the power to improve the acquisition of knowledge, skills and attitudes in an integrated manner (DeSanto-Madeya, 2007).

Case-studies are an effective way of connecting critical thinking, problem-solving, and decision-making to practice (Baumberger-Henry, 2005), and they enhance students' participation in class discussions, however, nurse lecturers are continually challenged to develop cases as teaching strategies that will enhance students' critical thinking, problem-solving, and decision-making skills. Case-studies are a creative learning strategy which fosters these skills through the use of in-depth descriptions of realistic clinical situations. Thus, case-based learning enhances self-directed learning (SDL) because the students work independently. They need to read and seek out as much information as possible on a task, check with and discuss the task with members of their group (Gwele, 1999). However, when using a case-based curriculum, students need to be prepared for this methodology. They need to be orientated to the principles of critical thinking and its skill (Uys, 1998).

Those who educate students of nursing and other health care professions need to continually assess teaching strategies and design approaches to see if they are relevant; whether or not these assist and prepare students to cope competently with the dramatic shifts and changes characteristic of the contemporary health care arena (Demarco et al., 2002). Hayward and Cairns (1998,p.33) state that "students in the clinical professions are under pressure to

develop a different skill set to survive in the complex and changing health care field". Skill sets limit the understanding of nursing as a profession built on a unique knowledge base that is more than skill. Case-studies differ, in that some cases describe histories of actual clients, while other cases, particularly those used for developing or assessing particular learning skills, such as sound judgement or problem-solving, are examples based on situations that are known to occur (DeSanto-Madeya, 2007).

Several empirical studies have been conducted with regard to case-based learning; these take place across different disciplines and countries and some of these will be discussed. Williams (2009) conducted a descriptive longitudinal study at the Monash University in Victoria, Australia. The researcher obtained and analysed data from 247 undergraduate paramedic students in order to study the perceptions and attitudes of students in a case-based learning process. The study resulted in data produced encouraging student satisfaction scores and themes. This emphasising that case-based learning was an appropriate, valuable teaching and learning approach, there were, however, students who were not accustomed to the use of case-based learning.

Dolmans and Schmidt (2005) continued, adding that many staff and student groups have experienced dysfunctional colleagues or student groups, and suggested that many studies which have investigated this support the view that dysfunctional group dynamics can and will occur. Williams (2009) states that presently, case-based learning appears to be a useful and enjoyable teaching and learning tool for students enrolled in the undergraduate paramedic Bachelor of Emergency Health programme (BEH). The data also highlighted that improvements are required surrounding student equity and communication between peers and lecturing staff.

In another study undertaken in South Africa by the University of Pretoria, Schoeman, et al. (2009) determined whether a case-based, small-group cooperative learning course in pre-clinical veterinary science aimed at bridging basic science and clinical literacy. Students indicated positive perceptions about the use of case-based learning. Case-based learning is a student-centred method of learning that uses clinical cases as problems to serve as challenges for self-directed, independent and cooperative study in a small-group setting (Schoeman, et al 2009).

A study done by Curran et al. (2008), described students' satisfaction with and perceptions of the small group process in case-based inter-professional learning. Students from across professions reported greater satisfaction with face-to-face, case-based learning when compared to asynchronous computer-mediated case-based learning and panel discussion learning methods. A more positive perception of face-to-face, case-based learning was related to greater satisfaction with inter-professional learning. The findings supported the case-based method in facilitating inter-professional learning, and highlight the significance of student perceptions of the collaborative learning process and the relationship with student satisfaction. Effective facilitation of small-group collaborative learning is important to enhance student satisfaction with inter-professional learning experiences (Curran et al., 2008).

Primary Health Care Programme Structure

PHC programme has six modules. Two of these are core modules, (PHC I & PHC II). There are three electives; Nursing Philosophy, Service Learning in Nursing and Advanced Practical Skills Module. Nursing Research is a fundamental module. The aim of the PHC programme is to enable students to manage health problems of individuals and families in Primary Health Care settings, and to work with a multi-sectoral team in such settings. The content is

comprised of PHC philosophy and implementation; maternal and child health care; an immunisation programme, diagnosis and treatment of minor and common illnesses and the use of the Essential Drug list; nutritional status assessment, health education and occupational health (SANC, 1998). Clinical learning takes place in a variety of clinical settings; authentic clinical settings such as hospitals outpatient departments, comprehensive primary health care clinics, and simulated environments such as clinical skills laboratory. The students are taught by some members of the multi-disciplinary team; general practitioners, specialists doctors, pharmacists and nurses. A comprehensive approach to assessment is utilised to establish the students' level of competence.

1.2 PROBLEM STATEMENT

The Primary Health Care (PHC) Decentralised programme has used case-based teaching since 2000, which is 12yrs ago. The case that was used was revised in 2010; however no study was conducted to evaluate the effectiveness and therefore this study conducted. Mthembu (2010) only conducted a study that established facilitators' perception of case based teaching. This study revealed that case-based teaching was viewed positively by facilitators but the facilitators pointed out a challenge regarding books and journals to be used by students as part of their search for information when preparing for class.

Most of the adult students are used to programmes that use traditional lecturing methods as the dominant teaching method (Nkwanyana, 2012). The paradigm shift to case-based learning where discovery learning is promoted might require an extensive mind-shift. This process of transformation in South Africa, nursing education institutions are increasingly challenged to develop programmes to produce the type of nurse practitioner capable of matching the education requirements dictated by the National Health and Education Policies of South Africa.

Conyers and Ritchie (2001), Draude (1996), Hannah (2006), Schreyer et al. (2003) and Sandstrom (2006) conducted studies regarding the value of the case study as a strategy to facilitate teaching and learning in undergraduate and post-graduate nursing education programmes. They shared the view that case-studies provide opportunities for student nurses to examine given situations from multiple perspectives, which leads to an increase in their understanding of given case phenomena, and a transfer of knowledge from theory to practice. Hence, in nursing schools, faculties strive to prepare nurses who think critically, who assess patients from both physical and psychosocial perspectives, identify relevant problems, and develop individualised plans of care (Sandstrom, 2006).

Previous studies on case-based learning as a method of teaching did not focus on how the student nurses themselves perceived the case study as a learning opportunity, while very little has been done in terms of empirical research with regard to how nursing students cope with the active teaching methodology (CBL) (Kaddoura, 2001). In a study done by Jackson (2004) the professors were convinced of the value of case-based learning, but were frustrated with the reticence of their students in discussions. A main limitation of the study in Curran et al.'s (2008) research was the possible effect of the short duration of the learning activities, the variation in facilitator skill, and the differences between the subject matter of each Interprofessional education (IPE) module. Therefore, this research explored the post-basic Decentralised PHC nursing students' perceptions of how they are coping with case-based learning as a teaching methodology.

1.3 PURPOSE OF THE STUDY

The purpose of this study was to explore the perceptions of the PHC nursing students in a Decentralised Programme towards case-based learning as a teaching methodology at a selected Nursing Education institution.

1.4 RESEARCH OBJECTIVES

The objectives of this study were to:

1. Explore the perceptions of the PHC nursing students regarding the nature of the content used in case-based learning.
2. Explore the perceptions of PHC nursing students about the instructional/learning process in case-based learning.
3. Explore the perceptions of PHC nursing students about assessment of learning in case-based learning.
4. Describe the perceptions of PHC nursing students about the feedback from using case-base learning
5. Describe the PHC nursing students perceptions about challenges and benefit's with case-based learning as a teaching strategy.

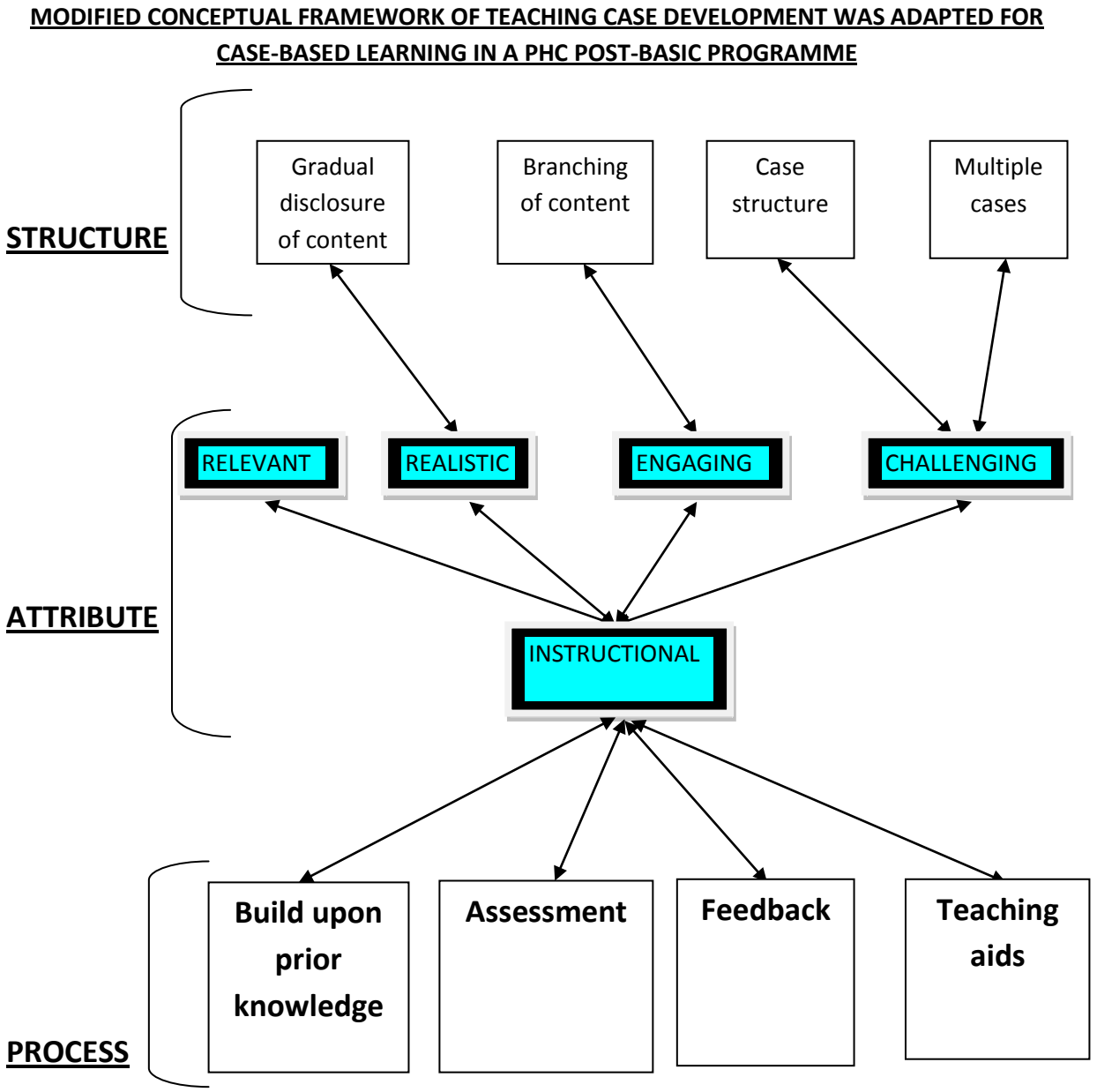
1.5 RESEARCH QUESTIONS

1. How do the PHC nursing students perceive the content used in case-based learning?
2. How do PHC nursing students perceive the learning process in case-based learning?
3. What are the PHC nursing students' perceptions of the assessment of case-based learning?
4. What are the PHC nursing students' perceptions of the feedback in case-based learning?

5. What are the PHC nursing students' perceived challenges and benefits with regard to case- based learning as a teaching strategy?

1.6 CONCEPTUAL FRAMEWORK

Burns and Grove (2012), define framework as an abstract, logical structure of meaning, serving as a guide to the development of the study. The following conceptual framework of teaching case development by Kim et al. (2006) was adopted to guide this study. The conceptual framework of Kim et al. (2006) illustrated the relationship of different strategies to the five core attributes of cases. The conceptual framework used the following categories: content (strategies that affect the scope of case structure); structure (strategies that affect case layout); attribute (strategies that determine case purposes, and process (strategies that affect learning processes).



Adapted from Kim, et al. (2006) and Doran, et al. (2011).

Figure: 1 Conceptual Framework

Structure: Comprised of the strategies that affect the scope of case content and the strategies that affect case layout; the structure stems from and affects the attributes.

Gradual disclosure of content allows for the case not to be presented all at once, but a progressive disclosing of content simulates the process of care in practice, it sustains a learner's interest in the case, thereby creating points for clinical decision-making, and providing stages for assessment, feedback and teaching (Kim et al., 2006).

Depending on the goals and objectives, the content of the case can vary based on the choices students make during patient care. This **branching** feature in a case allows students to explore and engage in appropriate decision-making actions, and to see consequences of both the positive and negative choices they make. Multiple decision-making opportunities help students experience how problems may be embedded in larger systemic issues, or how they may cause subsequent problems (Kim et al., 2006). Sufficient information in a case allows students to identify the people, problems, situations and tasks involved. Complexity can be increased by including multiple correct responses, decision-making opportunities and explanation. Layering of cases with rich content creates a multidimensional situation which can be interpreted from different angles.

According to Doran, et al. (2011), large class sizes can limit the potential of the cases as educational tools. The PHC programmes in the different centres have large class sizes (Rippin, et al., 2002) so the management of the teaching context becomes an important aspect of the facilitation of learning activities. The breadth and analysis was discussed by Boyce, et al. (2001) who emphasised the importance of how case studies are used in terms of the development of deeper learning. Breadth and depth of analysis of case content by students will facilitate a move away from surface learning (learning the case), towards greater understanding of the case issues (learning from the case) (Doran, et al., 2011).

Cases can be presented in a series. Multiple cases can be sequenced to represent the development of trajectories of a learner's thinking, illustrating important insight into the

ageing process and its interaction with a chronic illness trajectory, and building each case episode based on a typical story by reinforcing selected features, or showing some features to be less specifically an essential part of the prototype.

Attributes: Comprised of strategies that determine case purposes. The five attributes that are the core attributes involved in case-based learning according to Kim, et al. (2006), are relevant, realistic, engaging; challenging instructional, and are aspects that involve the student in CBL as well as instructional learning which is the role of the facilitator in CBL are discussed below:

Relevant: Students should engage with sustained interest and motivation. Teaching cases should target an appropriate level of students and match the content with instructional goals and objectives. Is the information in the cases relevant to the real-world? (Kim, et al., 2006)

Realistic: Cases that approximate real-world settings increase the likelihood that students will transfer their learning from one setting to another. Realism in cases can be added by providing the following: authentic materials; distracters or non-pertinent features, and gradual disclosure of content. Authenticity is increased by incorporating into cases the tasks, knowledge and problem-solving skills students are likely to encounter and will need to apply in future practice. Actual clinical cases styled as models are used to make teaching contexts more authentic.

Engaging: Adler, et al. (2000) highlighted the importance (from students' learning viewpoints) of students' involvement in CBL**.** In order for cases to be engaging, they should include the following: rich and sufficient content that allows multiple levels of analysis and interpretation; multiple voices and perspectives; and opportunities for students to determine the course and outcomes of the case. These strategies allow students to avoid oversimplification or overgeneralisations by exploring problems from different viewpoints.

Challenging: Cases can be challenging for students: By increasing the degree of content difficulty; including cases that are rare and unusual; altering the structure of cases; and including multiple cases in a series. Kim, et al (2006) concluded that unstructured cases, which closely simulate a real world patient care environment, involved more prior experiences, involved researching a topic and also going to a library.

Instructional: Methods for improving the process of case-based learning include the following: Building up students' prior knowledge; assessing students' knowledge and skills; providing specific feedback to students, and embedding various teaching aids to support student learning, which is the role of the facilitator.

Process: These are strategies that affect the learning process:

Building upon prior knowledge: Cases help reinforce the students' prior knowledge by allowing students to progressively use the most recently acquired materials. Asking students to state what they remember from prior cases before learning with new case materials is one strategy for activating their knowledge (Kim, et al., 2006).

Assessments: According to Doran, et al. (2011), students will adapt their learning approaches towards accommodating assessment requirements (Boyce, et al., 2001), thus appropriate assessment strategies complement the teaching approach used as part of the overall learning context. Many aspects of case-based learning can be accessed via a self-report by students regarding the quality of cases; an evaluation of students' performances, including errors in fact, decision and rationales; tracking of students' interactions with cases, and feedback by instructors on the usefulness of cases.

Feedback: Doran, et al. (2011) identified the provision of feedback and the generation of a personal learning context as further critical elements of the teaching context affecting

students' learning. Students also rated the giving of quality feedback highly (Ramsden, 2003); resulting in the goals of the learning process and activities being clear and assisting in student engagement with the subject matter and case context.

Teaching Aids: Helps students to think and illustrates a visual summary of interrelationships of knowledge in a case; the case-related questions are used to simulate students' critical thinking (Kim, et al., 2006).

The content category was left out as it did not support this study. The conceptual framework was used to guide this study. That framework is guided by the objectives, questions, data collection instrument of this study and the literature reviewed. The main concepts were derived from the framework. Figure 1 above shows the variables which were considered when collecting data.

1.7 SIGNIFICANCE OF THE STUDY

The results of this study may assist nurse educators and facilitators to understand students' perceptions of CBL. It can assist educational institutions of nursing to adapt their programmes to suit the needs of the students. The overall aim of the research was to provide PHC nursing student's perceptions of case- based learning as a teaching methodology. Case studies assist in bringing theoretical issues closer to what the student understands and in encouraging the student to make decisions about courses of action.

The South African Nursing Council (SANC) discussion document on Education and Training of Professional Nurses in South Africa: Transforming Nursing Education (1999) made specific demands that the training and education of the student nurses should produce a

practitioner who possess analytical, critical, creative and reflective thinking skills that will facilitate problem-solving and decision-making to improve practice. The SANC has identified PBL and case-based approaches to teaching and learning as techniques of choice in the enhancement of the primary health care learning and teaching. In this process of transformation in South Africa, nursing education institutions are increasingly challenged to develop programmes to produce the type of nurse practitioner capable of matching the education requirements dictated by the National Health and Education Policies of South Africa.

In clinical practice nurses make a range of decisions in their everyday practice, often within time constraints. A nurse needs to become aware of how mistakes occur and how to implement strategies to overcome these by using critical thinking and decision-making skills which are developed during case-based learning. Mistakes can occur within these processes of decision-making and critical thinking, and nurses have a responsibility to be aware of how these occur. Clinical decision-making is an integral aspect of the nurses' role. When nurses make reasoned judgements in times of uncertainty, the decisions that are made generally lead to positive patient outcomes (Cox & Marie, 2010).

The importance of this study lies in the fact that the findings might allow facilitators to inform a review of the programme, or to enhance teaching and learning in the programme. Findings and recommendations from this study could also serve as baseline data for further studies relating to student success.

1.8 OPERATIONAL DEFINITIONS OF TERMS

Cases: A comprehensive description of a clinical or practical case, which may be an individual, a group, a setting, or an organisation used as the basis for teaching and learning.

In this text, the term ‘cases’ is used mainly with regard to a case-based curriculum (Gwele, 2005).

Case-based learning: A learning approach or curriculum in which students are given a set of complete cases for study or research in preparation for subsequent class discussions (Gwele, 2005).

Decentralised PHC Programme: The Decentralised PHC Programme is a post-basic programme offered to nurses with a basic qualification in nursing and midwifery using a decentralised mode of teaching. This programme is accredited by CHE as PHC programme but the South African Nursing Council named it as Clinical Nursing Science, Health Assessment, Treatment and Care, and is regulated by Regulation 48 of 1982, as amended. On completion of the programme the students register PHC qualification with the SANC as an additional qualification.

Facilitators: One that facilitates; that helps to bring about an outcome (as learning, productivity, or communication) by providing indirect or unobtrusive assistance, guidance, or supervision. The facilitator keeps the discussion flowing smoothly (Gwele, 2005).

Lecturer: Member of the faculty of a college or university usually having qualified status without rank or tenure and is one who delivers lectures, especially professionally (Gwele, 2005).

Nurse Educators: In this study context, nurse educators/tutors were used interchangeably, and the terms refer to those practitioners who had undergone training as Nurse Educators according to R118 of 1/87 and were certified as such with the South African Nursing Council (SANC, 1999).

Perceptions: Perception is the process of attaining awareness or understanding of the environment by organising and interpreting sensory information. It is the way you think about, view or understand someone or something (Curran, 2008).

Students: Any person registered for the post-graduate programme NURS403 HW which is the Primary Health Care Decentralised Programme in Nursing in the year 2011.

Teaching Methodology: Can best be defined as the types of principles and methods used for instruction. In case-based learning, this teaching method uses real-life situations as a method of instruction, where the tutor is the facilitator of the learning process for the students who learn through group discussion of case studies (Gwele, 2005).

1.9 CONCLUSION

In this chapter the background to the study and the meaning of case-based learning was explained. The problem statements, the purpose of the study and the research objectives were identified. The researcher explained the rationale for, and the significance of the study and the benefits it may have for the nursing profession, and ultimately, for the recipients of care.

1.10 DISSERTATION OUTLINE

This report is divided into five chapters.

Chapter 1: This chapter provides introduction and background to the study. It also presents the problem statement, purpose of the study, objectives of the study, research questions, conceptual framework, significance of the study and operational definition of terms and conclusion.

Chapter 2: This chapter presents reviewed empirical literature and is organised according to themes which are presented as subheadings. They include: case-based learning and its origins, the different theoretical models supporting case-based learning/teaching, experiential learning theory, adult learning theory, different types of cases in CBL, case format variations, the learning process in CBL, Benefits and challenges of CBL for a CBL graduate or student

Additional themes for benefits and challenges included: improves organisation of information in a way that can be remembered for use in clinical reasoning, generates experiences that students would not otherwise have and increases visibility of students' clinical reasoning, enhances students' confidence.

Chapter 3: This chapter presents the research methodology that was followed in this research. A quantitative approach was employed in this study, in conjunction with a descriptive exploratory research design; an outline of how data was collected and analysed is also presented.

Chapter 4: This chapter presents quantitative findings which were analysed through the use of SSPS package, Version 19.0, together with discussion of results.

Chapter 5: This chapter presents a discussion and interpretation of research findings, together with limitations, recommendations and conclusion.

CHAPTER 2

2. LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents the literature reviewed, including the theoretical and empirical literature on case-based learning and teaching in nursing practice. During the literature search, multiple electronic databases were searched using keywords such as **case-based learning** "AND" **student perceptions**, benefits "AND" challenges of case-based learning, case-based learning "AND" teaching strategy. The following databases were consulted: ERIC via EBSCOhost, Health Source: **Nursing**/Academic Edition via EBSCOhost, JSTOR, Medline/Pubmed via EBSCOhost, SA ePublications via SABINET online, Academic search complete via EBSCOhost.

2.2 CASE-BASED LEARNING AND ITS ORIGINS

Jonassen and Hernandez-Serrano (2002) define case-based teaching as instruction by the use of stories about individuals facing decisions or dilemmas, which is characterised as follows: learner-centred, collaborative and cooperative between the participants, involving discussion of specific situations, typically real-world examples, questions with no single right answer. Students engage with the characters and circumstances of the story related to their own lives; bring their own background knowledge and principles, raise points and questions, and defend their positions, formulate strategies to analyse the data and generate possible solutions, may not agree, and sometimes a compromise is reached (Jonassen & Hernandez-Serrano, 2002). The teacher, on the other hand, is a facilitator who encourages exploration of the case and

consideration of the characters' actions in light of their own decisions (DeSanto-Madeya, 2007).

Case-based teaching and learning provides a problem-solving laboratory to identify multiple alternatives to diverse situations. Through discussion and dialogue students learn new ways of looking at situations that challenge attitudes and mindsets, while learning to make decisions based on the available information (Webster, 1988). Cossom (1991) identified several skills that case-based teaching promotes: (1) learning how to make judgments based on facts and articulated values, rather than mere assumptions; (2) applying and adapting conceptual and theoretical knowledge to complex and chaotic real-life situations; (3) making decisions in the context of competing alternatives; (4) learning to deal with differences of opinion among colleagues; (5) making use of colleagues as potential resources; and (6) presenting one's ideas and analysis in a manner which calls on the skills of verbal communication, influence, and debate (Packard, 2009). Cognitive psychologists have identified the importance of integrating new knowledge into existing knowledge while creating frameworks to organise, retain, retrieve, and use information (Barrows, 1986). The case-based approach to learning draws upon the existing knowledge and experiences of the student while introducing new concepts, theories and practices within a framework that can promote retention and retrieval.

Case-based learning is a form of problem-based learning (Barrows, 1986) where students' concepts can be understood as what the students thought they learned from the cases, and students' approaches can be understood as how the students approached their learning of the cases in terms of their interaction with the teacher and their colleagues in the classroom (Trigwell and Prosser, 2004). The main trait that case-based learning (CBL) has derived from

PBL is that a case, problem, or inquiry is used to stimulate and underpin the acquisition of knowledge, skills, and attitude (Schneider, 2007). Case-based learning is an instructional design model that is a variant of project-orientated learning. It is popular in the schools of Business and Law. Case-based learning, in a narrow sense, is quite similar to problem-based learning (Schneider, 2007). In contrast, Business and Law schools have a long tradition of using real or simulated stories known as cases to teach students about their field. Harvard University has been the leader in developing cases in these subjects (Christensen, 1986). As in Law, Business and Medicine, the case method involves learning by doing; the development of analytical and decision-making skills; the internalisation of learning; learning how to grapple with messy, real-life problems; the development of skills in oral communication and often teamwork. “It’s a rehearsal for life” (Herreid, 2004).

In addition, case-based learning, according to Canterbury (1999), as cited in Kaddoura, (2001), operates on the philosophy that students are involved in an effective learning process where they can learn what to learn, and CBL helps them to learn specific knowledge by supplying them with the appropriate challenges along with a sufficient amount of support and guidance. The end result is a better working knowledge of the product and how to apply it, and, more importantly, the ability to solve problems by using all available resources. Loving and Wilson (2000) emphasised that facilities have a responsibility to provide a structure within which students can learn to learn.

Bruner (1966) proposed that the continuing interest in teaching cases stems from an increasing appreciation of the value of realistic thinking as opposed to abstraction and generalisation in traditional teaching. The author summarised seven rationales for using CBL as below:

- The case method is effective as students learn best the lessons they teach themselves. Thus learning is best when there is a process of self-discovery as opposed to the passive absorption of what others say. The student ownership of the case under discussion, as well as his/her active engagement with a case problem is the key to the effectiveness of CBL.
- The CBL builds the capacity for critical thinking and facilitates/models skills of questioning. Discussions enhance skills of debate and challenge; students engage actively in this process of exposure and debunking of the antagonist argument.
- The case method is well suited to assist students to appreciate the need to make timely decisions while being given incomplete theory and data.
- The case classroom models a learning environment. Through CBL, the student can learn how to achieve trust, respect, risk-taking, and a high quality of debate.
- The case method models the process of induction learning. This method prepares the student for life-long learning.
- In CBL the teacher learns too. Because of the interactivity of CBL, the teacher can encounter fresh perspectives on old problems, or test traditional solutions to new problems.
- The case method is fun as it motivates students. Moreover, direct debate concerning practical problems stimulates students' efforts and active engagement.

It is evident that we have moved from a traditional discipline-orientated set of courses to a case-based, small group tutorial model. Case method as a curriculum in Nursing Education is seems to be such an appropriate methodology (Gwele and Uys, 2005). The new curriculum emphasises collaborative learning around illustrative cases, cases that are placed in a context or situation that promotes authentic learning under the supervision of expert tutors who guide and monitor the process (Barnett, 1998). Cases are generally written as problems that provide

the student with the background of a patient, or other clinical signs and symptoms and laboratory results. In CBL, other characteristics include hypothesis generation and the consolidation and integration of learning activities (Mullins, 1995).

The basis for theoretical frameworks allows students to discover learning that is meaningful to them, while scaffolding and constructing new information based on their learning structures and resources provided by the teacher. The learning environment promotes an autonomous learning stance for students, and allows teachers to encourage students to take responsibility for their learning. It also shifts the responsibility of teachers who now take an active role in listening and facilitating, not interrupting and directing the students, but instead providing sound advice and guidance with learning resources (Williams, 2009; Albanese, 2000). In the rationalist tradition, Dewey (1929) developed educational ideas that influenced the basis of case study. His ideas were the basis of the belief that knowledge must be mastered not just transferred, and he suggested the use of problems as a form of learning in which the student could relate and interact with real-life situations. Frequently, case study is characterised as life-like facts, concrete details, or concepts. Cases are narrative structures which immerse students in the context of real-world situations filled with "complexity, uncertainty, instability, uniqueness, and value conflict" (Pearson et al., 2003, p104). The application of hypothetical situations to the principles of theory and practice is well documented in Law and many other professions. The field of Medicine has used case study in the manner of walking rounds, where patients' conditions, evolving problems, and outcomes are discussed by the attending physician, medical students, and residents (Baumberger-Henry, 2005).

Recently, case study has been used in the classroom to expose nursing students to a variety of clinical situations where decisions can be creatively controlled and designed without causing potential harm to the patient (Baumberger-Henry, 2005). Another advocate for using case study was Cravener (1997) as cited in (Baumberger-Henry, 2005) , who used cooperative learning groups and abbreviated case studies in a psychosocial nursing class, resulting in students achieving a level of independent performance for presenting clinical problems, thus promoting individual accountability (Baumberger-Henry, 2005). The case-based learning curriculum model has been used in the preparation of nurse managers, as evidenced by the collection of such cases authored by Marquis and Huston (2000). In other nursing programmes it is probably a method of teaching which most educators use from time to time. A lecturer will illustrate a lecture by presenting a case study, or require students to reflect on their own practice by completing a case study.

Barrows (1986) described the taxonomy of case-based learning as varied forms of teaching and learning: (a) lecture-based cases in which cases are provided as an illustration of the application of subject matter presented; (b) case-based lectures where the lecture is based upon the case, with the assumption that students have already read and analysed the case in detail; (c) the case-method in which students are provided with complete case research and discussion during the lecture, where the teacher uses Socratic questioning techniques to facilitate case analysis and learning; and (d) the modified case-method (as above), but where students have greater freedom to explore PBL issues where problems serve as the initial stimulus for learning. Through the aid of a facilitator, students are encouraged to discuss prior knowledge related to the problem, then to explore and reason through the problem, applying knowledge and identifying further learning to fully understand the initial problem. Students are encouraged to reflect on their performance with the aim of improving reasoning and learning (Barrows, 1986).

It is also sometimes used during clinical teaching. Some authors seemed to use the term ‘scenario’ as an alternative to ‘case’. For instance, the process described by Cascio et al. (1995) as cited in Gwele & Uys, 2005 of enhancing critical skills in students by using practice-based scenarios seemed to be identical to the case-based curriculum. The same term was also used by Manning et al. (1995) as cited in Gwele & Uys, 2005, although they used the scenarios in a clinical role-play simulation and not for class discussion. Gwele and Uys (2005) recommended that the use of cases as the basis for a nursing curriculum needs further exploration.

2.3 THE DIFFERENT THEORETICAL MODELS SUPPORTING CASE-BASED LEARNING/TEACHING

These teaching and learning methodologies are conceptually supported by the same educational theories used in PBL, influenced by Dewey (1916), Piaget (1968), Bruner (1966) and Vygotsky (1978).

2.3.1 EXPERIENTIAL LEARNING THEORY

Case-based learning is a form of experience, both in terms of the concepts and information nested within the substantive content itself and the processes of learning surrounding it. To be educative, in Dewey’s sense, case-based learning should be built and should draw upon the prior learning experiences of participants, and should provide a context for learner interaction with the content of the case, other students, and the processes used to interrogate the case. Case-based learning is designed to provide students with new knowledge to assimilate and also concepts, information and experience which challenge their pre-existing conceptual structures. John Dewey (1859–1952) proposed that education should work with students' current understanding, taking into account their prior ideas and interests. John Dewey (1916) emphasised that continuity and interaction were two critical dimensions in the development

of experiences as educative engagements. By continuity, Dewey (1916) meant that the meaning derived from experience should be built progressively from prior learning, forming an ever more complex scaffold of knowledge and understanding. The second attribute noted by Dewey was interaction. Active engagement with the human and physical environment, in this context, is a crucial dimension of the educative experience, and these are the concepts of case-based learning that were explained above (Morrison et al, 2001).

Later, Jean Piaget (1896–1980) defined accommodation and assimilation as ways for new knowledge to build upon previous knowledge. Through interaction with the environment, Piaget emphasised, the dual developmental processes of accommodation and assimilation are energised. Assimilation involves incorporating knowledge within pre-existing conceptual categories of the mind. Accommodation entails a process of changing these very conceptual structures in light of knowledge that does not neatly fit within these mental structures. Lev Vygotsky (1896–1934) also stated that students' prior ideas, experiences, and knowledge interact with new experiences and their interpretations of the environment around them (Morrison et al, 2001).

DeSanto-Madeya (2007) stated that cases are factually-based, complex problems written to simulate classroom discussion and collaborative analysis, and to involve the interactive student-centered exploration of realistic and specific situations. Using a case-based approach engages students in discussion of specific situations, typically real world examples. This method is learner-centred and involves intense interaction between the participants. Case-based teaching and learning focuses on the building of knowledge as the group works together to examine the case. The instructor’s role is that of a facilitator, and the students collaboratively address problems from a perspective that requires analysis. Much of case-based learning involves students striving to resolve questions that have no single correct

answer. Since cases are based on contemporary or realistic problems, cases can be used as the catalyst for class discussions and lectures. A student-centred discussion can be a main classroom activity as students collaborate to analyse the full dilemma and the data provided and decide upon a course of action (DeSanto-Madeya, 2007).

Case-based teaching can be used in small or large classes. In a very large class, cases could be short introductory experiences that lead to additional learning experiences in lab or recitation time. Some part of the lecture time is used to provide the case background, perhaps in a short video segment. Directed cases with a defined problem space are used within larger lecture settings by selecting class members to respond individually. Furthermore, case-based teaching methods incorporate problem-posing, problem-solving and peer persuasion (Morrison et al, 2001). Instructors, as well as students, are collaborators in this three-phase process; often providing additional insights and defining potential strengths and weaknesses in the design of the problem statement and the investigation. The resolution (or clarification) of the problem, and its presentation, extend opportunities for student practice in utilising and evaluating scientific approaches to problem-solving. Another technique is simply to collect a series of articles focused around a single topic. If accompanied by a short series of questions to guide students' reading, an outstanding case can be developed. Cases may be designed to guide students towards certain predetermined learning outcomes, or may be more open-ended, encouraging students to define problems for themselves before using their own initiative to seek appropriate resources to solve these. The latter approach, according to DeSanto-Madeya, (2007), has been more frequently used in medical schools to reflect the often imprecise nature of the information initially presented by patients. Such cases may be studied over the course of week, with additional information being provided at intermediate stages DeSanto-Madeya, 2007.

Many people working in or developing case-based or problem-based learning stress the importance of training for the educators, to enable them to leave behind their 'traditional' role as a provider of knowledge, and become a facilitator to students finding (or in some views, creating) knowledge for themselves (DeSanto-Madeya, 2007). In many disciplines, educators already encourage students to acquire and work through knowledge for themselves by means of open questioning; while in case-based teaching there is a great deal of scope for educators/facilitators to provide information, albeit usually background information, direct to students to enable them to progress with the problem.

Building upon earlier work by John Dewey and Kurt Levin, American educational theorist David A. Kolb believed that "learning is the process whereby knowledge is created through the transformation of experience" (1984, p.38). David Kolb (1984) developed a framework most intensively in his theory of experiential learning. Cased-based learning is learning from experience which demands five different kinds of abilities: An openness and willingness to involve oneself in new experiences (concrete experience); observational and reflective skills so that these new experiences can be viewed from a variety of perspectives (reflective observation); analytic, creative and empathic abilities so integrative ideas and concepts can be created from observation (abstract conceptualisation); decision-making and problem-solving skills so these new ideas and concepts can be useful in actual practice (active experimentation); metacognitive skills (mindfulness) so that a person can reflect upon and learn about his/her approach to thinking, learning and acting as a basis for continual improvement in their efficacy (intellectual self-management) (Morrison et al, 2001).

A MODEL OF EXPERIENTIAL LEARNING (Morrison et al, 2001).

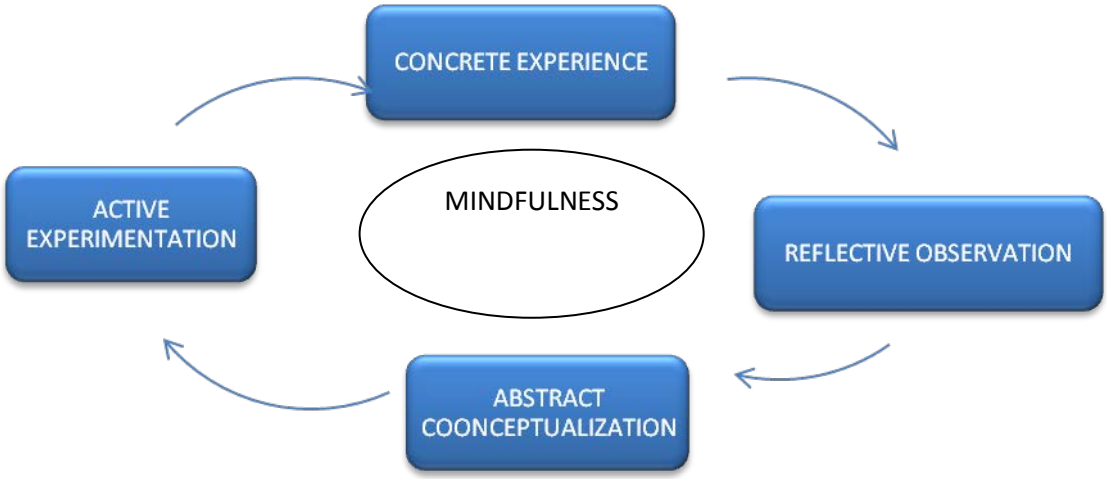


Figure 2: A Model of experiential Learning

These capabilities function as interrelated phases in an ever-recurring cycle; a learning wheel if you like. Case-based learning, when designed with these principles in mind, functions as just such a learning wheel, in which a person is opened to new experiences, called upon to view situations from a variety of perspectives, required to analyse issues, engage in decisions and choices, enter into discussion and dialogue with others, and, in the process, reflect upon how they have been learning and thinking. Good cases take participants through the entire set of phases, as a function of content design and the instructional and group interactive processes that underpin the case learning process. Cases that are designed to explore only one facet of the phases in this cycle of experiential learning betray the idea of experiential learning and its powerful impact on practice (Morrison et al, 2001).

2.3.2 ADULT LEARNING THEORY

According to Knowles's andragogic theory (cited in Mellish, Brink & Paton, 1998, p.36) nursing students, as adult students, want to be self-directed and self-monitoring, and want to see the usefulness of the content they are learning. Past experiences are used as a frame of reference to understand learning activities meaningfully. Adult students enjoy active

participation in learning activities and take responsibility for their own learning. The case-based learning method of teaching provides a means for applying problem-solving skills and making decisions in a non-threatening environment. According to Quinn (1998, p.52), humanistic theory believes that adult students are naturally self-directing and autonomous with regard to learning, if given the opportunity to be so. Case-based learning allows student nurses to 'experience' actual patient situations, and encourages student nurses to have a sense of ownership and belonging. The use of the case-based learning method, through its interactive and exploratory nature, demonstrates that there may be multiple 'correct' solutions to individual clinical problems (Draude, 1996, p.103; Sandstrom, 2006, p.229; Schryer et al., 2003, p.65). There are, however, some general principles of adult learning and facilitation which recur with such frequency in the research so as to make them safe generalisations as a basis for the design and facilitation of case-based learning.

Based on the work of Williams, (2009), the following principles of adult learning have particular relevance to case-based learning: what has relevance for them as determined by their prior knowledge, current models of reality, needs, tasks, roles and personal interests; when they are responsibly treated in ways which are consistent with their conceptions of their self and efficacy; when others respect and acknowledge them and their past experiences and personal knowledge; when they have some sense of where they are going in the learning process, how they will get there, and how they will know when they have succeeded; when their past experience is used by both students and facilitators as a resource for learning; when they can assess their own learning needs, goals and directions for change; when they are in a learning environment free from threat and supportive of personal change; when they have an opportunity in the learning process to talk about and share experiences; when learning activities support opportunities to organise, understand and integrate new knowledge into

existing knowledge; when learning activities include opportunities for direct instruction in required competencies and involvement in activities which require these competencies; when feedback is provided immediately, or as soon after the behaviour displayed as possible; when ideas are presented and represented in many forms using many media; when learning style preferences are accommodated in the design of learning activities; when the degree of structure in the learning context and process matches the learning style and level of cognitive complexity of the learner; and when thoughts and emotions are integrated in the learning process (Williams, 2009).

Given the range of learning styles of adults there is no one dominant or perfect style of facilitation of adult learning, or case-based learning for that matter. Rather, a good facilitator has, at his/her command, a set of facilitation styles which can be brought to bear on the learning process and changed, as the content focus, goals, students or contexts change. In this regard there are at least five facilitation styles that can be employed in appropriate contexts in case-based learning. Directing, enabling, collaborating, modelling, observation and interpretation are some of the facilitation styles. The choice of facilitation style in case-based learning requires that attention be paid to a number of variables: the nature of the students, the capabilities of the facilitators, the type of content, the focus of the learning process, the structure and location of the context for learning, the outputs sought, and the outcomes hoped for.

Vygotsky placed more emphasis on the social context of learning. Vygotskian theory emphasised the importance of the socio-cultural context in which learning takes place, and how the context has an impact on what is learned (Vygotsky, 1978). The formation of tutorial groups, particularly those constructed in case-based learning, is supported by Vygotsky's (1978) social theory which claims that much of our intellectual development has direct

correlations to the social interactions and group dynamics of such learning environments. This supports the concept that a group's perspectives and explanations for problems are reinforced through debate, disagreement, negotiation, discussion and compromise. All of these behaviours occur within a case-based learning context (Williams, 2009). Since Vygotsky (1978) emphasised the critical importance of interaction with people, including other students and teachers; in cognitive development, his theory was called "social constructivism".

Instructional principles that guide practice case-based learning and teaching are discussed as follows:

Interactive learning

Vygotsky and Dewey believed that students do not learn in isolation from others, and cognitive psychology has gradually established that people naturally learn and work collaboratively in their lives (Williams, 2009). Interactivity provides a way to motivate and stimulate students.

Collaborative learning

Learning involves interaction with other people or environments which foster potential development through instructors' guidance or in collaboration with more capable peers. Creating a social negotiation environment can foster reflective response and support collaborative construction (Jonassen, Mayes and McAleese, 1994). This is also what adult educators emphasise regarding the importance of critical thinking skills. Using cooperative learning with these case studies also demonstrates the benefits of consultation and collaboration (Weaver et al., 1994). If instruction uses cooperative learning properly it can improve students' social skills or interpersonal skills.

Authentic learning

Case-based learning emphasises that learning should be authentic, and that learning needs to meet real life experiences. Jonassen (1994) emphasised the design of learning environments rather than instructional sequences. Adult students wanted to learn skills related to their real life or work experience. Thus the belief for educators in teaching should be grounded in adults' experiences, which represent a valuable resource. The learning environment should provide real-world, case-based environments for meaningful and authentic knowledge. Practical learning such as games, case studies, or internship is the most important part of adult education (Brookfield, 1987).

Learner-centred learning

Androgogy is similar in stressing ownership of the learning process by students, experiential learning and a problem-solving approach to learning (Knowles et al., 1998).

High quality learning

Case-based learning, a form of problem-based learning, has been used in some disciplines such as Business Studies. A case is often used in a traditional setting to achieve one or more different goals including analysis, problem-solving or decision-making, application of prior knowledge and discussion of viewpoints (Knowles et al., 1998). Case-based learning focuses on students' control of learning processes, and narrows the gap between the school world and real-life society. Students should actively absorb external inputs and construct meaningful knowledge from their prior individual experience.

Case-based learning also promotes critical thinking which is an interactive process whereby the student encounters challenges through exposure to real problems. Students need to find

the relevant information to solve those problems in order to react appropriately in a clinical situation. Therefore, by engaging in critical thinking, students acquire new levels of understanding and expand their thought processes (Winningham & Preusser, 2001). Critical thinking can also be defined as an analytical process that can help students to be flexible, and to think a problem through in consultation with others, in an open-minded, flexible, organised and efficient manner.

The case-based learning environment will allow students to browse feely through information sources. It will enable students to interact with their peers, collaborate, discuss their positions, form arguments, re-evaluate their initial positions, and negotiate meaning (Jonassen, et al., 1995). It captures and replays the views of an expert in the form of an intelligent decision aid (Brown, Collins et al., 1989) and it gives opportunities for reflection (Collins and Brown, 1989).

2.4 DIFFERENT TYPES OF CASES IN CBL

There have been many books and journal articles written regarding the best type of case study. In reality there is no definite case study that is the best for all situations. The following is a broad list of selected case types, along with suggestions to help instructors choose case studies based on their teaching objectives.

Basic case structure

A basic case includes the following parts: (a) scenario; (b) a statement of the issue; (c) required assignment (paragraph, formal proposal).

Role-Play

These are common types of case assignment in which students are assigned roles to play in a scenario. Some scenarios may include developing a business plan or staging a mock trial;

other role-play scenarios can involve controversial issues. Role-playing is one way students can express different views in a relatively safe classroom climate.

Background

This is a simple type of case assignment or presentation in which students are exposed to a real-world scenario in order to learn the basic facts of the topic. This type of presentation can be useful for students who relate better to context "in context".

'Diagnose the problem' and 'In-Tray Diagnosis'

This is also known as a 'complex' case. The objective of this case type is for students to diagnosis the underlying problem based on case data. These issues are not easy to distinguish because they are submerged in a mass of data that includes irrelevant material and external issues used as distractions (external and underlying issues are normally interdependent). This can also be an initial step towards cases types in which a final decision is required.

A variant of this type of 'diagnose the problem' is the 'In-Tray' diagnosis in which students are presented with a number of documents that might be found in their In-Trays. Some background information is provided, but students are given a limited amount of time to determine and record their actions on each of the documents provided. This type of case study closely approximates real life job functions, and can be adapted to a number of professions. The 'In-Tray' case study is very useful for improving analytical skills, promoting creative thinking, and practicing decision-making.

Jigsaw

Students are assigned a sub-section of a larger topic or case (either in teams or individually), and are then responsible for researching it and teaching, or giving their research results to the rest of the team or class.

Live

The material for a live case study comes from events that are occurring at the present time. Usually only a newspaper article is used to provide students with the case study information. The instructor provides questions for thought in order to help the discussion along. The answers are truly unknown when the case is presented. Only after a few days can trainees' conclusions are compared with the actual decisions made. These can usually be found in a follow-up newspaper article or industry publication. Because the information for a live case study is based on current events, it is difficult to plan and write the case study ahead of time. When using a live case study, the students should be given up-to-date factual information from the beginning. A good summary exercise is to compare and evaluate a variety of solutions for the problem analysed.

Pause the action:

This is similar to the "live" case study in that an ongoing scenario (e.g. a role-playing scenario) is paused in mid-action, and the class is given an opportunity to predict the outcome or suggest solutions. This is also known as a 'sequential' case.

2.5 CASE FORMAT VARIATIONS:

These are some common types of cases, based on formats. The format of a case can influence how you choose to use it with students:

Descriptive, narrative cases:

These styles of case originated in medical school settings and are frequently used in problem-based learning/case-based learning. These cases are often multidisciplinary; with no clear-cut right or wrong answers.

Teaching method: these are designed to be used over the course of two or more class meetings, and to be seen for the first time during class. The case is disclosed to the students' one page at a time. The role of the facilitator is to guide, asking students to explain their thinking or to discuss the evidence for their ideas. Students work collaboratively in small groups to analyse the case. As they do so, they consider what they already know and what they need to know. They generate hypotheses and develop a set of learning goals for each part of the case. Between class meetings, students look up information as they work to understand the case. The instructors' learning objectives are revealed to the students towards the end of the case. These kinds of cases are highly student-directed so they are not usually accompanied by a set of questions to be answered (Waterman, 1995).

Mini-cases:

These are short, often only a paragraph or two which describes a situation or dilemma.

Teaching methods: Mini-cases may be used in a wide variety of settings. Designed to be used in a single class meeting, their content is usually tightly focused. They are useful for introducing and grounding a new topic in a lecture, for pre-assessing student knowledge, for helping students apply concepts, for introducing practical applications in lab settings, or as a pre-activity exercise designed to make the work more meaningful. These adapt well to distance-learning when coupled with electronic discussions (Waterman, 1995).

Direct case study:

In this format, cases which may be long or short are followed immediately with highly-directed questions.

Bullet cases:

These consist of two or three sentences with a single teaching point. They are similar to problems commonly used in exams. They are most useful for illustrating applications of concepts or for starting a new topic.

Teaching method: Students discuss these cases briefly in small groups at the time they are introduced in class (Waterman, 1995).

Fixed-choice options (Multiple Choice Cases):

These can be a variation on bullet cases above, or even mini-cases, with four to five plausible solutions. Multiple choice questions can convert easily to these if the choices are believably plausible. The intent is to get students to consider alternative viable solutions to a problem. These are useful for policy, ethics and design decisions.

Teaching method: Give the problem and solutions to small groups (two to four people). The group must reach consensus on and defend one solution. These are good for short, in-class use (Waterman, 1995).

2.6 LEARNING PROCESS IN CASE-BASED LEARNING

The preferred learning approaches are believed to have an influence on students' learning. Nurse educators need to be cognisant of their students' learning styles in order to adapt their particular mode of teaching to complement the learner group (Abu-Moghli,Halabi and Wardam, 2005). Case learning is guided by the principles of the active teaching and learning approach. Active teaching and learning is a pedagogical approach that attempts to move classroom instructions from a traditional, lecture-orientated 'instructional paradigm' to a new 'learning paradigm'. It is conceived of as a holistic, student-centred approach designed to produce learning, develop critical-thinking skills and elicit discovery and the construction of

knowledge. This process of discovery places students in the position of critical thinkers and generators, as well as consumers of knowledge in an active, collaborative, and experiential learning environment (Dewey, 1938; & Krain, 2010). Active teaching and learning leads to greater short-term knowledge acquisition than more traditional learning approaches do. This kind of collaborative learning involving real-world applications has been shown to promote a deeper understanding of key concepts (Krain, 2010). Increasing the types of sensory experiences that students have with the material during the learning process leads to increased long-term memory of these experiences, and enables students with different learning styles to access and retain the material. Active learning approaches enhance student critical-thinking and problem-solving skills, and the ability to transfer their knowledge to new, often complex and uncertain situations.

In case-based learning there are numerous types of active learning approaches including structured debates, simulations, games, role-plays, video-conferencing, virtual-learning communities and service learning. Contributions to the case-based learning approach include writing authentic clinical scenarios that introduce students to a patient with a presenting clinical issue. This reinforces the notion of case-based learning and enhances clinical praxis (Williams, 2009). Increasing clinical praxis for the nursing discipline is currently considered important, given the constraints being placed on the health sector. It is hoped that the simulated cases will provide students with orientation and familiarity with the types of cases they are likely to encounter during completion of clinical placement (Williams, 2009). Authentic case-based approaches in education improve learning, not only because of their relevance to the real world, but because they contain ill-defined, problematic elements with competing solutions and diversity of outcomes which prompt reflection and, hopefully, collaboration with others (Krain, 2010).

In designing learning environments to support these authentic activities there must be an alignment between the context in which learning is presented in the formal setting and the real life setting in which that knowledge can be called upon (Williams, 2009). Case-based learning is particularly useful for helping students see how real-world complex problems are solved; for demonstrating the connection between theory and practice, and for building critical-thinking and problem-solving skills (Krain, 2010).

What and how a student learns is influenced by factors such as the culture of learning, the environment and the climate of learning in the learning organisation, the student and the student's approaches to learning (Ramsden, 2003). There are several theories on the process of learning; these include the behavioural learning theories, where learning is seen as the product of environmental influences, where associations are made between stimuli and responses through selective reinforcement (Schunk, 2004). Vygotsky, through his cognitive development theory, proposed that every learner has the potential ability for learning/development which he calls the Zone of Proximal Development (ZPD) (Jarvis et al., 2003). The ZPD emphasises learning by socialisation, as it asserts that what students can do with assistance is more indicative of their mental capacity than what students can do on their own (Ernstzen, Bitzer and Grimmer-somers 2009). Conditional knowledge and metacognition is central to the learning theory of cognitivism. Reflection is a metacognitive strategy through which learning may occur (Mezirow (1991) as cited in Merriam, (2004).

Kolb's (1984) theory of experiential learning describes learning as a four-step cyclical process involving a concrete experience, reflective observation, abstract conceptualisation and active experimentation. In the humanist orientation to learning, learning is a personal act needed to achieve the learner's full potential. The learner thus becomes autonomous and self-directed (Torre et al., 2006). Examining the ways students learn in, and interpret clinical learning environments, may provide a better understanding of learning which can be used to

adapt the learning environment, since students ultimately respond to what they perceive as important (Torre et al., 2006). The learning environment is influenced by the roles and attributes of the clinical teacher, the student and the patient; the teaching and learning opportunities offered; the models of clinical education used; student assessment; and the atmosphere and facilities of the health care setting (Ernstzen,; Bitzer and Grimmer-somers, 2006). Two aspects of the learning environment, namely teaching and learning opportunities and clinical teacher roles and attributes, have been found to be the most significant in influencing learning (Candy, 1991 & Torre et al., 2006).

In case-learning classes, students are presented with a case to analyse or a complex real world problem to solve. Although they have important background knowledge about the theoretical concepts they will use or the general policy issues with which they will wrestle, students are usually unfamiliar with the specific case or problem beyond the case materials that they have read or viewed before or during class session. Most case-based learning is thus experiential by nature. Cased-based learning exercises are usually designed and employed in order to enhance, rather than supplant, lectures. In order for case-based lessons to be a successful pedagogical tool, a case, case study or problem-based learning exercise must be directly linked to the larger course and its educational objectives, and must be carefully interwoven into the learning process (Krain, 2010).

Students' interaction among themselves and amongst teaching staff, as discussed earlier, is one of the hallmark attributes for a successful learning process. Student-centred reflection via assessment and debriefing, in which students have the opportunity to discuss their individual and group experiences, allows instructors to reconnect active learning experiences with a larger theoretical context. Indeed, studies stress the importance of such reflection, given how experiential learning frequently occurs after, rather than during the exercise (Cooper et al, 2001).

2.7 BENEFITS AND CHALLENGES OF CASE-BASED LEARNING FOR A CBL GRADUATE OR STUDENT

Expectations for accountability with problem-solving and decision-making that start when the graduate enters the job market are greater than previously. The ability to solve problems and make decisions creatively has become paramount for new college graduates, as these skills assist them in recognising and evaluating situations that require prompt attention (Tanner, 2000). Combining the case study approach with cooperative learning begs the question as to whether students' self-beliefs can be enhanced, helping them to apply course content to situations they will experience in the workforce upon graduation (Baumberger-Henry, 2005).

2.7.1. Improves organisation of information in a way that can be remembered for use in clinical reasoning

Clinical reasoning is enhanced by appropriate organisation of knowledge. In the past, efforts were made to increase problem-solving ability, under the assumption that such ability could be applied across clinical problems. However, studies of expert reasoning show that there is not a generic problem-solving process. Instead of a process that is applicable across all situations, expert reasoning is specific, and is highly tailored to a presenting situation. Expertise is context-dependent. So nurses, even though experienced in one kind of clinical situation, are still novices in unfamiliar situations. Narayan and Corcoran-Perry (1997) have proposed an alternative representation of decision-making which they term "line of reasoning", and argue that domain knowledge (e.g., textbook knowledge) is embedded within cognitive structures. In other words, nurses' clinical reasoning incorporates both knowledge and cognitive processes (Thomas et al., 2001).

Organisation of knowledge is crucial, because, even though we are able to hold only a limited number of units or chunks of information in immediate memory, this amount of information

can be increased through incorporating information into larger chunks. The complexities of clinical reasoning require the consideration of many pieces of information that are organised for efficient recall and utilisation. Because expertise in clinical reasoning is context and situation specific and requires organisation of knowledge, we need to consider the ways students can best learn and develop expertise. In particular, development of expertise can be enhanced if students are assisted in learning information in a way that parallels the way in which that information will be used when retrieved. That has the advantage of "combining the creation of a knowledge structure and a search-and-retrieval strategy into a single operation" (Mandin et al., 1997, p.175). As illustrated in case examples below, case-based learning provides for structuring of knowledge in a context-specific way (Thomas et al., 2001).

2.7.2 Generates experiences that students would not otherwise have

Clinicians construct explanatory models of what clients are experiencing based on the expectations, experience, and knowledge they bring to the encounter. We can view the process of clinical reasoning as a process of constructing reality in a health care encounter. Previous experiences influence what is regarded as significant, and what are regarded as symptoms of illness or signifiers of health. The explanatory model determines how the flow of communication is punctuated. If nurses have primarily cared for clients with psychiatric disorders, they may expect psychiatric, rather than physical problems. If they have primarily taken care of clients of the majority culture, they may not recognise distress that is expressed in another way. If they have not experienced interactions with clients where a sensitive topic such as racism, same-sex relationships, or substance-use has been discussed, they are less likely to see that as appropriate to future interactions. We, of course, plan clinical practice to provide students with a range of experience (Thomas et al., 2001) .

We cannot, however be sure that certain opportunities for learning occur for all students. Gaps are of concern because of the importance of exemplars for clinical reasoning. Benner (1984) found that proficient and expert nurses had clusters of exemplar cases that they used in making judgments about particular clinical problems. These exemplars stood out for the nurses because their perceptions had been changed by them. Benner termed these exemplars "paradigm cases", and noted how clinicians used them in comparing current whole situations with previously experienced whole situations. Similarly, Fowler (1997) as cited in Thomas et al, (2001), in a study of home health care nurses, noted "prototypical case reasoning" in which the nurses used past cases as examples of a category of illness or as case references.

Schmidt (1983), studied medical expertise and observed that a great deal of expertise seemed to be dependent on matching the problem one is currently facing with similar ones seen before. These authors referred to the cognitive structures as "illness scripts", and noted that the scripts contained a wealth of clinically relevant information about the disease, its consequences, and the context in which illness develops. Cases may be used to supplement clinical practicum experiences and to function as paradigm or prototypical cases or illness scripts (Thomas et al., 2001).

2.7.3 Increases visibility of students' clinical reasoning

The discourse or flow of communication in relation to cases reflects a student's clinical reasoning processes. Facilitators know from discourse analysts that language is a social action and can produce and constrain meaning (e.g., Gillies & Willig, 1997). Therefore facilitators are interested in how students' communications can produce or constrain meaning in cases. Students may focus on a part of a case and ignore other issues. In particular, when cases involve interaction between a student and a standardised patient, the impact of the

student's position in the discourse is more apparent, since facilitators know how a case is structured and the standardised content that is available. It becomes more evident how the communications of the student allow or impede the expression of patients' stories, and how this influences the accomplishment of clinical goals. This facilitates student and faculty assessment of students' learning needs. As part of teaching clinical reasoning, recognition of cognitive errors is crucial (Thomas et al., 2001).

Students, in discussing cases and applying theoretical content, manifest the extent and depth of their knowledge as well as their clinical reasoning skills, including any errors. Focusing on cases allows clarification of misunderstandings and misinterpretations in a way that parallels the clinical pre-accepting conversations analysed by Pomerantz, Ende, and Erickson (1995). Through questioning and guidance, students are led through a reasoning process in which they collaborate in a continuing analysis of the case, thereby gaining a sense of mastery (Thomas et al., 2001).

2.7.4 Enhances students' confidence

Radwin (1998), in her research on attributes of experience in nursing, observed an increase in confidence that grows with experience. It is believed that case-based learning provides experience that can contribute to student confidence. Students can gain a sense of mastery from case-based learning even, as mentioned above, when it involves guidance in clarifying misinterpretations. This is significant, since mastery experiences represent the most effective way of instilling a strong sense of personal efficacy. Whether by analysing a case in seminar, interviewing a standardised patient, or working through a web-based case, a student can potentially learn a resilient sense of efficacy from the mastery of having successfully overcome obstacles. On the other hand, efficacy can be undermined by a failure that occurs before a sense of efficacy is established. According to Bandura's (1998) theory of efficacy, it

is important that learning be structured to support student success, to allow students to receive modelling of success by others, and to permit the experience to be pleasant (Thomas et al., 2001) .

Other benefits include: The development of intrinsic and extrinsic motivation, allowing individualised learning; encouraging self-evaluation and critical reflection; allowing scientific inquiry and the development of support provision for their conclusions; integration of knowledge and practice, and development of learning skills (Williams, 2005).

The benefits of case-based learning need to be balanced with the limitations inherent in an over-reliance on case-based learning for developing managerial competence and confidence. The major limitation of the case method is that classroom participants can only speculate about how they might act in a given situation. As a result, it is important to place case-based learning within a context of multiple learning opportunities; namely, lectures (for conceptual inputs), cases (to widen exposure), action learning internships (for new experiences) and self-reflection to capture the student's own experiences and to make effective use of all of these experiences (Williams, 2005). Another limitation relates to the lack of research on case-based learning. While it is not always clear to see how students organise the knowledge that they acquire (e.g. by course, topic, theory, or fieldwork experience), further research is needed to determine if recall, related to analysing cases, provides students with a different organising framework to traditional coursework when they transfer learning from an educational programme to full-time practice (Packard, 2009).

Woods (2003) highlights two main disadvantages of case-based learning. Firstly, because of previous educational approaches used in prior study habits, there may be an obstinate impression towards accepting change. Secondly, there is a perception that more depth of study and understanding may ensue from a subject-based study. Other negative assumptions

include: Resource reliance; motivational issues for students; dissent with androgogy with its implicit work ethic; whether the problems are cognisant with the subject matter, reliance on smaller sized groups; removal of the element of choice process; over-emphasis of process rather than outcome; a shift in assessment paradigm; adoption of new skills by students and teachers; and timetable and coordination difficulties.

Why is it hard for students to learn using case-based learning? Students may be uncomfortable with open-ended assignments. Many students view education as a collection of well-defined facts that reach a common understanding, and perceive assignments as always having a single solution. Other students often lack experience with an open-ended problem-solving format in the classroom; if the case assignment is too complex, the material may frustrate students and shut down the very critical thinking skills the assignment may be trying to foster. If the case assignment is a team assignment, students may need to understand team dynamics in order successfully complete tasks. A very controversial case could lead to extreme emotional reactions. A firm statement of the facts and rules of etiquette can help reduce tensions (Packard, 2009).

2.8 EMPIRICAL STUDIES RELATED TO THE STUDENTS' PERCEPTIONS OF CASE-BASED LEARNING

While it is argued in nursing education and literature that case-based learning and teaching is the approach to adopt so that Nurse Educators produce nursing practitioners who possess analytical, critical, creative and reflective thinking skills that will facilitate problem-solving and decision-making to improve practice, a few empirical studies have been untaken to examine these claims. In a descriptive longitudinal study at the Monash University in Victoria, Australia, the researcher obtained and analysed data from 247 undergraduate

paramedic students in order to study the perceptions and attitudes of students in a case-based learning process. The study used self-reporting questionnaires and open-ended questions adopting a qualitative design, which thus resulted in data produced encouraging student satisfaction scores and themes, emphasising that case-based learning was an appropriate, valuable teaching and learning approach. Since there were students who were not accustomed to the use of case-based learning, they could therefore have been confronted by a very real need to interact with each other, Dolmans et al. (2005) indicated that many staff and student groups have experienced dysfunctional colleagues or student groups, and suggest that many studies which have investigated this support the view that dysfunctional group dynamics can and will occur. Williams (2009) stated that presently, case-based learning appears to be a useful and enjoyable teaching and learning tool for students enrolled in the undergraduate paramedic BEH programme. The data also highlighted that improvements are required surrounding student equity and communication between peers and lecturing staff.

Research undertaken by Krain (2010) was conducted in two International Political Economy classes at the College of Wooster, where he set out to explore the effects of different types of learning on students' engagement. Krain (2010) surveyed 42 students and the goal of the survey was to yield an indirect assessment of how effective or useful these different approaches are. Students found problem-based learning exercises more effective or more useful than case-study approaches that relied primarily on written case text. Problem-based learning was considered highly valuable because of the direct application of theory and practice, the degree of immersion in the case, and the degree to which students felt invested in the case. The more 'real' cases and the participants being more human, helped students to experience the cases more realistically (Krain, 2010).

A study undertaken in South Africa by the University of Pretoria, by researchers Schoeman et al., (2009) determined whether a case-based, small-group cooperative learning course in

preclinical veterinary science aimed at bridging basic science and clinical literacy. One hundred and thirty undergraduate veterinary students partook in a questionnaire, resulting in students responding very positively to the ability of the course to equip them with problem-solving skills. Students indicated positive perceptions about the use of case-based learning. Case-based learning is a student-centred method of learning that uses clinical cases as problems to serve as challenges for self-directed, independent and cooperative study in a small-group setting (Schoeman, et al 2009).

A study by Jackson (2004) focused on an investigation of case-based teaching and learning in Hong Kong. By way of interviews and surveys, 20 business case leaders candidly expressed their views about their experiences with their Chinese students. Data focused on their perceptions of the value of case-based teaching and learning, the ways in which they used cases in their courses, and the problems experienced in using cases. These case leaders stated that this methodology is designed to encourage students to develop their interpersonal, analytical, and decision-making skills as they link theory with practice (Jackson, 2004).

A study done by Curran et al. (2008) described students' satisfaction and perceptions of the small group process in case-based inter-professional learning. Five hundred and twenty professional health students were invited to complete an evaluation survey which assessed student satisfaction with the inter-professional learning experience and students' perceptions of the small group learning process. Student satisfaction with this blended inter-professional education approach was related to professional background. Students from across the professions reported greater satisfaction with face-to-face, case-based learning when compared to asynchronous computer-mediated case-based learning and panel discussion learning methods. A more positive perception of face-to-face, case-based learning was related to greater satisfaction with inter-professional learning. The findings supported the case-based method in facilitating inter-professional learning, and highlight the significance of student

perceptions of the collaborative learning process and the relationship with student satisfaction. Effective facilitation of small-group collaborative learning is important to enhance student satisfaction with inter-professional learning experiences (Curran et al., 2008).

2.9 CONCLUSION

From the literature reviewed for this study, it was evident that theorists, authors and researchers postulated positively about case-based learning methodology practice. Research from the experiential learning and adult learning paradigm postulated that promoting case-based learning improves cognitive/critical thinking abilities during clinical problem-solving and decision-making. Nurses and students observed in educational and practical settings display varying degrees of critical thinking, problem-solving and decision-making. Framed within the experiential settings, researchers used experiential learning theory; adult learning theory and observation of situated learning and meaning-making is therefore the goal of learning. Introducing CBL and cooperative learning methods provides opportunities for students to assume leadership and management activities in their groups. A major challenge for the teacher, however, is to monitor the behaviour of student groups through (a) probing students' thinking towards conceptual understanding; (b) increasing depth of subject knowledge; (c) providing student learning opportunities, and (d) encouraging the articulation and contrasting of different points of view in an attempt to allow the emergence of common understanding. Developing individual responsibility and accountability with teams is an important task for educators of future health care practitioners (Kaddoura, 2001). During the literature review, Carpio, Illesca, Ellis, Crooks, Drogehetti, Tompkins & Noesgaard (1999, p.35) who were researchers as cited in Kaddoura, (2001) stated that "self-directed, small group learning is new to many students and may be inconsistent with their learning experiences or preferred learning styles". Dolmans et al. (2005) continued this argument,

adding that many staff and student groups have experienced dysfunctional colleagues or student groups, and suggested that many studies which have investigated this area support the view that dysfunctional group dynamics can and will occur (Williams, 2009). Therefore, using case studies from the work place and applying case-based learning methods in groups is more likely to prepare students for the realities of health care teamwork (Kaddoura, 2001).

CHAPTER 3

3. RESEARCH METHODOLOGY

3.1 INTRODUCTION

In this chapter the researcher presents the research approach, design, research setting, population, process, sample size and the data collection instrument used in the research.

Data collection was undertaken using a questionnaire and the data was analysed using the SPSS programme**.**

3.2 RESEARCH PARADIGM AND APPROACH:

A positive paradigm and a quantitative approach design using survey and administering questionnaires. The most appropriate strategy to pursue in this study was a quantitative approach. A quantitative design was chosen because the data will be presented numerically. This view is also supported by Burns & Grove (2012) who defined the quantitative method as a systematic process in which numerical data are utilised to obtain information about the phenomenon under study. A quantitative approach was be used in this study for a number of reasons. The quantitative approach uses a systematic method to collect information, followed by statistical analysis of the data. Quantitative research tends to emphasise deductive reasoning, the rules of logic, and the measurable attributes of human experience as stated in Polit & Beck (2008). Deductive reasoning is a process of developing predictions from general principles. It is not a source of new information; it is rather an approach to illuminating relationships as one proceeds from the general (an assumed truth) to the specific. Quantitative research is a formal, objective, rigorous, systematic process for generating information about the world (Burns & Grove, 2012, p.23). According to Polit & Beck (2004, p.729) the investigation of the phenomena can be precisely measured and quantified by applying a

rigorous and controlled design. This approach enabled the researcher to explore the topic from the little that was known, while the researcher was able to progress logically through a series of steps because of its systematic pattern. A quantitative study uses a scientific approach to inquiry, where a general set of orderly, disciplined procedures is used to acquire dependable and useful information which is what the researcher intends to do in this study.

3.3 RESEARCH STUDY DESIGN

According to Kerlinger (1986, p.279), a design is a plan, structure and strategy of the investigation, so conceived as to obtain answers to research questions. Burns & Grove (2012) stated that the purpose of the research design is to achieve a greater control of the variables, thus improving the validity of the study in its examination of the research problem. For *this study an exploratory descriptive survey* was conducted. Polit & Beck (2008) stated that exploratory research is an extension of descriptive research.

Exploratory research is conducted to explore the dimensions of phenomena or that which develops or refines a hypothesis about a relationship between phenomena (Polit &Hungler, 1999, p.463). It involves examining the data descriptively to familiarise oneself with this (Burns & Grove, 2012, p.463). This study was exploratory in nature because the researcher intended to explore the perceptions of PHC nursing students towards case-based learning, identifying the relationship amongst the variables and differences.

In descriptive research the researcher selects a specific event, condition or behaviour and makes observations and records of the phenomenon. Descriptive design describes the phenomena in real situations (Burns & Grove, 2012, p.24). Descriptive design, according to Brink (1996, p.109), provides a description of the variable in order to answer the researcher's questions. The purpose of descriptive research is to observe and describe and document aspects of the situation as it naturally occurs, and sometimes to serve as a starting point for

hypothesis generation (Polit Hungler, 1999, p.178). This design was chosen because new meaning might be discovered which would describe that which already existed and would form the basis for the future research. The research was thus able to describe the perceptions of PHC nursing students on case-based learning as a teaching methodology.

The final result of this investigation was a list, a catalogue, a classification or some other type of description. This design was therefore appropriate to this study which aimed at exploring and examining how the Decentralised PHC nursing students perceive case-based learning as a teaching methodology in a selected Nursing Education institution.

3.4 RESEARCH SITES

The researcher's setting for this study was a selected Nursing Education institution at one of the universities in Durban. This Nursing Education institution used two modes of delivery; a centralised mode and a decentralised mode of delivery. This study targeted a programme that used a decentralised mode; the PHC programme is recognised by SANC as a Post basic Diploma in PHC. This Primary Health Care programme is offered at the following different sites in KZN: Port Shepstone, Durban, Newcastle, Escourt/Ladysmith, Pietermaritzburg and Empangeni. The following three sites served as research sites: Durban, Pietermaritzburg and the Port Shepstone Centre. The reason for selecting these facilities was to contain costs, to facilitate accessibility, and to be able to work within the time constraints.

3.5 STUDY POPULATION

A population is "the total possible membership of the group being studied" (Wilson, 1989, p.124) as cited in Polit & Hungler, (1999), whereas a sample is a sub-set of the population selected to participate in the research study (Polit & Hungler, 1999). As stated in Burns & Grove (2012), an accessible population is the portion of the target population to which the

researcher has reasonable access. The programme had a total of 250 Decentralised PHC nursing students, but the target population from the three selected sites was 130: Port Shepstone Centre site had 35; Durban Centre site had 55 and Pietermaritzburg site had 40.

3.6 SAMPLE SIZE AND SAMPLING TECHNIQUE

A non-probability convenience sampling was used to select the participants. Non- probability sampling is usually more convenient and economical, and allows the study of the population when it is not amenable to probability sampling, or when it is not possible to locate the entire population. All decentralised PHC nursing students from the three selected sites formed the sample. The total number was 130. The targeted ***minimum*** sample size was 56 students. This minimum was determined using the Raosoft sample size calculator (2004).

- The margin of error = 10% for this study.
- The confidence level = 95%.
- The minimum sample = 56 students.

INCLUSION CRITERIA:

- All nurses enrolled in the PHC Programme and registered with SANC with general, community and midwifery as there qualification.

EXCLUSION CRITERIA:

- Those who had de-registered or were on long sick leave.

3.7 DATA COLLECTION INSTRUMENT AND PROCEDURE

The researcher used questionnaires as a self-reporting instrument (Annexure 1) for the verification process. The questionnaire was adapted from Engel and Hendriscon (1994), from Jackson (2004), and from Williams (2009) with a 4-point Likert scale; 1 being “strongly agreed” and 4 being “strongly disagree”. To gain access to the study participants, a list of

registered post-graduate students enrolled in the PHC programme 2011 was obtained from the School of Nursing. Lecture timetables were consulted to identify the days when the participants were available at their sites (**Durban, Port Shepstone and Pietermaritzburg Centres**) for classes. The researcher also met the coordinator and facilitators of the PHC programme and explained the purpose of the study. Prior arrangements were made with lecturers to have access to students in their free time, especially during break time to avoid disturbing their class sessions.

As stated above the, PHC nursing students were invited to participate in the study after explaining the purpose of the study and the rights of the participants. All participants were assured that anonymity and confidentiality would be observed. The participants who volunteered to take part were be requested to sign an informed consent form which was kept separately from the data to ensure that there was no way of linking the names of the participants to the data collected. Suitable times was then be negotiated with participants for data collection. During the meetings with participants, questionnaires (Annexure A) were administered to all participants; they were given time to complete these and were allowed to submit them on completion.

The questionnaire (Annexure A) for this study had two sections namely: Section A with items focusing on biographic data of the respondent and Section B with items related to views of content, learning process, knowledge, assessment and feedback, benefits and challenges of case-based learning.

3.8 DATA ANALYSIS

The data collected were captured and subsequently analysed using the Statistical Package for Social Sciences (SPSS version 19). Descriptive statistics such as mean, standard deviation,

frequencies and percentages were used to summarise data. The Pearson chi-square test was used to test for association between any two categorical variables in the three centres. Questions relating to students' views will be aggregated to get a score. The significance level was set at 0.05.

3.9 ETHICAL CONSIDERATIONS

Ethical approval was requested from the Research Ethics Committee of the Faculty of Health Science at the University of KwaZulu-Natal (Annexure D). Permission to carry out the study was obtained from the Dean of Health Sciences (Annexure E), and permission to carry out the study and collect data was obtained from the Head of the selected Nursing Education institution (Annexure F). To attain the study participants' approval, written informed consent forms (Annexure B) were obtained from them. Participation in the study will be voluntary, and participants were not required to provide their identification details to ensure the anonymity of participants. They were informed (Annexure C) of their freedom to withdraw at any time if they no longer wish to participate in the study. The study did not carry any potential harm and this was explained to the participants. To ensure confidentiality in this study, the questionnaires that will be used for collecting quantitative data did not bear participants' identification details but rather just a code for purposes of data entry.

Permission to carry out study was obtained from:

The Dean of Health Sciences at the University of KwaZulu-Natal; the Head of the NEI; the PHC Programme Director of the NEI; and the PHC Programme Coordinator of the NEI.

Consent: Obtaining informed consent from human subjects is essential for the conduct of ethical research (Cassidy, 1996). Informed voluntary consent is an explicit agreement by research participants, given without threat or inducement, based on information which any person would want to receive before consenting to participate in a study (Burns and Grove, 2012). There was

no coercion, so willingness to participate was considered a valid consent, but attempts were made to ensure that sufficient participants completed the questionnaire to enable the researcher to arrive at some findings.

Confidentiality: Burns and Grove (2012) state that confidentiality means that the researcher keeps, in confidence, issues that the participant does not want to disclose to others. The researcher numbered the questionnaires and requested that the Principals of the Nursing colleges collect and forward the completed questionnaires.

Anonymity: To ensure anonymity, the researcher assigned special codes to each campus and numbers were used to identify these questionnaires. In this way it was not possible to link the questionnaire to the participant.

Benefits: There were no potential, physical, psychological, social and legal risks to the participants. The researcher explained to the participants that there were no direct benefits to them, and that they would not receive course credit for participation in the research. However, the information which they contributed would enhance the improvement of Nursing education and health care provision.

3.10 RESEARCH QUALITY: VALIDITY AND RELIABILITY OF THE STUDY

Validity refers to the degree to which an instrument measures what it is supposed to measure (Polit & Beck, 2008). The tool must be pre-tested before the data is collected so that it can be corrected according to their views or recommendations. The researcher proposed to ensure validity of the instrument by: Avoiding selection biases - the same measuring instrument was given to all participants; several criteria were used in the constitution of the instrument to standardise the evaluation; the questions were as simple as possible; sufficient time was given to complete the questionnaire, instructions were made as clear as possible regarding the completion of the questionnaire. The researcher used a 4-point Likert scale questionnaire, 1 being “strongly agree” and 4 being “strongly disagree” which was adapted from the above

authors.The questionnaire was adapted from Engel and Hendriscon (1994), from Jackson (2004) who drew on earlier instruments by Anderson and Lawton (1993) and Mile, Biggs, and Schubert (1986) as cited in Jackson, (2004). Jackson's instruments were piloted with eight business professors from a variety of sub-disciplines at another tertiary institution in Hong Kong and from Williams (2009), who adapted his questionnaire from Engel and Hendriscon (1994). Modifications as a result of feedback from experts in research and in nursing education assisted in shaping the final instrument,

Reliability, on the other hand, refers to "the degree of consistency or dependability with which the instrument measures what it is suppose to measure" (Polit & Hungler, 1999, p.297). The reliability of a quantitative measure is a criterion for assigning it quality (Brink, 1996, p.171). The researcher ensured the reliability of the instrument by: Asking the questions that the people understood and asking about issues that were relevant to the subject. The reliability of the instruments from which questions were adapted and modified in this research was not obtainable, since, on contacting the authors of the research via email, the researcher was informed that their instruments had not been tested for reliability. In this study, the researcher used test retest reliability. The data collection instrument was completed twice by six PHC nursing students who were not part of this study. There was a two week interval between completing the tool for the first time and second time. The findings from the two cycles were analysed and compared to establish the reliability of the instrument. The instrument had 62 items and Cronbach's Alpha was found to be .735, which means the instrument is reliable. The instrument should measure above .70 for it to be reliable. The pilot study was not conducted because the modified tool was found reliable.

Reliability statistics

Cronbach's Alpha	No of items
.735	62

3.11 DATA MANAGEMENT AND DISPOSAL

Data from the study was be used for the purpose of completing this study and this data was guarded confidentially in a locked place during the process of analysis and report writing, after which data will subsequently be stored in a locked cupboard in the supervisor's office for a period of five years, at the end of which the data will be disposed of via a shredder. Analysed data was saved in computer files that are protected by a password which was only known to the investigator.

3.12 CONCLUSION

This study used a research paradigm with only quantitative approaches, and descriptive and exploratory study designs. The research setting used in the current study was the three PHC Decentralised programme sites, namely Port Shepstone, Pietermaritzburg and Durban of KwaZulu-Natal, using 130 Post basic nursing students for the year 2011 as the study's target population. Convenient sampling was used to select the study participants, and a questionnaire administered to participants during their convenient times. Ethical research norms were respected in this study and measures were taken to ensure validity, reliability, and trustworthiness. There were however some limitations to the conduct of this study, which are highlighted herein. Details about how the data obtained from the study were treated are provided in chapter four which presents the research finding.

CHAPTER 4

4. DATA ANALYSIS

4.1 INTRODUCTION

This chapter presents the analysis of findings obtained from a study that was conducted on Decentralised PHC Post-graduate nursing students at a selected University in KwaZulu-Natal. To reiterate, the purpose of the study was to explore the perceptions of the PHC nursing students in a Decentralised Programme towards case-based learning as a teaching methodology at a selected Nursing Education institution.

The findings are presented first, and are followed by the discussion in the next chapter. The sample characteristics, descriptive statistics using frequencies, percentages, mean and standard deviation (S.D) were used to report findings. The Pearson chi-square test was used to test for association between two categorical variables across the three different centres. Questions relating to students' views were be aggregated to obtain a score. The significance level was set at 0.05.

This study targeted 130 students registered for PHC post-graduate nursing programmes in the year 2011 from three sites, namely Port Shepstone (n=35) only (n=19) completed; Pietermaritzburg (n=40) all (n=40) completed, and Durban (n=55) only (n=42) completed. A participation rate of 77.7% (n=101) was attained. This was determined by 101 respondents completing and returning the questionnaire and (n=29) unspoiled questionnaires (Figure 3).

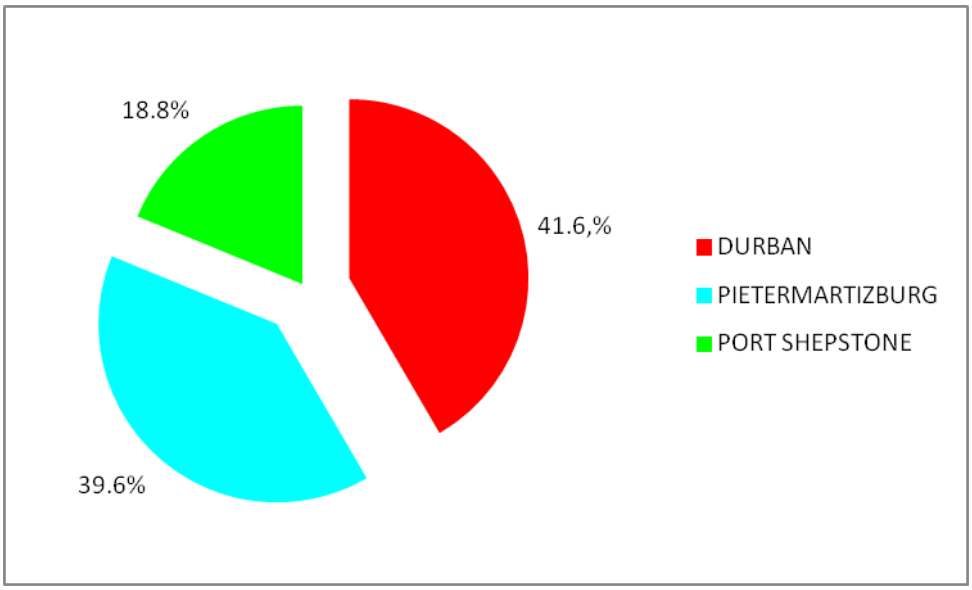
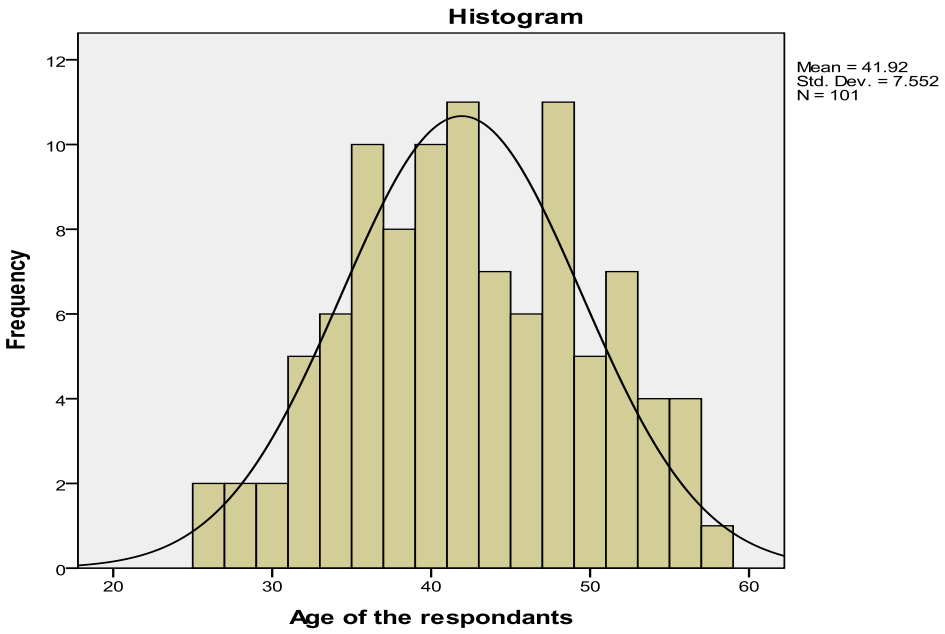


Figure 3: Participants by Centre

4.2 DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

The average age of the 101 participants was 41.9 years (SD 7.6). Of these, (n=23) 22.8% participants were aged between 26 years and 35 years; (n=44) 43.5% were between 36 years and 45 years; and n=31 30.79% were between the ages of 46 years and 55 years. Three (n=3) 3% were above 55 years. See Graph 1.



Graph 1: Age of the respondents displayed on the histogram above.

The majority of the participants in this study were females, (n=83) 82.2%, with only (n=18) 17.8% males. Standard deviation was 0.38. This is consistent with national and international statistics where the nursing profession is still female-dominated. Table 1 illustrates participants' centre distribution.

Gender	Frequency	Percent %
Male	18	17.8%
Female	83	82.2%
Total	101	100.0%

Table 1: Gender of the respondents

4.3 QUANTITATIVE DATA ANALYSIS: CASE-BASED LEARNING

4.3.1 Process of case studies distribution to students

This item aimed at establishing the process that was followed in distributing case studies to the students. Table 3 shows the percentages representing how the cases in CBL were presented according to the three different centres, Durban, Pietermaritzburg and Port Shepstone. The results are displayed as per the number of respondents from each centre. This shows that from Durban (n=42) 41.6%, (n=24) 23.8% of the respondents said "no" to cases being presented during class, while (n=18) 17.8% agreed that cases were presented during class. From Pietermaritzburg, (n=40) 39.6% respondents, (n=34) 33.7% of the respondents also said "no" to cases being presented during class, and in Port Shepstone, (n=19) 18.8% of the respondents said "no", cases were not presented during class. In Durban, (n=42) 41.6% respondents, (n=28) 27.7% of these said "no" cases were not presented in booklets;

Pietermaritzburg (n=40) 39.6%. (n=37) 36.6% of these said “yes”, cases were presented in a booklet, while in Port Shepstone (n=19) 18.8% respondents, (n=15) 14.9% of the respondents said “yes” cases were presented in a booklet. Regarding cases being presented on overhead slides and cases sent by email, all three centres’ percentages were higher for the “no” response as opposed to the “yes”. See Table 2 - Mode of presenting cases to students.

Different centres		**Percentages %**		
		No	**Yes**	**Totals %**
DURBAN	cases presented during class	23.8%	17.8%	41.6%
	cases presented in a booklet	27.7%	13.9%	41.6%
	cases presented on OH slides	26.7%	14.9%	41.6%
	cases sent by email	39.6%	2%	41.6%
PIETERMARTIZBURG	cases presented during class	33.7%	5.9%	39.6%
	cases presented in a booklet	3.0%	36.6%	39.6%
	cases presented on OH slides	38.6%	1%	39.6%
	cases sent by email	39.6%	0%	39.6%
PORT SHEPSTONE	cases presented during class	14.9%	4.0%	18.8%
	cases presented in a booklet	4.0%	14.9%	18.8%
	cases presented on OH slides	14.9%	4.0%	18.8%
	cases sent by email	18.8%	0%	18.8%

Table.2 Shows the percentages of the mode of presenting cases to students

Table 3 reveals that, in Durban, (n=42) participants, (n=60) 60% were given cases at each class session; in Pietermaritzburg, (n=40) participants, (n=70) 70% were given cases at the beginning of the course, and in Port Shepstone, (n=19) participants, (n=78) 79% were given cases at each class session.

Different centres		Frequency		
		No	**Yes**	**Totals**
DURBAN	-At the beginning of the course	29	13	42
	-At each class session	17	25	42
	-At the end of class for the next session	38	4	42
	-Emailed a few days before class	42	0	42
PIETERMARTIZBURG	-At the beginning of the course	12	28	40
	-At each class session	28	12	40
	-At the end of class for the next session	36	4	40
	-Emailed a few days before class	40	0	40
PORT SHEPSTONE	-At the beginning of the course	14	5	19
	-At each class session	4	15	19
	-At the end of class for the next session	18	1	19
	-Emailed a few days before class	19	0	19

Table 3 shows the time of distributing cases to the students

4.3.2 **Perceptions of students regarding case-based learning**

4.3.2.1 C**ontent of case studies used in case-based learning as perceived by the students**

Students' perceptions of the content of cases in their course were measured by 12 times. (See Table 4) A total score for content perceptions was calculated for the 12 items out of 48 and was converted to a standard score out of 100.

The scores for content perceptions ranged from 50 to 100 (median75) with a mean score of 75.1 [95% Confidence interval for mean (CI), 73.3-77.0]. Overall, the top items the participants, 69.3% (n= 70), agreed, while 18.8% (n=19) strongly agreed that a series of multiple cases are used in class. There were 67.3% (n=68) who agreed and 11.9% (n=12) who strongly agreed that cases help them, as students, to appreciate the complexity of nursing care; 65.3% (n=66) agreed and 28.7% (n=29) strongly agreed that there was an increased degree of difficulty as the classes progressed with cases. About 63.4% (n=64) agreed and 21.8% (n=22) strongly agreed that cases are well organised in a sequence that allowed the learning of new information, while 61.4% (n=62) agreed and 24.8% (n=25) strongly agreed that cases are presented in a way that looked similar to the ways in which real cases present.

About 61.4% (n=62) agreed, and 33.7% (n=34) strongly agreed that cases are interesting and challenging, while 60.4% (n=61) agreed, and 29.7% (n=30) strongly agreed that the content of the cases presented adds a lot of realism to classes. Also, 60.4% (n=61) agreed and 2% (n=2) strongly agreed that content in cases was realistic and related to their clinical practice, and 60.4% (n=61) agreed and 31.7% (n=32) strongly agreed that the content in cases allowed for interaction and engagement with colleagues. A percentage, 56.4% (n=57), agreed and 9.9% (n=10) strongly agreed that the content in cases is appropriate and relevant to their

clinical practice, while 51.5% (n=52) agreed and 36.6% (n=37) strongly agreed that it made them pay more attention in class. (See Table 4 below)

Table 4. Students' perceptions of content in case studies used in case-based learning

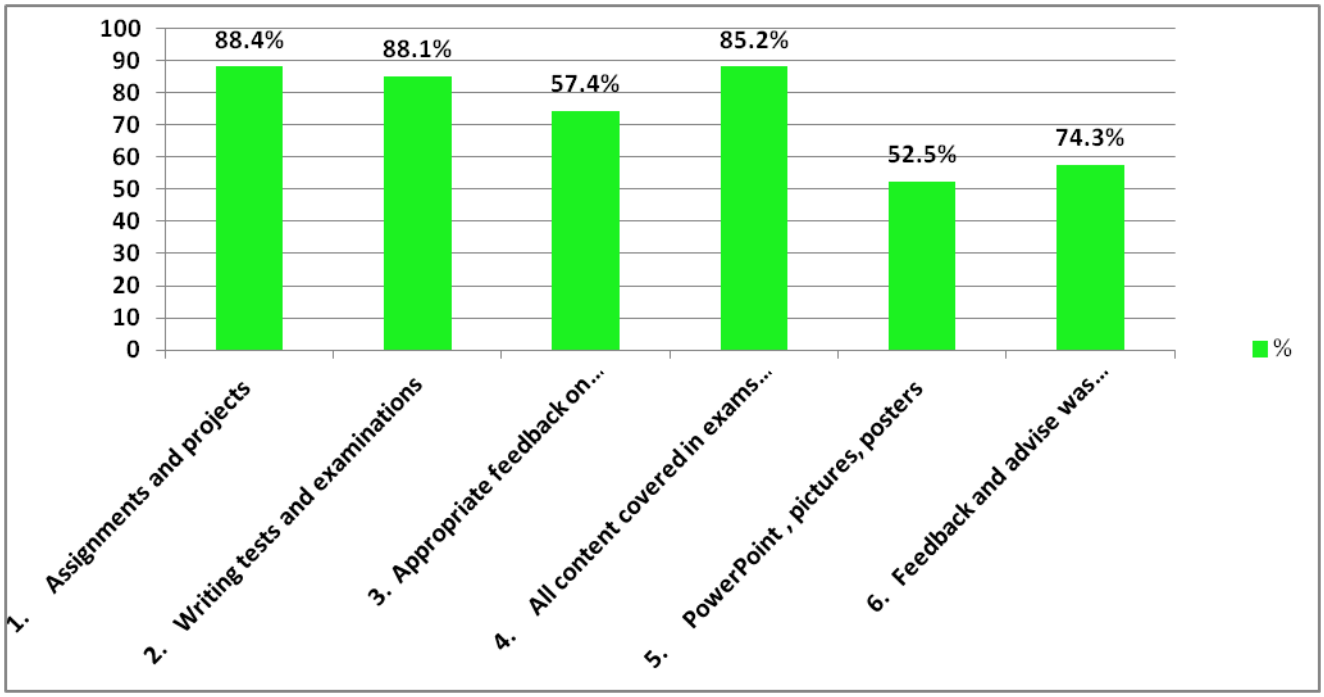
	1 (SD)		**2 (D)**		**3 (A)**		**4 (SA)**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
A series of multiple cases are used in class	2	2.0	10	9.9	70	69.3	19	18.8
Cases help me, as a student, to appreciate the complexity of nursing care	4	4.0	17	16.8	68	67.3	12	11.9
There is an increased degree of difficulty as the classes progress with cases	1	1.0	5	5.0	66	65.3	29	28.7
The cases are well organized in a sequence that allows learning of new information	1	1.0	14	13.9	64	63.4	22	21.8
The cases are presented in a way that looks similar to the ways in which real cases present	2	2.0	12	11.9	62	61.4	25	24.8
The cases are interesting and challenging	0	0	5	5.0	62	61.4	34	33.7
The content of the cases presented adds a lot of realism to classes	0	0	10	9.9	61	60.4	30	29.7
The content in cases is realistic and is related to my clinical practice	9	8.9	29	28.7	61	60.4	2	2.0
The content in cases allows for interaction and engagement with colleagues	1	1.0	7	6.9	61	60.4	32	31.7
The content in cases is appropriate and relevant to my clinical practice	5	5	29	28.7	57	56.4	10	9.9
Made me pay more attention in class	1	1.0	11	10.9	52	51.5	37	36.6

4.3.2.2 Perceptions of students regarding assessment in case-based learning

Students' perceptions of the assessment of cases in their course were measured by six times. (See Graph 2) A total score for content perceptions was calculated for the 6 items out of 24 and this was converted to a standard score out of 100.

The scores for the students' perceptions regarding the assessment of cases ranged from 13 to a 56 (median25) with a mean score of 24.7 [95% Confidence interval for mean (CI), 23.4-25, 9].

ASSESSMENT OF LEARNING IN CASE-BASED LEARNING



Graph 2: Students' perceptions regarding the assessment of learning in case-based learning

Out of 101 participants responding regarding the assessment of learning in case-based learning; 59.4% (n=60) agreed and 28.7% (n=29) strongly agreed that assignments and projects are other ways in which learning is assessed; and 65.3% (n=66) agreed and 22.8% (n=23) strongly agreed that learning is continually assessed by writing tests and examinations. About 37.6% (n=38) agreed and 19.8% (n=20) strongly agreed that feedback was given in time for the tests that were written, while 63.4% (n=64) agreed and 21.8% (n=22) strongly agreed that the tests and examinations covered the content presented in cases. There were 43.6% (n=44) respondents who agreed and 8.8% (n=9) who strongly agreed that

PowerPoint, pictures and posters were used during the case presentations, while 61.4% (n=62) agreed and 12.9% (n=13) strongly agreed that the teacher feedback and advice following a class discussion was relevant, enabling them to cope on their own.

4.3.2.3 Learning process in case-based learning improving clinical practice

Students' perceptions of the learning process of case-based teaching in their courses were measured by 19 times. (See Table 5) A total score for learning process perceptions was calculated for the 19 items out of 76 and this was converted to a standard score out of 100.

The scores for the students' perceptions of the learning process ranged from 25.3 to a 104.3 (median60) with a mean score of 61.3 [95% Confidence interval for mean (CI), 59.2-63.5]. A percentage of 74.3% (n=75) agreed and 17.8% (n=18) strongly agreed that case-based learning improves their ability to formulate and carry out treatment plans, while 72.3% (n=73) agreed and 17.8% (18) strongly agreed that analysing cases helps them, as students, to solve practical problems systematically.

About 69.3% (n=70) agreed and 20.8% (n=21) strongly agreed that analysing cases improves their problem-solving and decision-making skills; 68.3% (n=69) agreed and 23.3% (n=24) strongly agreed that they would be much better prepared to work in Primary Health Care institutions in South Africa if they engaged in CBL. Of the respondents, 64.4% (n=65) agreed and 21.8% (n=22) strongly agreed that CBL helps improve their diagnostic skills and lateral thinking, while 64.4% (n=65) agreed and 28.7% (n=29) strongly agreed that working on cases can help them, as students, to become more independent.

About 61.4% (n=62) agreed and 23.8% (n=24) strongly agreed that this teaching method is a useful preparation in clinical problem-solving; 58.4% (n=59) agreed and 15.8% (n=16) strongly agreed that cases help them, as students, to apply theories to real-life situations in

nursing; 58.4% (n=59) agreed and 35.6% (n=36) strongly agreed that cases help them, as students, to integrate the activities of various functions of a nursing organisation and to develop a holistic perspective. (See Table 5 below)

	1 (SD)		2 (D)		3 (A)		4 (SA)	
	Freq	%	Freq	%	Freq	%	Freq	%
Case-based learning improves my ability to formulate and carry out treatment plans	4	4.0	4	4.0	75	74.3	18	17.8
Analyzing cases helps me, as a student, to solve practical problems systematically	3	3.0	7	6.9	73	72.3	18	17.8
Analyzing cases improves my problem-solving and decision-making skills	1	1.0	9	8.9	70	69.3	21	20.8
I will be much better prepared to work in Primary Health Care institutions in South Africa if I engage in case-based learning	2	2.0	6	5.9	69	68.3	24	23.3
Case-based learning helps improve my diagnostic skills and lateral thinking	2	2.0	12	11.9	65	64.4	22	21.8
Working on cases can help me, as a student, to become more independent	2	2.0	5	5.0	65	64.4	29	28.7
This teaching method is a useful preparation in clinical problem-solving	4	4.0	11	10.9	62	61.4	24	23.8
Cases help me, as a student, to integrate the activities of various functions of a nursing organization and develop a holistic perspective	1	1.0	5	5.0	59	58.4	36	35.6
Cases help me, as a student, to apply theories to real life situations in nursing	3	3.0	23	22.8	59	58.4	16	15.8

Table 5: L**earning process in case-based learning improving clinical practice**

4.2.3.4 Learning process in case-based learning during class sessions

Students' perceptions of the learning process of case-based teaching in their courses were measured by 19 times. (See Table 6) A total score for learning process perceptions was calculated for the 19 items out of 76 and this was converted to a standard score out of 100.

The scores for the students' perceptions of the learning process ranged from 25.3 to a 104.3 (median60) with a mean score of 61.3 [95% Confidence interval for mean (CI), 59.2-63.5]. About 70.3% (n=71) agreed, and 20.8% (n=21) strongly agreed that case-based learning makes the learning experience enjoyable; 70.3% (n=71) agreed and 22.8% (n=29) strongly agreed that CBL is more effective then lectures, and 69.3% (n=70) agreed and 24.8% (n=25) strongly agreed that CBL is an effective way of presenting the material. About 67.5% (n=68) agreed and 22.8% (n=23) strongly agreed that CBL facilitates more communication between students and lecturing staff, while 65.3% (n=66) agreed and 26.7% (n=27) strongly agreed that the discussion sessions facilitate interactions between staff and students; 62.4% (n=63) agreed and 33.7% (n=34) strongly agreed that CBL fosters more beneficial interactions between classmates, and 62.4% (n=63) agreed and 26.7% (n= 27) strongly agreed that it makes their learning more effective.

A percentage of 57.4% (n=58) agreed and 32.7% (n=33) strongly agreed that CBL challenges them to take more responsibility for their own learning. About 56.4% (n=57) agreed and 33.7% (n=34) strongly agreed that analysing cases helps them, as students, to deal with ambiguities and conflicting information, also 56.4% (n=57) agreed and 33.7% (n=34) strongly agreed that advance preparations are required before each seminar is evaluated. (See Table 6 below)

	1 (SD)		2 (D)		3 (A)		4 (SA)	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
Case-based learning makes the learning experience enjoyable	4	4.0	5	5.0	71	70.3	21	20.8
CBL is more effective then lectures	2	2.0	5	5.0	71	70.3	23	22.8
Case-based learning is an effective way of presenting the material	3	3.0	3	3.0	70	69.3	25	
Case-based learning facilitates more communication between students and lecturing staff	2	2.0	8	7.9	68	67.5	23	22.8
The discussion sessions facilitate interactions between staff and students	3	3.0	5	5.0	66	65.3	27	26.7
Case-based learning fosters more beneficial interactions between classmates	1	1.0	3	3.0	63	62.4	34	33.7
CBL makes my learning more effective	5	5.0	6	5.9	63	62.4	27	26.7
Case-based learning challenges me to take more responsibility for my own learning	3	3.0	7	6.9	58	57.4	33	32.7
Analyzing cases helps me, as a student, to deal with ambiguities and conflicting information	3	3.0	7	6.9	57	56.4	34	33.7
Advance preparations are required before each seminar is evaluated	4	4.0	6	5.9	57	56.4	34	33.7

Table 6: Learning process in case-based learning during class sessions

4.3.2.5. Benefits of case discussions as perceived by PHC nursing students using CBL

Students' perceptions of the benefits and challenges involved in using case-based learning were measured by 17 times. (See Table 7) A total score for the perceptions of benefits and challenges was calculated for the 17 items out of 68 and this was converted to a standard score out of 100.

The scores for benefits and challenges' perceptions ranged from 31.5 to a 78.4 (median49) with a mean score of 48.5 [95% Confidence interval for mean (CI), 47.0-50.0]. About 75.2%

(n=76) agreed and 18.8% (n=19) strongly agreed that critical thinking is one of the main core skills that they were developing in CBL; 75.2% (n=76) agreed and 18.8% (n=19) strongly agreed that analysing cases in groups helps them, as students, to develop their interpersonal skills. About 71.3% (n=72) agreed and 21.8% (n=22) strongly agreed that, through case discussions, they have become more aware of their own beliefs and values; 68.3% (n=69) agreed and 25.7% (n=26) strongly agreed that using case discussions allows them to broaden their research and analytical skills; 68.3% (n=69) agreed and 26.7% (n=27) strongly agreed that self-direction and active learning are some of the skills that are being developed through the discussion of cases.

About 67.3% (n=68) agreed and 24.8% (n=25) strongly agreed that case discussions help them, as students, to become more accepting of differing views, attitudes and beliefs; 65.3% (n=66) agreed and 26.7% (n=27) strongly agreed that discussing cases helps them to develop communication and persuasion skills; 65.3% (n=66) agreed and 28.7% (n=29) strongly agreed that analysing cases helps them to work together in teams; 65.3% (n=66) agreed and 26.7% (n=27) strongly agreed that experience in case discussions helps them to deal with differences of opinion with their colleagues. (See Table 7 below)

Table 7: Benefits of case discussions as perceived by students using CBL

	1 (SD)		**2 (D)**		**3 (A)**		**4 (SA)**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	%
Critical thinking is one of the main core skills that I am developing in case-based learning	4	4.0	1	1.0	76	75.2	19	18.8
Analyzing cases in groups helps us, as students, to develop our interpersonal skills	2	2.0	4	4.0	76	75.2	19	18.8
Through case discussions I have become more aware of my own beliefs and values	1	1.0	7	6.9	72	71.3	22	21.8
Analyzing cases helps us work together	2	2.0	4	4.0	66	65.3	29	28.7

in teams								
Experience in case discussions helps me to deal with differences of opinion with my colleagues	2	2.0	6	5.9	66	65.3	27	26.7
Case discussions help us, as students, to become more accepting of differing views, attitudes and beliefs	1	1.0	7	6.9	68	67.3	25	24.8
Self-direction and active learning are some of the skills that are being developed through the discussions of cases	4	4.0	1	1.0	69	68.3	27	26.7
Using case discussions allows me to broaden my research and analytical skills	1	1.0	5	5.0	69	68.3	26	25.7
Discussing cases helps me to develop communication and persuasion skills	2	2.0	4	4.0	66	65.3	27	26.7

4.3.2.6 Challenges experienced by students using CBL

Students' perceptions of the benefits and challenges involved in using case-based learning were measured by 17 times. (See Table 8) A total score for the perceptions of benefits and challenges was calculated for the 17 items out of 68 and this was converted to a standard score out of 100.

The scores for benefits and challenges' perceptions ranged from 31.5 to a 78.4 (median49) with a mean score of 48.5 [95% Confidence interval for mean (CI), 47.0-50.0]. About 71.3% (n=72) agreed and 20.8% (n=21) strongly agreed that they often lack experience with an open-ended problem solving format in the classroom; then 62.4% (n=63) agreed and 16.8% (n=17) strongly agreed that they prefer lectures to CBL, while 50.5% (n=51) agreed and 7.9% (n=8) strongly agreed that CBL is too time-consuming for them as students. A percentage of 50.5% (n=51) agreed and 12.9% (n=13) strongly agreed that they find CBL very challenging; 44.6% (n=45) agreed and 10.9% (n=11) strongly agreed that the cases which are used are very complex; while 37.6% (n=38) agreed and 18.8% (n=19) strongly agreed that they have to use prior knowledge and go to a library for further research. Furthermore, 36.6% (n=37)

agreed and 8.9% (n=9) strongly agreed that some of them are reluctant to express their ideas during full class discussions, as they have not previously been exposed to this type of active learning. About 33.7% (n=34) agreed and 11.9% (n=12) strongly agreed that CBL is too demanding for them with regards to preparation and content. (See Table 8)

	1 (SD)		**2 (D)**		**3 (A)**		**4 (SA)**	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
I often lack experience with an open-ended problem-solving format in the classroom	3	3.0	5	5.0	72	71.3	21	20.8
I prefer lectures to case-based learning	6	5.9	15	14.9	63	62.4	17	16.8
Case-based learning is too time-consuming for me, as a student	11	10.9	31	30.7	51	50.5	8	7.9
I find case-based learning very challenging	8	7.9	29	28.7	51	50.5	13	12.9
Cases that are used are very complex	16	15.8	29	28.7	45	44.6	11	10.9
I have to use my prior knowledge and to go a library for further research	11	10.9	33	32.7	38	37.6	19	18.8
Some of us are reluctant to express our ideas during full class discussions as we have not previously been exposed to this type of active learning	15	14.9	40	39.6	37	36.6	9	8.9
Case-based learning is too demanding for us with regard to preparation and content	26	25.7	29	28.7	34	33.7	12	11.9

Table 8: Challenges experienced by students using CBL

4.3.2.7.1 Comparisons of Results across the three delivery Centres

Although the purpose of the study was not to compare findings, the researcher wanted to explore to see if there were any variations among the three different centres in this research. The Pearson Chi-Square test was used using a significant level set at 0.05. The crosstabs analysis yields two degrees of freedom. Looking up the chi-square statistic for two degrees of freedom and for a 0.05 level of significance gives the value 5.991. A Pearson chi-square test was conducted and significant differences were noted on the items presented in the table below.

The findings of this study demonstrated that there was a significant difference in the way in which cases were presented to the students. This was reflected by a p value of <.002. The results showed variations in the way in which case studies were presented to students in three centres, with the majority of participants from Port Shepstone and Pietermaritzburg indicating that cases were presented in a booklet form. The majority from Durban reported that cases were presented to them on the day of class with the lecturers using transparencies. These results show inconsistency in the way in which case studies are distributed to students undertaking the same programme.

Item	**Chi square value**	**df**	**P value**
Distributions of cases in a booklet form	14.255	2,	p<.002
Distribution of cases at the beginning of the course	16. 084,	2	p<.000
Teachers feedback and advise after a class discussion relevant for students to cope on their own	18.002	2	p<.000
Use of PowerPoint, pictures and posters during the case presentation,	12.450	2	p<.002
Case studies preparing students for working in PHC institutions in SA,	6.352	2	p<0.042
CBL was too demanding in terms of preparation and the content	11.300	2	p<.004
Preferred lectures more than CBL,	11.365	2	p<.003

Table 9: Comparison of results across the three Delivery Centres

A significant difference was also noted regarding the time in which the case studies are distributed to students, with the majority from Durban indicating that they were had access to case studies on the day of class and they were presented using transparencies. The majority from Pietermaritzburg and Port Shepstone received cases at the beginning of the course. The Chi square value = 16. 084, DF = 2, p value was <.000.

The results also showed a significant difference regarding the item that the teachers feedback and advice after a class discussion was relevant for them cope on their own (Chi square value = 18.002, df = 2; p value <.000) The Port Shepstone and Pietermaritzburg participants rated

this item positively but a significant larger proportion from the Durban percentage rated this item negatively.

A significant difference was also noted on the use of PowerPoint, pictures and posters during the case presentation. The results revealed that there was a significant difference between the centres (Chi square value = 12.450, df = 2, p<.002). A significantly larger proportion of the Durban centre reported the use of PowerPoint, pictures and posters during case presentations compared to Pietermaritzburg and Port Shepstone participants.

Regarding one of the benefits of using case based learning that it prepares the students for working in PHC institutions in SA, a significant difference was noted on the participants' responses (Chi square value = 6.352, df = 2, p<.0.042). A significantly larger proportion of participants from the Durban centre responding positively to this statement when compared to Pietermaritzburg centre and Port Shepstone centre participants.

Regarding challenges, as significant difference was noted in the responses to the item that the students felt that CBL was too demanding for them with regards to preparation and content. A significant difference was noted on the participants responses with a Chi square value = 11.300, df = 2, p<.004. A significantly larger proportion of Pietermaritzburg centre participants felt that CBL was too demanding for them when compared to Durban and Port Shepstone participants. The results also revealed significant difference in the item that participants preferred lectures compared to CBL (Chi square value = 11.365, df = 2, p<.003). A significantly larger proportion from the Pietermaritzburg centre reported that they preferred lectures more than CBL when compared with participants from the Durban and Port Shepstone centers.

4.3.2.8 CONCLUSION

The findings in this chapter reflect that there are a number of positive and negative views from students on case based learning as a teaching methodology. According to the data sources and comparisons of results across the three delivery centres there were significant differences and similarities that were noted on the items. There were a number of factors that facilitated students' success using CBL while there were a few barriers that hindered students' ability to use CBL.

CHAPTER FIVE

5. DISCUSSION OF THE FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

This chapter presents a discussion of the most significant findings of this research study, the conclusion drawn from the findings, as well as the recommendations made for nursing education and for further research. The purpose of the study was to explore the perceptions of the PHC nursing students in a Decentralised Programme towards case-based learning as a teaching methodology at a selected Nursing Education institution. The research objectives were:

- To explore the perceptions of PHC nursing students regarding the nature of the content used in case-based learning.
- To explore the perceptions of PHC nursing students about the instructional/learning process in case-based learning.
- To explore the perceptions of PHC nursing students regarding the assessment of learning in case-based learning.

The finding was discussed in relation to the research objectives and the conceptual framework used in this study, as well as the literature reviewed and previous research done on this topic.

5.2 SUMMARY AND DISCUSSION OF FINDINGS

5.2.1 DEMOGRAPHIC DATA

The findings from this study revealed that, regarding the age of the respondents, the average age of the 101 participants was 41.9 years (SD 7.6). Of these, (n=23) 22.8% participants were aged between 26 years and 35 years; (n=44) 43.5% were between 36 years and 45 years; and (n=31) 30.79% were between the ages of 46 years and 55 years. Three (n=3) 3% were above 55years. This was in line with the findings from the different literature reviewed that the nursing profession has a significant number of professionals whose age exceeds 30 years.

The majority of the participants in this study were females, (n=83) 82.2%, with only (n=18) 17.8% males. Standard deviation was 0.38. This is consistent with national and international statistics where the nursing profession is still female-dominated (Cassimjee, 2007). According to (Cassimjee, 2007); women make up the vast majority of the nursing workforce in many countries.

The results of the study revealed that an attained participation rate of 77.7% (n=101) of the respondents completed and returned the questions from the study target of 130 respondents from the three sites, Port Shepstone (Murchison Hospital) 18.8% (n=19); Pietermaritzburg (UKZN) 39.6% (n=40) and Durban (UKZN) 41.6% (n=42). These results might explain that the majority of students registered for the PHC Decentralised course chose to register at the centres closer to the Central Business District.

5.2.2 PROCESS OF CASE PRESENTATION AND DISTRIBUTION FOR COURSE

This study revealed that content was gradually released in the PHC programme. Findings from the study revealed that cases was mainly presented to participants in booklets, 65.3% (n=66), and that the majority of participants received the cases in each class session, 51.5% (n=52), followed by 45.5% (n=46) who received cases at the beginning of the course.

The findings from my study are consistent with those of Kim et al. (2006) which revealed that gradual disclosure of content allows for the cases not to be presented all at once, but that a progressive disclosure of content simulates the process of care in practice; it sustains a learner's interest in the case, thus creating points for clinical decision-making, and provides stages for assessment, feedback and teaching. Kim et al. (2006) also explained, depending on the goals and objectives, that the content of the case can vary depending on the choices students make during patient care.

5.2.3 PERCEPTIONS OF CONTENT USED IN CASE-BASED LEARNING

A significant percentage of the respondents, 88.1% (n=87) agreed that multiple cases which are cases that are presented in a series, are used in class. The reason for cases to be presented in a series and follow a sequence in the PHC programme was to allow for the illustration of the importance of insight into the ageing process, and its interaction with a chronic illness trajectory; then to build each case episode based on a typical story by reinforcing selected features, or showing some features to be less specifically an essential part of the prototype. It was evident that the content used by nurse educators in the PHC programme promotes case-based learning in their schools, as the cases was well organised in a sequence it allowed for the learning of new information. This is in line with Doran et al. (2011) who advised that multiple cases can be sequenced to represent the development of trajectories of a learner's

thinking, while Koehler (2002) also indicated that when specific descriptions illustrate how multiple cases were connected, students demonstrated a higher level of knowledge compared to students who interacted with individual cases where explicit connections were absent (Kim et al., 2006).

This study revealed that 86.2% (n=87) agreed that cases were presented in a way which looks similar to the ways in which real cases present. In the PHC programme cases are formulated so that these approximate real-world settings to increase the likelihood that students will transfer their learning from one setting to another. This is supported by Kim et al.'s (2006) findings that realism in cases can be added by providing the following: Authentic materials; distracters or non-pertinent features, and gradual disclosure of content. Kim et al. (2006) indicated that authenticity is increased by incorporating into cases the tasks, knowledge and problem-solving skills which students are likely to encounter and may need to apply in future practice. Actual clinical cases styled as models are used for making teaching contexts more authentic.

The findings of this study also demonstrated that 90.1% (n=91) of the respondents agreed that the content of the cases presented adds a lot of realism to classes. The students felt that the realism was strongly related to their clinical practice. As suggested by Kim et al. (2006), cases which approximate real world settings increase the likelihood that students will transfer their learning from one setting to another, and realism in such cases was added by providing the following:

Students from the PHC programme also expressed that a positive aspect of case studies was that, through the case presentations, students were able to gain confidence and become aware of their limitations in terms of knowledge regarding real-life situations; they felt that knowledge gained from real-life situations increases their practical, foundational and reflexive competence. This was supported by Demarco et al. (2002) who stated that working collaboratively to solve case assignments required students to engage skills similar to those needed in the real world.

The real world skills identified by students included critical thinking, problem-solving, prioritisation, working with others and appreciation for the role of the nurse manager. These findings are similar to those of Hayward and Cairns (1998), who found that case-based learning stimulated critical thinking, clinical thinking, and active self-directed learning in physical therapy students.

The majority of the students, 92.1% (n=93), indicated that the content in cases allowed for interaction and engagement with colleagues, while the case-based learning environment allowed students to browse freely through information sources. This enabled students to interact with their peers, collaborate, discuss their positions, form arguments, re-evaluate their initial positions, and negotiate meaning. As stated by DeMarco, et al (2002), a major benefit of case-based learning is the group experience; people work collaboratively to accomplish more and emerge with a better end result than if they had worked independently. In addition, working with others provides students with the benefit of multiple perspectives on the same problem. Working collaboratively is realistic and mimics the real world in which health care practitioners work (DeMarco et al., 2002). The PHC nursing students valued the

group process because it allowed them to develop and use interpersonal skills as stated above to mimic those of experts.

5.2.4 OUTCOMES OF THE LEARNING PROCESS IN CASE-BASED LEARNING

It is evident from the response of the 92% (n=93) participants who agreed, in the study, that case-based learning facilitates more communication between students and lecturing staff; and that the discussion sessions facilitate interaction between staff and students. These findings are in keeping with research studies and views of authors. Cassimjee (2007) supported the idea that case-based learning improves students' communication and preparation for class, and facilitates open discussion with interaction and sharing of information. Contradictory to this, Williams (2009) stated that the communication between students and faculty could have been improved; this is a difficult area particularly in a case-based learning environment. Williams (2009) found that students understand that they are expected to learn as autonomous thinkers and communicate with fellow peers to seek answers and resources, whereas on the other hand, some students obviously feel that more extensive dialogue with teaching staff could have assisted the case-based learning process.

As noted in the study, the number of students for two findings had the same percentages of students, 90.1% (n=91), who agreed that analysing cases helps them, as students, to solve practical problems systematically, and that analysing cases improves their problem-solving and decision-making skills. As suggested by Peterson and Jungck (1988), case-based teaching methods incorporate problem-posing, problem-solving and peer persuasion; cases may also be designed to guide students towards certain predetermined learning outcomes, or may be more open-ended, encouraging students to define problems for themselves before using their own initiative to seek appropriate resources to solve these. DeMarco, Hayward

and Lynch (2002) also stated that working with cases allowed students to examine a problem from different angles, to process it, and then to use critical thinking to arrive at a solution.

The findings of this study also demonstrate that 91.6% (n=93) agreed that they would be much better prepared to work in Primary Health Care institutions in South Africa if they engaged in CBL. This is consistent with Sandstrom (2006, p.229); Schreyer, et al. (2003, p.65) who argued that case-based learning allows student nurses to 'experience' actual patient situations and encourages student nurses to have a sense of ownership and belonging. The use of the case-based learning approach, through its interactive and exploratory nature, demonstrates that there may be multiple 'correct' solutions for individual clinical problems (Sandstrom, 2006). What emerged in the analysis of this study for the learning process in case-based learning, is that 86.2% (n=87) agreed that case-based learning helps improve their diagnostic skills and lateral thinking, thus, in turn, improving their clinical practice skills. This is in keeping with Sandstrom (2006) who indicated that the case study method of teaching enables students to develop a clearer understanding of the disease, and how it affects patients and their needs.

Findings from this study revealed that 91.1% (n=92) agreed that case-based learning makes the learning experience enjoyable. This is in line with Malesela's (2009) Knowles Andragogic Theory which stated that adult students enjoy active participation in learning activities and take responsibility for their own learning, and Cassimjee (2007), who also stated that students found case-based learning interesting and enjoyable in class and in the practical area.

About 92.1% (n=93) of the students in this study agreed that case-based learning improves their ability to formulate and carry out treatment plans. As stated by Malesela (2009),

students indicated that the use of the case study approach to facilitate learning helped them to integrate their biological, behavioural and nursing theoretical knowledge as they interacted directly with patients. The use of the case study not only facilitates the development of integrative processes from within the individual student, but also attempts to integrate theoretical components with learning experiences and activities (Ehrenerg & Haggblom, 2007). This correlation of theory and practice and the creation of meaningful learning experiences for students should occur in clinical practice where there is real life experience (Malesela, 2009).

5.2.5 ASSESSMENT OF THE LEARNING PROCESS IN CBL

A significant percentage of the respondents, 88.1% (n=89), agreed that learning is continually assessed by writing tests and examinations. As stated by Gwele (2005), knowledge measurement uses pen and paper methods which assess factual recall, and in this case, knowledge application. Gwele (2005) also stated that knowledge measurement is characteristically conducted at the end of a case-based activity; while the tools applied in measuring knowledge are essays, reports, tests and examinations. The findings of this study revealed that 85.2% (n=86) of the respondents agreed that the tests and examinations cover the content represented in cases. The assessment process is very important in case-based learning; it covers the information discussed during the programme (Jackson, 2004). Gwele (2005) indicated that case-based assessment is central to learning as it is used to facilitate the learner's development, and to evaluate the competence of the learner during and on completion of the programme.

The findings of this study demonstrated that 88.1% (n=89) of the participants agreed that assignments and projects are other ways in which learning is assessed. According to Packard

(2009), many students view education as a collection of well-defined facts that reach a common understanding, and perceive assignments as always having a single solution. Other students often lack experience if the case assignment is too complex, and the material may frustrate students and shut down the very critical thinking skills the assignment may be trying to foster. If the case assignment is a team assignment, students may need to understand team dynamics in order successfully complete tasks. A very controversial case could lead to extreme emotional reactions. A firm statement of the facts and rules of etiquette can help reduce tensions (Packard, 2009).

About 74.3% (n=75) of the students agreed that the teacher feedback and advice after a class discussion was relevant to enabling them to cope on their own. This is evident where Doran et al. (2011) identified the provision of feedback and generation of a personal learning context as being more critical elements of the teaching context affecting students' learning. Students also rated the giving of quality feedback highly, to ensure that the goals of the learning process and activities are clear and help enable student engagement with the subject matter and case context (Ramsden, 2003). A relatively small percentage, 57.4% (n=58), of the respondents indicated that for tests that were written, they were given appropriate feedback on time, therefore it is important for nurse educators to now acknowledge that feedback of the cases to students reveals the outcomes of their choices. Both positive and negative feedback helps a learner's self-assessment; keeps students engaged and helps them to identify further learning needs (Ramsden, 2003).

The findings of this study also revealed that 52.4% (n=53) of the students agreed that PowerPoint, pictures and posters were used during the case presentations. This is supported by Kim et al. (2006) who stated that teaching aids help students to process information easily, displaying a visual summary of the interrelationships of knowledge components in a case.

5.2.6 BENEFITS AND CHALLENGES INVOLVED IN USING CASE-BASED LEARNING

The findings in this study suggested that communication and interaction between instructors and students displays room for improvement in the case-based learning environment. The findings of this study showed that 92% (n=93) of the students agreed that discussing cases helped them to develop communication and persuasion skills. This is supported by Thomas, et al (2001) who found that students' communications can produce or constrain meaning in cases and that students may focus on a part of a case and ignore other issues. Particularly when cases involve interaction between a student and a standardised patient, the impact of the student's position in the discourse is more apparent, since we know how a case is structured and the standardised content that is available. It becomes more evident how the communications of the student allow or impede the expression of patients' stories and how this influences the accomplishment of clinical goals (Thomas et al., 2001).

As noted in the study, a fairly high percentage of students, 95% (n=96), agreed that self-direction and active learning are some of the skills that are being developed through the discussion of cases. As suggested by Hale , (2005) as cited in Thomas et al., (2001), case-based learning may be designed to guide students towards active learning, therefore predetermined learning outcomes and open-ended questions encourage students to define problems for themselves before using their own initiative to seek appropriate resources to solve these Hale, (2005) as cited in Thomas et al., (2001). According to Knowles's (1975) Andragogic Theory, nursing students, as adult students, want to be self-directed and self-monitoring, and want to see the usefulness of the content they are learning. This is evident from results obtained from the PHC nursing students during this study. Adult students enjoy active participation in learning activities and take responsibility for their own learning (Knowles, 1975). It is important to note that a large number of students, all of whom are

adults, agreed that the above skills of self-direction and active learning were developed by using case-based learning. Prior to this usage, many of the respondents did not have these skills as they had been trained using the lecture method which did not develop these skills.

The findings of this study also showed that 92% (n=93) of the respondents agreed that experience in case discussions helps them to deal with differences of opinion with their colleagues. Students' interactions with their peers and with teaching staff are one of the hallmark attributes of a successful learning process. This was reinforced by Botelho and O'Donnell (2001) as cited in (Williams, 2009) who supported this proposition with the view that student-to-student interaction allows greater motivation, thus stimulating greater understanding of concepts and the ability to seek out clarification of ideas or misunderstandings. Dolmans et al. (2005) described the case-based learning environment as allowing students to browse feely through information sources. It enables students to interact with their peers, collaborate, discuss their positions, form arguments, re-evaluate their initial positions, and negotiate meaning (Dolmans, et al., 2005). The benefits of case-based learning on the learning processes provide ample motivation to students (Dolmans, et al. 2005).

About 94% (n=95) of students agreed that analysing cases helps them work together in teams. This was supported by several studies which attempted to establish positive group dynamics and interactions with learning outcomes. Williams (2009) described several positive factors in good group dynamics - motivation, elaboration, cohesion, withdrawing, independence, reasoning skills and active interaction. Vygotsky (1978) and Dewey (1938) believed that students do not learn in isolation from others, and cognitive psychology has gradually established that people naturally learn and work collaboratively in their lives. Interactivity provides a way to motivate and stimulate students (Dewey, 1938).

A majority of 94% (n=95) students agreed that critical thinking is one of the main core skills that they develop in case-based learning. As suggested by Winningham & Preusser (2001), case-based learning also promotes critical thinking, which is an interactive process, whereby the student encounters challenges through exposure to real problems. Students need to find the relevant information to solve those problems to react appropriately in a clinical situation (Winningham & Preusser, 2001). Therefore, by engaging in critical thinking, students acquire new levels of understanding, expand their thought processes, and are able to function competently in real-world/clinical settings.

The findings in this study revealed that 92.1% (n=93) of the students agreed that they often lacked experience with an open-ended problem-solving format in the classroom. The challenges that students often face relate to experience with an open-ended problem-solving format in the classroom; if the case assignment is too complex, the material may frustrate students and shut down the very critical thinking skills the assignment may be trying to foster (Krain, 2010). Many of the students in this study had been taught by means of teaching methodologies that do not use open-ended problem-solving and had therefore experienced difficulty. Krain (2010) suggested that case-based learning is particularly useful for helping students see how real world complex problems can be solved, for demonstrating the connection between theory and practice, and for building critical-thinking and problem-solving skills (Krain, 2010).

The findings of this study showed that 79.2% (n=80) of the participants agreed that they preferred lectures to CBL, which response, supported by Woods (2003), highlights the main disadvantage of case-based learning. Because of previous educational approaches used and prior study habits, there may be an obstinate impression towards accepting change. Williams (2005) also suggested that students felt the lecture method was more helpful in preparing for a written exam than that of the case-based learning format. Kassebaum et al. (1991) discussed

how traditional teaching was superior to case-based learning in enhancing the speed of learning with greater understanding of basic knowledge, as well as in providing more solid content with understanding of a greater number of nursing techniques (Williams, 2005).

About 58.4% (n=59) of the students agreed that case-based learning is too time-consuming for them, as students. The findings from this study suggest that some students felt that case-based learning as a teaching methodology placed a greater workload strain on their studies, and actually considered case-based learning to be time-consuming. Atack & Rankin (2002) recognised that the paradigm of CBL imposes heavy workloads on students' daily study commitments, in opposition to the idea that CBL is centred on workload-friendliness and provides students with the ability to shape their own timetable requirements to their learning needs. The authors argued that students felt they did not have enough time to complete their studies.

The findings from this study revealed that 55.5% (n=56) of the students agreed that cases that are used are very complex. As suggested by Waterman (2005), the reason for a 'complex' case, is for students to diagnosis the underlying problem, based on case data. These issues are not easy to distinguish because they are submerged in a mass of data that includes irrelevant material and external issues used as distractions (external and underlying issues are normally interdependent). This can also be an initial step for cases types in which a final decision is required (Waterman, 1995).These types of complex case studies closely approximate real life job functions, and can be adapted to a number of professions. The complex case study is very useful for improving analytical skills, promoting creative thinking, and practicing decision-making (Waterman, 1995).

About 56.4% (n=57) of the students agreed that they have to use prior knowledge and go to a library for further research. As suggested by Kaddoura (2001), the end result of case-based

learning is a better working knowledge of the problem, how to apply this, and, more importantly, the ability to solve a problem by using all available resources. Hale (2005) also stated that cases may be designed to guide students towards certain predetermined learning outcomes, or may be more open-ended, encouraging students before using their own initiative to seek appropriate resources to solve the problem. Morrison and Walsh-free (2001) added that past experiences are used as a frame of reference to understand learning activities meaningfully in case-based learning. Kim, et al (2006) found that complex cases, which closely simulate a real world patient care environment, involved more prior experiences, involved researching a topic and also going to a library.

Finally, in this study only 45.6% (n=46) of the respondents agreed that CBL is too demanding for them with regard to preparation and content. Most college students are ill-prepared for active, self-directed and collaborative group work and therefore cannot cope with preparation and content (Kim, 2006).

5.2.7. COMPARED RESULTS ACROSS THE THREE DELIVERY CENTRES.

The findings of this study demonstrated that there was a significant difference in the way in which cases were presented to the students. This was reflected by a Pearson Chi square test of .002. This reflects variations in the way in which case studies were presented to students in three centres, with the majority of Port Shepstone and Pietermaritzburg participants indicating that cases were presented in a booklet form. The majority from Durban reported that cases were presented to them on the day of class with the lecturers using transparencies. These results show clear inconsistency in the distribution of cases to students who are registered in the same programme.

The results also showed borderline significant difference regarding the item that the teacher's feedback and advice after a class discussion was relevant for them cope on their own (Pearson Chi Square was .005). Port Shepstone and Pietermaritzburg participants rated this positively but a significant percentage (48%) from the Durban percentage rated this item negatively.

The Pearson Chi Square results for the item 'case-based learning is demanding with regards to preparation and the content' was .002, showing significant difference in the participants responses. The majority of the participants from Port Shepstone agreed with this statement compared to participants from Durban and Pietermaritzburg.

5.3. RECOMMENDATION

Students found case-based learning to be very interesting, and found that it developed different types of skills to help the student in the clinical setting. However, the researcher felt that a follow-up study, taking into account all six sites where students are placed could result in a difference in the students' perceptions of CBL as a teaching methodology, as the students in the other three sites are in the more rural areas which limits their resources. There was some inconsistency with presentation and distribution of cases also feedback to students, staff may require development with teaching skills to co-ordinate all centre in a similar way. Port Shepstone and Pietermaritzburg struggle with CBL, maybe they are not incline with SDL, therefore a follow up study in these centres would assess in students are inclined with SDL.

5.4 LIMITATIONS OF THE RESEARCH STUDY

A number of limitations which demand particular discussion emerged during this research study. These include the sample size available from the convenience sample. Although the

size was adequate for the statistical procedures, it would have introduced problems with the statistical analysis and the generalisation of the findings.

Another limitation was the fixed terms of the school calendars which pressurised working with the respondents. Nurse educators and respondents were on vacation when questionnaires were ready for completion. Due to the content and length of the questionnaire, the process of completion would have been time-consuming. The process would thus have been completed in a rushed manner.

5.5 CONCLUSION

This study set out to explore the perceptions of the PHC nursing students in a Decentralised Programme using case-based learning as a teaching methodology by addressing several main key questions. The results of this study show that overall, students view case-based education in a positive light. Presently, case-based learning appears to be a useful and enjoyable teaching and learning tool for students enrolled in the post-graduate PHC Decentralised Programme. Most of them were also able to work the cases themselves in preparation for class sessions. This was very encouraging, as the cases were structured around a self-directed curriculum which requires that students learn to work independently and plan their work before class.

Students in this study felt that the realism in the content of cases allowed them to engage fully with their learning and this prompted more discussion. The majority of the students in this study also mentioned that CBE improved their ability to formulate treatment plans allowing them to develop a clearer understanding of disease, how it affects the patient, and how to treat patients suffering from these illnesses; this, in turn, makes students better

prepared to work in PHC institutions in South Africa. The study also highlighted the benefits of interactive learning and the challenges of the complexity of case-based learning. Students were allowed to participate through preparation and discussion. The case-based nature of the course forced students to learn and prepare for classes themselves. This, in turn, improved their skills in accessing academic resources and further prepared them for group discussions.

There are limiting factors that hinder the promotion of case-based learning in the classroom, but, as nurse educators there is a need to persevere and overcome the challenges to make a difference and improve the *status quo*. By gaining a better insight into and a greater understanding of their own individual teaching methods, teachers can improve their effectiveness in the classroom. Nevertheless, these limitations did not overshadow the strength of the study. The major strength of this study is that it provides research into areas where the results may benefit the actual subjects; the findings may make a helpful contribution to the field of Nursing Education in South Africa. In addition, the study helps validate previous literature and studies in this area, therefore allowing better implementation of the case-based learning approach in Nursing Education in KZN.

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ANNEXURE A

QUESTIONNAIRE

RESEARCH TITLE:

Primary Health Care nursing students' perceptions of the case-based learning approach employed at a selected Nursing Education institution in Durban: An exploratory-descriptive study

SECTION A: DEMOGRAPHIC DATA

1. **Please indicate your age in years _____**

2. Please indicate your gender (Tick the appropriate box)

1.Male	
2.Female	

3. In which centre are you based? (Tick the appropriate box)

1.Durban	
2.Pietermaritzburg	
3.Empangeni	
4.Escourt/ Ladysmith	
5.Port Shepstone	
6.Newcastle	

SECTION B

B1. Views about case-based learning:

B1.1. How are cases presented? (Tick the appropriate box)

1. In a booklet	
2. During class time on PowerPoint slides	
3. Overhead slides	
4. Emailed to you	

B1.2. When are the cases given to you? (Tick the appropriate box)

1. At the beginning of the course	
2. At each class session	
3. At the end of class sessions for the next session	
4. Emailed a few days before class	

B1.3. What are your views on the content of the cases? (Tick the most appropriate box)

KEY:

1: Strongly Disagree

2: Disagree

3: Agree

4: Strongly Agree

	1	**2**	**3**	**4**
1. There is an increased degree of difficulty as the classes progress with cases				
2. The cases are presented in a way that looks similar to the ways in which real cases present				
3. A series of multiple cases is used in class				
4. The content in cases is appropriate and relevant to my clinical practice				
5. The content in cases is realistic and is related to my clinical practice				
6. The content in cases allows for interaction and engagement with colleagues				
7. The cases are interesting and challenging				
8. The cases are well organised in a sequence that allows learning of new information				
9. The content made me pay more attention in class				

10. The content of the cases presented adds a lot of realism to classes				
11. Cases help me, as a student, to appreciate the complexity of nursing care				

B1.4. What are your views about how your learning was assessed in case-based learning (Tick the most appropriate box)

	1	**2**	**3**	**4**
1. The tests and examinations cover the content that is presented in the cases				
2. Learning is continually assessed by writing tests and examinations				
3. Assignments and projects are other ways in which are learning is assessed				
4.Appropriate feedback was given on time for the tests that were written				
5. The teachers' feedback and advice after a class discussion was relevant for me to help me to cope on my own				
6.PowerPoint, pictures and posters were used during the case presentations				

Other teaching aids:

_____

B.2. Please rate yourself regarding the learning process in the case-based learning-teaching methodology. (Tick the most appropriate box)

	1	**2**	**3**	**4**
1. CBL makes my learning more effective				
2. Advance preparation is required before each seminar is evaluated				

3. The discussion sessions facilitate interaction between staff and students				
4. Case-based learning is an effective way of presenting the material				
5. Case-based learning fosters more beneficial interactions between classmates				
6. Case-based learning facilitates more communication between students and lecturing staff				
7. Case-based learning helps improve my diagnostic skills and lateral thinking				
8. This teaching method is a useful preparation in clinical problem solving				
9. Case-based learning makes the learning experience enjoyable				
10. CBL is more effective than lectures				
11. Analysing cases helps me, as a student, to solve practical problems systematically				
12. Working on cases can help me, as a student, to become more independent				
13. Case-based learning improves my ability to formulate and carry out treatment plans				
14. I will be much better prepared to work in Primary Health Care institutions in South Africa if I engage in case-based learning				
15. Cases help me, as a student, to apply theories to real life situations in nursing				
16. Analysing cases helps me, as a student, to deal with ambiguities and conflicting information				
17. Cases help me, as a student, to integrate the activities of various functions of a nursing organisation and develop a holistic perspective				
18. Analysing cases improves my problem-solving and decision-making skills				
19. Case-based learning challenges me to take more responsibility for my own learning				

B.4. Benefits of case discussions

(Tick the most appropriate box)

	1	2	3	4
1. Self-direction and active learning are some of the skills that are developed through the discussion of cases				
2. Using case discussions allows me to broaden my research and analytical skills				
3. Critical thinking is one of the main core skills that I am developing in case-based learning				
4. Discussing cases helps me to develop communication and persuasion skills				
5. Analysing cases in groups helps us, as students, to develop our interpersonal skills				
6. Analysing cases helps us work together in teams				
7. Through case discussions, I have become more aware of my own beliefs and values				
8. Case discussion helps us, as students, to become more accepting of differing views, attitudes and beliefs				
9. Experience in case discussions helps me to deal with differences of opinion with my colleagues				

B.5. Challenges experienced using case-based learning (Tick the most appropriate box)

	1	2	3	4
1. Some of us are reluctant to express our ideas during full class discussions as we have not previously been exposed to this type of active learning				
2. Case-based learning is too demanding for us with regard to preparation and content				
3. I prefer lectures to case-based learning				

4. Case-based learning is too time-consuming for me, as a student				
5. I often lack experience with an open-ended problem-solving format in the classroom				
6. Cases that are used are very complex				
7. I find case-based learning to be very challenging				
8. I have to use my prior knowledge and go to a library for further research				

Thank you very much for your participation!!!!!!!!!!!!

ANNEXURE B

INFORMED CONSENT

INFORMED CONSENT TO PARTICIPATE IN RESEARCH PROJECT CONDUCTED IN

PARTIAL FULFILMENT OF A COURSEWORK MASTER'S DEGREE IN NURSING EDUCATION.

Title of research: Primary Health Care nursing students' perceptions of the case-based learning approach employed at a selected Nursing Education institution in Durban: An exploratory-descriptive study is being conducted by researcher R. Harricharan.

Purpose of the research: The purpose of the study is to explore how the Decentralised PHC nursing students perceive and cope with case-based learning as a teaching methodology in Nursing Education programmes in a college of nursing in South Africa. You are asked to take part in this study by completing the attached questionnaire. Completing this form will take approximately 30 minutes of your time.

Please be aware that participation is voluntary. You are not compelled to participate in this research and you may discontinue your participation at any time. You may also omit any items on the questionnaire(s) which you prefer not to answer. There are no foreseen possible risks associated with participation in this study. Should you experience any discomfort during the process of completing the questionnaire, you may withdraw from participating. Please be aware that you may contact Mrs R. Harricharan for assistance with the completion of the questionnaire.

Your responses will be provided anonymously to protect your privacy. Potential benefits associated with the study include a better understanding of how nurse educators facilitate reflective thinking in their teaching, and your contribution will assist in developing nurse educators in this area of their practice.

Participant's name (in block letters):.....

Signature:..... Date:.....

If you agree to voluntarily participate in this research project as described, please indicate your agreement by completing and returning the attached questionnaire. Please retain this consent cover form for your reference.

If you have questions regarding this study, or would like to be informed of the results when the study is completed, please feel free to contact Mrs R. Harricharan (073 2248 508).

If you have questions or concerns regarding the manner in which the study is conducted, you may contact my supervisor:

Prof NG Mtshali

School Of Nursing

University of KwaZulu-Natal

Tel: 031 2602498. E-mail: mtshalin3@ukzn.ac.za

Research Student:..... Signature:.....

ANNEXURE C

INFORMATION DOCUMENT

ANNEXURE C: INFORMATION SHEET

Date	: 10 October 2011
Name of Research student	: Revashnee Harricharan
E-mail	: Revashnee.harricharan@gmail.com
Student Number	: 204503621
Contact Number	: 0732248508
Name of Supervisor	: Professor NG Mtshali
Contact Number	: 031-2602498
Name of Department	: School of Nursing
Name of Institution	: University of KwaZulu-Natal (Howard College Campus)

Dear Participant

I am completing a research project as part of the requirements for a Master's Degree (Nursing Education).

Title: Primary Health Care nursing students' perceptions of the case-based learning approach employed at a selected Nursing Education institution in Durban: An exploratory-descriptive study

Purpose of the research: The purpose of this study is to explore the perceptions of the PHC nursing students in a Decentralised Programme towards case-based learning as a teaching methodology at a selected Nursing Education institution. This information and findings may allow facilitators to change or adapt aspects of this teaching method to suit the needs of the students.

Description of the Procedure: Your participation is requested as you represent the population under study. As part of the research process you are required to fill in a questionnaire which will take 20-30 minutes to complete. The researcher will ask your facilitator for a suitable time when you may participate.

Ethical Aspects:

Please note that your identity and information will be treated with the utmost confidentiality. Please feel free to ask any questions you may have so that you are clear about what is expected of you. Please note that:

- You are free not to participate
- You are free to withdraw at any stage without repercussions
- You name will not be used, nor will you be identified with any comment made when the data is published
- There will be no risks attached to your participation

Advantages to you as a respondent:

The findings of the study will be made available on completion.

Thank you.

Researcher: .....

ANNEXURE D

ETHICAL CLEARANCE

UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

Research Office, Govan Mbeki Centre
Westville Campus
Private Bag x54001
DURBAN, 4000
Tel No: +27 31 260 8350
Fax No: +27 31 260 4609
snymanm@ukzn.ac.za

02 December 2011

Mrs R Harricharan (204503621)
School of Nursing

Dear Mrs Harricharan

PROTOCOL REFERENCE NUMBER: HSS/1242/011M
PROJECT TITLE: Primary Health Care Nursing Students' Perception of Case-Based Learning approach Employed at a Selected Nursing Education Institution in Durban: An Exploratory-Descriptive Study

In response to your application dated 18 October 2011, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Professor Steven Collings (Chair)
Humanities & Social Science Research Ethics Committee

cc Supervisor – Prof NG Mtshali
cc Mr Sugen Reddy

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ANNEXURE E

A letter to the UKZN, School of Nursing: Request for permission to conduct the study

UNIVERSITY OF

KWAZULU-NATAL

SCHOOL OF NURSING

PERMISSION TO CONDUCT A STUDY

20 December 2011

The Head of School

School of Nursing

University of KwaZulu-Natal

Durban

4041

Dear Prof B.Bhengu

Re: Application for permission to conduct a research study in your school

I am a student at the University of KwaZulu-Natal, School of Nursing doing a Master's Degree in Nursing Education. I hereby request permission to conduct a research study at your school. The title of the proposed study is "***Primary Health Care nursing students' perceptions of the case-based learning approach employed at a selected Nursing Education institution in Durban: An exploratory-descriptive study".***

In order for me to obtain a final ethical clearance from the research office at the University, I am required to produce a permission letter to conduct a study from the relevant authorities. And as i have identified that your School is recognised for the Primary Health Care Course using case based learning I hereby request permission to conduct a research study.

The collection of data will involve spending a few days at the School and at the three different sites: Durban,Pietermaritzburg and Port Shepstone centres, handing out questionnaires with regards to the PHC nursing students' perceptions of the case-based leaning approach.

Included in this is an abridged research proposal and provisional ethics clearance from the University of KwaZulu-Natal's Research Ethics Committee. If your School grants me permission to conduct this proposed study, I would appreciate having your School's PHC programme structure, the timing of the placement of students in the three different centres mentioned, and the details of the relevant co-odinators I can contact to go to the centres. Having such information will help me to plan when to collect data from your institution.

I guarantee that participation will be voluntry, and that anonymity and confidentiality will be maintained throughout.

It would be appreciated if my request received your favourable consideration

Yours sincerely

Revashnee Harricharan	Professor NG Mtshali
Student: University Of KwaZulu-Natal	Research Supervisor
Cell: 073 22 48508	Tel: 031 2602498
E-Mail: revashnee.harricharan@gmail.com	E-Mail: mtshalin3@ukzn.ac.za

ANNEXURE F

Permission letter from the School of Nursing to collect data

UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

18th January 2012

Ms R Harricharan
c/o Nursing

Student No.: 204503621
Email: revashnee.harricharan@gmail.com

Dear Ms Harricharan

Support in conducting research in the Discipline of Nursing

With reference to your letter dated 12th January 2012, regarding the above, we are pleased to inform you that your request is hereby supported in order for you to conduct research on the study entitled ***" Primary Health Care Nursing Students' Perception of Case-Based Learning Approach Employed at a Selected Nursing Education Institution in Durban: An Exploratory-Descriptive Study, "*** provided you receive ethical clearance from the relevant University Ethics Committees.

Thank you

Sincerely

Professor B P Ncama
Dean:
School of Nursing & Public Health
UKZN