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**IMPLEMENTATION OF PROBLEM-BASED LEARNING IN NURSING EDUCATION:**

**A MALAWIAN CASE STUDY**

**Karen Rose Nsandu Giva**

**Student number: GVXKAR001**

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***Supervisor: Associate Professor Sinegugu Duma: Division of Nursing and  
Midwifery, Department of Health and Rehabilitation Sciences, University of  
Cape Town***

**DECLARATION**

I, Karen R. N. Giva, hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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## LIST OF ABBREVIATIONS

<b>CINAHL</b>	Cumulative Index to Nursing and Allied Health Literature
<b>MEDLINE</b>	Medical Literature Analysis and Retrieval System Online
<b>OSCE</b>	Objective Structured Clinical Examination
<b>PBL</b>	Problem-based learning
<b>UK</b>	United Kingdom
<b>UKZN</b>	University of KwaZulu-Natal
<b>USA</b>	United States of America
<b>WHO</b>	World Health Organisation

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## **DEFINITION OF KEY TERMS**

Key concepts that have been used in a study should be defined in order to promote the reader's understanding of the report (Polit & Beck, 2012:52). Below is a list of key terms and their definitions as they were used in this study.

### **Critical success factors:**

Those factors in the nursing college under study that appeared to have determined to a greater extent the success of the implementation of the PBL programme, where it was perceived that their absence would have denied such success. These factors however, may not be regarded as priority factors such as availability of funding and human resource in programmes involving major changes to a school programme.

### **Academic staff / facilitators / nurse educator / teachers:**

These terms are used interchangeably here, but the literature defines them differently, as follows:

**Academic staff:** The teaching staff, whose duties include teaching and facilitating in PBL groups, and conducting clinical supervision of students.

**Facilitator:** A member of faculty who guides students' learning, in the context of PBL (Savin-Baden & Major 2004:177).

**Teacher:** A person whose job is to instruct others (Certified Nurse Educator, 2012:1).

**Nurse educator:** A registered nurse who is involved with the job of education of student nurses. She or he provides guidance and ways of learning to student nurses (Certified Nurse Educator, 2012:2).

### **Leadership and management:**

These are those academic staff that hold managerial positions and the general administrative staff of an educational institution.

### **Problem-based learning (PBL):**

An instructional method in which students work collaboratively in small groups to solve ill-structured problems based on real-life situations. Teachers take the role of facilitators, students identify learning goals and complete necessary research to learn the material, identify and evaluate the solutions. Emphasis is put on learning, and learning is basically self-directed (Moore 2009:7).

## **ABSTRACT**

Problem-based learning (PBL) is a teaching and learning approach that is known to facilitate life-long learning, problem solving, self-directed learning, critical thinking skills and student motivation (Hung, Jonassen & Liu 2006:486; Ehrenberg & Haggblom 2007:67). It is also renowned for the promotion and integration of knowledge. PBL was introduced in Malawian nursing education six years ago; however, its implementation apparently has been very slow throughout the country.

The primary purpose of this study was to explore, analyse and describe characteristics that facilitated implementation of PBL in the identified college as a case study. The secondary purpose was to utilise the data gathered from the identified college as a case study to identify a set of critical factors that could guide implementation of PBL in nursing education in Malawi.

This was an exploratory and descriptive qualitative case study using an ethnographic approach and guided by the theoretical framework of sociotechnical systems. Purposive sampling technique was employed to select the college, nine participants and documents for review. Three data sources were utilised: semi-structured interviews, participant observation and document reviews.

Ethnographic data analysis was done following the four steps of data analysis as described by Spradley (1979), and trustworthiness was ensured utilising the criteria proposed by Lincoln and Guba. Four themes emerged as characteristics that enhanced implementation of PBL: having a goal to achieve, resources for the organisation, influence on the organisation, and critical success factors. These four themes had the following subthemes and categories: (i) having a goal - subthemes were; producing life-long learners, review of the curriculum, gradual introduction of PBL and embracing the PBL. (ii) Resources for the organisation – subthemes were; committed management and leadership, skills development of staff, having staff with the same values, additional staff, having technological and material resources, and staff knowledge of the curriculum. (iii) Influences on the organisation – subthemes were; social influence, economic influence and political influence. (iv) Critical success factors – subthemes were; staff involvement in planning and communication, motivation and commitment of staff, collaboration with other colleges and organisations, and recognition of the need for change.

It is recommended that all colleges that intend to implement PBL should first determine and communicate the need for this with all those who will be responsible for the implementation. This will enable them to gain their support and make it a success. Those who intend to implement PBL should seek support from government and other stakeholders to ensure successful implementation of PBL programmes in nursing colleges.

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## **CHAPTER ONE BACKGROUND TO THE STUDY**

### **1.1 Introduction**

Problem-based learning (PBL) has been used as a learning strategy for about five decades in different medical educational institutions such as McMaster University in Canada, University of Maastricht in the Netherlands, the University of Delaware in the United States of America (USA), in Europe and other places. It has gained a lot of popularity and support over the years since its inception at McMaster University in the 1960s, where it was introduced by Howard Barrows (Savin-Baden & Major 2004; Barrows 2000: ix). Although it was originally introduced into medical schools, PBL has also been adapted by other professions including the nursing profession. PBL has since been extensively developed in secondary as well as primary education systems (Badeau 2010:244; Archike & Nain 2005: 191; Wood 2004:21; Barrows 2000: vii).

According to Barrows (2000:iii) PBL is both a process and a curriculum, as students work with carefully selected and designed problems that stimulate them to acquire skills in critical thinking, knowledge, problem solving, self-directed learning, and team participation. The process involves a reiteration of the commonly used systematic problem-solving approach that prepares the student for life-long learning and the challenges of having to deal with routine patient problems later in life as a professional person. PBL is not an instructional method as it is with conventional methods of instruction such as the lecture method, which is teacher-centred, where the teacher gives all the information to students. Instead it is a process of self-directed learning which is student-centred and an effective approach to the learning process. PBL is a philosophy, a curriculum and an educational strategy (Ali & El Sebai 2010:192; Savin-Baden & Major 2004:3).

Effectiveness of the innovative PBL in problem-solving, self-directed learning, critical thinking skills and student motivation has been widely observed, researched and reported in medical and nursing education and other professions (Sangestani & Khatiban 2012:4; Hung *et al.* 2006:486; Ehrenberg & Haggblom 2006:67; Hwang & Kim 2006:316). Most of these studies were conducted in Western and Eastern countries and some in Africa. One such study in Africa was conducted in South Africa to describe and evaluate the outcomes of PBL programmes in nursing schools by comparing problem-solving competency in two groups of student nurses. The results showed that the student nurses from the PBL background performed better on problem-solving ability than their colleagues from a non-PBL background (Uys, Van Rhyn, Gwele, McInerney & Tanga 2004:508).

Although PBL was only introduced in nursing education in Malawi in 2006, literature that was reviewed revealed no studies on PBL and its implementation that have been published in Malawi (the researcher's country of origin). It is imperative to identify the nursing institutions that have implemented PBL in Malawi and to determine what factors influenced this.

## **1.2 Background to the study**

Malawi is a small, landlocked Eastern African country situated in the tropical areas of Africa. It occupies a land area of approximately 119 310 km<sup>2</sup>, of which 24 410 km<sup>2</sup> are Lakes Malawi, Malombe and Chilwa. From north to south Malawi is 901 km long and varies in width from 80 to 160 km. The country has three regions: southern, central and northern. It is bounded to the east and south-west by Mozambique, to the north-west by Zambia, and to the north by Tanzania. The country is densely populated and has an estimated population of over 13 900 000 people, with most living in the rural areas. The country's main source of economy is agriculture (National Statistics Office & ORC Macro 2005:3)

Reports by the World Health Organisation (WHO) indicate a global health worker scarcity. Most serious health worker shortages occur in sub-Saharan Africa, and the worst shortages are reported as occurring in Malawi (Mangham 2007:2). Although the shortage has affected all cadres of health personnel, the worst hit is the nursing cadre (WHO 2008:2).

The above reports indicate that the majority of the population, based in the rural communities in Malawi, have even less access to health workers. They also highlight the fact that the nurses work independently with very minimal support from doctors and senior nurse managers to supervise them, because in practice there are very few or no nurse managers available as supervisors. The Malawian study by Manafa, McAuliffe, Maseko, Bowie, MacLachlan and Normand (2009:8) reported that "Managers openly admitted to being unable to conduct supervision because of heavy workloads." The nurses in rural areas were reported to work without doctors.

Working under such conditions in Malawi requires nurses who are innovative critical thinkers, excellent in clinical decision making and clinical judgement – nurses who can competently and independently discharge their duties in nursing and midwifery service provision. The increasingly changing health care delivery systems in Malawi and worldwide demand capable, nurses who can think critically. Nurses who are empowered to achieve their work objectives as well those of the health organisations in a manner that will leave the recipients of their services satisfied and safe (Keating & Gabb 2005:3; Barrows 1985:3). As such, nurse educators should work towards the main

goal of producing nurses who are able to practice in ever-changing and challenging environments. Such nurses should be able to search for and acquire the necessary knowledge on their own. The nurses should be able to utilise that knowledge in the management of patients and to advance that knowledge so that it can be applied in upcoming situations (Keating & Gabb 2005:3; Barrows 1985:3). The use of educational strategies such as PBL prepares the neophyte nurses with skills such as critical and reflective thinking as well as problem-solving abilities (Worrell & Profetto-McGrath 2007:420; Kuiper & Pesut 2004:382). PBL confronts the student with real-life situations, which results in stimulating him or her to become an active participant in his/her own learning rather than a recipient of information which he/she might sometimes not even understand (Gabr & Mohamed 2011:154). The PBL approach is a tool that allows the student to learn to relate theory to practice, and it prepares the student nurse for practice (Keating & Gabb 2005:3; Barret 2005:60).

In an effort to rise above the acute nursing human resource shortage, the Government of Malawi embarked on a series of activities and programmes to improve the pre-service education in health care (Mangham 2007:2). This agenda was undertaken in partnership with the Royal Norwegian Embassy and Norwegian Church Aid (Martinez Fielding & Chirwa 2008:9; Mangham 2007:2). Some of the activities were geared towards improving the quality of the product that the nursing colleges would produce by improving instructional strategies while also promoting the nurses' autonomy in learning.

### **1.3 Introduction of PBL in Malawi's nursing education system**

Problem-based learning was first introduced in African Universities around the late 1980s. The University of Transkei Medical School was one of the first institutions to introduce PBL into their curriculum in 1989 (Kwizera, Igumbor & Mazwai, 2005: 920).

PBL was introduced in the nursing colleges of Malawi six years ago to improve the nursing educational system in the country. The preparation for PBL implementation was done in phases. The first phase was the training of nurse educators in PBL, which was conducted by Norwegian and Malawian nurse educators in every region throughout the country. Preparation for the training was in the form of workshops where the concept of PBL was introduced to nurse educators. The information was also passed on in other workshops which involved nurse educators and clinical nurses (Chalanda 2008: 8; Norwegian Church Aid 2007:9). The second phase of training involved training of trainers and curriculum development. This was the Modified PBL curriculum, a modification of the original PBL (the McMaster model) that does not utilise a full PBL curriculum (Savin-Baden & Major 2004:35; Wu & Zhou 2006).

#### **1.4 Problem statement**

The Government of Malawi in collaboration with the Royal Norwegian Embassy and Norwegian Church Aid invested large amounts of financial resources into the nursing pre-service learning programme to ensure the successful implementation of PBL in the nursing colleges (Martinez *et al.* 2008:23). Different strategies which were reported to enhance successful implementation of PBL elsewhere, including at McMaster University (Barrows 2000:46) and the University of KwaZulu-Natal (UKZN) (Gwele 1997:8) were put into place (Martinez *et al.* 2008:20; Norwegian Church Aid 2007:23). Such strategies as recruitment of academic staff, deployment of staff under government support (salary and allowances) to nursing colleges and organisation of training sessions in PBL as a learning strategy were put in place. Nurse educators were granted opportunities to visit institutions that had already established successful PBL programmes such as the Vestfold University College and Haugesund University College in Norway. Renovations of the infrastructure were conducted as follows; library extensions, skills laboratory expansion, old large classrooms were transformed into computer rooms. The supply of teaching and learning resources such as books, computers, the Internet and models in the skills laboratories for all Malawian colleges of nursing (Martinez *et al.* 2008:20; Norwegian Church Aid 2007:23).

Despite all of these mechanisms necessary to ensure successful implementation of PBL being put in place, reports showed that not all colleges have implemented PBL. The minutes of the regional meetings and PBL workshop for nursing colleges reported that only one nursing college has implemented PBL since 2008 (Chalanda 2008:8), all the other twelve nursing colleges have not yet implemented PBL.

It therefore became imperative to investigate what the one college did in order to be able to implement PBL. Hence the researcher, a nurse educator at one of the colleges which have not yet implemented PBL, in the southern region of Malawi, identified the need to investigate the identified college as a case study. Such a study would help to understand what the identified college has done in order to implement PBL and to identify a set of critical success factors that enhanced the implementation that could guide the implementation of PBL in nursing education in Malawi.

#### **1.5 Research question**

This study attempted to answer the question; what did the college that implemented problem-based learning in its curriculum do in order to be able to implement the learning strategy?

## **1.6 Purpose of the study**

The primary purpose of this study was to explore, analyse and describe the characteristics which enhanced the implementation of PBL in the identified college as a case study.

The secondary purpose was to utilise the data gathered to identify a set of critical success factors that enhance PBL implementation that could guide the implementation of PBL in nursing education in Malawi.

### **1.6.1 The study objectives**

The study objectives were to explore and describe the factors that facilitated the implementation of PBL in the case study college. The four characteristics of the school as a sociotechnical organisational system within the theoretical framework (see Figure 1 in Chapter 3 pg 27) were utilised as follows:

**1.6.1.1** To explore the goals that were identified by the college to facilitate the implementation of PBL.

**1.6.1.2** To describe the resources of the organisation that facilitated the implementation of PBL.

**1.6.1.3** To analyse the factors related to sources of students that facilitated the implementation of PBL.

**1.6.1.4** To describe the influence of the external system of the organisation that facilitated the implementation of PBL.

**1.6.1.5** To identify a set of critical factors that enhances PBL implementation that could guide the implementation of PBL in nursing education in Malawi.

## **1.7 The study setting**

Study setting is the physical location and conditions under which data collection take place (Polit & Beck 2008:766). The study setting for this study was the college that was used as a case study. This college offers Bachelor's degree in Nursing and Midwifery (integrated programme), Master's degree in Midwifery, Master's degree in Community Health Nursing, Master's degree in Nursing Education, and Master's degree in Child Health which is run in collaboration with University of Cape Town. The college operates on two campuses: the main campus is in the central region of Malawi and the second campus is in the southern region of the country, which was the study setting.

The college has a capacity of about 300 students, about 250 of whom are undergraduates and 50 postgraduates, with a population of about 20 lecturers.

The study only involved the undergraduate programme, although PBL was also introduced in the postgraduate programme. The selection of one campus of the same college and one nursing education programme from among both undergraduate and postgraduate programmes within the same college helped the researcher to set the boundaries and focus of the study. This is supported by Baxter and Jack (2008:547-548), who suggest that there is a need to set boundaries for a case study to avoid an unreasonably wide scope that may cause disorder to the progress of the study.

### **1.8 Significance of the study**

The current study is significant to all nurse educators, stakeholders and policy makers in the health care service in Malawi. The findings of the study highlight the characteristics and critical factors that enhance implementation of problem-based learning in the case study college of nursing in Malawi

The results from this study will be used to influence the other nursing colleges that have not yet implemented PBL to evaluate their own programmes and identify areas in which they can improve and also have successful PBL programmes.

The results of the study will influence those colleges that are planning to implement PBL to partner with the case study college in order to learn from them how they have managed to implement the PBL programme. These results will also be utilised by the researcher to make recommendations to the nursing education planners in Malawi (i.e. MOH, Nurses' and Midwives' Council of Malawi) regarding the areas that they need to get involved with in order to achieve country-wide success in implementation of PBL in all the nursing colleges of Malawi.

The findings of the study will also be a basis for further research in Malawi on the topic of problem-based learning.

Finally when the above activities have been achieved , these results will contribute to the overall improvement in nursing education in Malawi.

### **1.9 Outline of the dissertation**

**Chapter 1** presents the introduction of problem-based learning to nursing education in Malawi.

**Chapter 2** addresses the review of the literature related to the PBL strategy. It gives an overview of the PBL strategy, the rationale for its use in medicine and in nursing education. It also includes studies done on PBL and a description of enablers and barriers to PBL implementation.

**Chapter 3** presents the sociotechnical theoretical framework that guided this study.

**Chapter 4** presents a detailed methodology of this study and also gives a description of the process of data analysis.

**Chapter 5** presents the findings of the study.

**Chapter 6** includes discussion of the results, recommendations and conclusion.

University of Cape Town

## CHAPTER TWO LITERATURE REVIEW

### 2.1 Introduction

This chapter presents the literature that was reviewed during the whole research process, including proposal development, data analysis and discussion of data. It addresses an overview of PBL as a teaching and learning strategy which includes; the definition of PBL, theoretical bases of PBL and the different models of PBL. It also outlines the rationale for the adoption of PBL in medical and nursing education. Studies that have been conducted on the effectiveness of PBL and its implementation in different countries of the world and Africa have also been discussed. The chapter concludes with a description of the factors that enable and those that hinder the implementation of problem-based learning.

The review of literature before commencement of data collection in qualitative studies has been widely debated, with the view that it may amplify the risk of bias on the part of the researcher (Polit & Beck 2012:61). Spradley states that the ethnographer goes into the research field with almost total ignorance about the culture that is to be studied (Spradley 1979:4). However, Johnston (2007:67) argues that the researcher requires some direction on the subject of the phenomenon under study as a guide, for him or her to have an idea of the type of questions that need to be asked. This concurs with Brink, Van der Walt and Van Rensburg (2012:72) who state that in ethnographic studies literature review is performed early, before collection of data, to provide the researcher with a general understanding of the background of the culture that is to be studied.

In the current study a literature review was conducted prior to data collection for background information (Notar & Cole 2010:2; Johnston 2007:64). The literature review was also conducted to inform the researcher about the phenomenon under study and the work that has been done in Malawi. It was also done to learn about factors that enhanced and those that barred the implementation of PBL in other countries. Undertaking a literature review prior to data collection also assisted the researcher to identify existing theories that related to the phenomenon of PBL implementation in the school setting, and this knowledge facilitated the selection of the theoretical framework that guided the current study (Johnston 2007:62). Literature review was repeated during and after data analysis to compare the findings of the current study with those of previous studies.

Electronic data bases such as MEDLINE, Google scholar, Africa Wide Information, CINHALL, and Eric via Ebscohost were used to search for relevant literature. Additional information from printed material

such as books, printed journals and reports from workshops and meetings was also accessed. Search terms used included problem-based learning (PBL), hybrid PBL, full curriculum PBL, innovative curriculum, PBL facilitation, enhancers and barriers to PBL implementation.

## **2.2 Overview of the PBL strategy**

### **2.2.1 Problem-Based Learning Defined**

Problem-based learning is a student centred approach to learning that enables students to work cooperatively in small groups to seek solutions to problems; students learn through facilitated problem-solving (Yuan et al, 2008:70). Kwan, (2000:1) calls PBL; “a partnership and bonding in learning” this gives a practical description of PBL. As students work in groups, they form partnerships for the purpose of learning. Savin-Baden and Major, (2004:3) define PBL as an ideology that is based in the tradition of experiential learning that can be adopted through modules across semesters or throughout curriculum learning. Students work in small groups of 6-8 to find solutions to daily life problems in their profession guided by a facilitator.

The basic feature in PBL is that learning starts with an ill structured problem, to which learners seek solutions in groups, (Jones, 2006:486). Throughout the PBL process, learners work towards the understanding and resolution of that problem (Parton & Bailey, 2008:241).

### **2.2.2 Theoretical bases and goals of problem-based learning**

Studies have indicated that problem-based learning has an advantage over traditional teaching and learning methods such as the lecture method. PBL utilises such mechanisms as; information processing, activation of previous knowledge and collaborative learning (Moore, 2006:13). This supports the theoretical bases as well as the goals of PBL.

PBL curriculum is considered as a constructivist approach to learning (Lai & Tang, 2000:1). The constructivist theory views knowledge as being constructed by the learner based on previous knowledge, and the experiences in his world. Knowledge is believed to be attained when the learner is actively involved and the learning occurs in real-life environment. The notion of active learning was proposed by John Dewey (1916) whose recommendations supported the use of experiential learning and involvement with the environment for learning to take place (Kangethe, Nafukho & Mutema, 2000:3). In experiential learning, students are cognitively stimulated to process information and are able to retrieve previous knowledge in order to find solutions to problems as new knowledge is processed (Moore, 2006:13). This also agrees with the theory of information processing where

learners learn by restructuring the information that they already know within a practical environment, gain new information and then expand that information through discussions with others (Kilroy, 2004:411).

This is also in line with the principles of learning and PBL goals. The learning process ought to involve student activity which results in the stimulation of the cognitive processes in the student (Dolmans, De Grave, Wolfhagen & Van der Vleuten, 2005:732). PBL also aims at producing learners who are able to create a knowledge base derived from the interaction with the learning environment. Learners that can effectively collaborate with their peers, who are self-directed life-long learners and those that are intrinsically motivated (Hmelo-Silver, 2004: 240). In PBL students think critically, they are able to identify own learning needs and use appropriate learning resources, to solve the problems that they encounter; these they achieve through questioning (Duch, Groh & Allen, 2001: 6).

Problem-based learning students also learn through collaboration. Students are mutually dependent, they work towards solutions to a shared problem and they share responsibilities within the group (Dolmans, De Grave, Wolfhagen & Van der Vleuten, 2005:732). In collaborative learning student learning is promoted as each student shares the portion that he or she has understood, then information is elaborated through discussion, (Moore 2006: 15). When PBL working groups are well organised, they act as a motivator for the students. The student hopes to get answers to questions from group members which they cannot answer on their own (Dolmans, De Grave, Wolfhagen & Van der Vleuten, 2005: 734). Collaborative learning is associated with the philosophy of integration. Apart from developing self-directed learning, students also become skilled at group dynamics. They learn to accept and respect group members' ideas (Cassidy, 2005:2). As they develop these qualities students are likely to develop respect and understanding towards their patients, (Moore, 2006: 17).

The PBL students therefore, learn by building new knowledge through interactions with the environment and retrieval of previous knowledge. As they develop a questioning mind and critiquing any new knowledge that they may acquire, then learning takes place, (Savin-Baden & Major, 2004:11).

### **2.2.3 Models of PBL curriculum**

Originally PBL was designed to be implemented as a full curriculum (the original PBL or the McMaster model), in that all instruction was supposed to be done using pure PBL, but this is not so at present. However, the pioneers of the PBL strategy have indicated that, the different types of PBL curricula

can be employed as long as they remain student centred and not teacher centred (Butler et al, 2005:194, Savin-Baden & Major, 2004:5). In recognition of this situation, Barrows (1986) (as quoted by Savin-Baden & Major, 2004:5) suggested that the name problem-based learning should be considered as a genus with different species. He calls these species; varieties in approach to problem based learning. Different varieties or adaptations to the original PBL model have been made.

The adaptations of the original PBL (the McMaster model) do not utilise a full PBL curriculum, and these are known as 'hybrid PBL'. These models which Barrows called approaches, might be adapted by those institutions which intend to implement PBL in their curricula depending on unique situations in their settings (Savin-Baden & Major 2004:35). Such situations as lack of availability of adequate numbers of willing personnel to utilise the PBL strategy, background of the students. In cases where the students have come from a traditional background, PBL has been introduced gradually to students. In such cases the PBL is utilised alongside other teaching methods (Savin-Baden & Major 2004:35).

According to Savin-Baden (2003:341) these models of PBL curricula are not necessarily models but they are the practical approaches that are being implemented in a wide range of institutions and are working quite well. Five of these approaches were identified in the literature review and are described below. These are the single-module approach, PBL on a shoestring approach, the funnel approach, foundational approach and two-strand approach (Savin Baden & Major 2004: 43).

**The single-module approach** is utilised when the lecturer wants to increase the students' learning and improve their critical thinking abilities; this model of PBL is applied once in a semester, and usually at the end of the semester.

**PBL on a shoestring** is usually utilised when there is resistance to PBL implementation or lack of resources, and is undertaken by only the staff who are interested in PBL. These results in some modules being PBL-based while others use the conventional methods therefore the problems that the students work with are basically subject or discipline-based. The teacher may give supporting lectures to guide the learning. However, this model carries the risk of staff frustrations where there is no support from colleagues.

**The funnel approach** is when students are allowed to move from the familiar lecture method to PBL within the same programme. For example, it could be agreed upon by members of a department to teach students using the lecture method in first year, and then progress to PBL in the second and

third years. The rationale for using the funnel model is the provision of foundational knowledge and principles to students before engaging in PBL, tutors' lack of confidence to facilitate PBL groups, and the tutors' consideration of students' different backgrounds where some students may find PBL very difficult, especially those from a traditional background. The tutors' caring spirit might also make them believe that their support through lectures will help the student understand PBL better. The teachers must, however, work towards preparing the students for PBL.

**The foundational model** is similar to the funnel approach. As in the funnel approach, students are taught using the lecture method in the first year and then PBL is utilised in the second and third years of the programme. However, unlike in the funnel approach (where all the time students are being prepared for PBL), in the foundational approach the lecturers believe that some knowledge is foundational and students must have it taught to them. They also believe that such knowledge might later be viewed as formulae for problem solving. So when students commence the second year, when the PBL is introduced to them and some group dynamics are discussed, they are given problem scenarios to solve based on knowledge attained in previous lecture classes (Savin-Baden & Major 2004:39).

**The two-strand approach** is an integrated approach involving students utilising PBL throughout the programme right from first year to the final year. The curriculum is designed in such a way that all the courses are integrated and are presented to students in the form of problems to be solved over the years in the programme. Students are presented with problem one, problem two and so on until they finish the course. Students are prepared by the teachers explaining the programme to them and also the group activities. Assessments are conducted using multiple-choice questions and other examinations to assess the students' learning. This is utilised in a full PBL curriculum programme.

The above descriptions show that PBL can be approached and implemented differently, according to different situations in which institutions find themselves. The fundamental feature is that there should always be a set of problems for the students to solve. When planning the PBL curriculum the planners should ensure that problem scenarios are central to the curriculum. Caution is advised not to convert a content-planned curriculum into a PBL curriculum, because this can be disastrous (Savin-Baden & Major 2004:45).

PBL has become very popular in some countries like America, Australia, the United Kingdom and Canada. It is reported that prospective students prefer to look for institutions where the PBL curriculum is offered. At least 74% of academics in Australia are reported to be using PBL, and many

educational settings in the United Kingdom and across the borders have also adopted the strategy (Wood 2006:34; McInnis 2000:145). Some African medical and nursing colleges, including Makerere University in Uganda, Moi University in Kenya and UKZN in South Africa have also testified to be utilising the PBL strategy in their curriculum (Dahms & Stentoft 2008; Kiguli-Malwadde *et al.* 2006:127; Iputo & Kwizera 2005:388; Barrows 2000: ix; Gwele 1997:8-11).

There are varying driving forces for the implementation of PBL in the different institutions however, the basic reasons are similar for most institutions. Such as demands made by stakeholders of educational systems and dissatisfaction of teachers with students' learning practices.

### **2.3 Rationale for the implementation of problem-based learning in medical education**

Medical education has a long history of using the traditional teaching and learning methods. For many years students were exposed to lecture method as the basic teaching method. Over the years studies and reviews coupled with experience exposed some limitations of the lecture method (Irby, Cooke & O'Brien, 2010:220; Allen, Duch, Groh, Watson & White, 2003:1). Several factors prompted the change in medical education and this change was initiated in the United States of America (USA). Student instruction began to move from the traditional teaching methods to student active learning methods. Medical education desired to produce graduates who would take responsibility for their own learning, apply theory to practice and be able to give rationales for their actions.

Having identified the need for educational excellence and scientific rigour, the Carnegie Foundation for the Advancement of Teaching organised a movement for educational reforms in medical education in 1910. A survey was conducted on all medical schools in America. The recommendations that arose from that survey included the introduction of teaching methods that would stimulate the student to develop an inquiring mind in solving clinical problems (Irby, Cooke & O'Brien, 2010: 221). A report that was similar to the one made by the Carnegie Foundation for the Advancement of Teaching was the Report of the Panel on the General Professional Education of the Physician and College Preparation for Medicine (the GEP Report). This report recommended promotion of independent learning and problem solving, reduction of lecture time, flexibility to timetables (to accommodate students' self-learning) and the ability of students to evaluate self (Barrows, 1996:3). The American Association for Science Advancement also made calls for medical education reforms which led to many medical schools changing their curricula to student-based curricula as opposed to the teacher based ones, (Allen, Duch, Groh, Watson & White, 2003:1).

In addition to these reports, medical educators identified some weaknesses in the conventional teaching methods such as the lecture method. Due to the knowledge explosion students were being given too much information during lectures. This had such negative results as students began to view lectures as being boring. The other limitation was that student learning was shallow as it was mainly rote learning resulting in short-term retention of information. Students demonstrated an inability to apply theory to practice, they could not apply the basic sciences from the classroom to the clinical area or it was being done incorrectly. Educators observed that students were just passive recipients of knowledge (Allen, Duch, Groh, Watson & White, 2003: 2). Results from other studies done on student learning revealed that knowledge could be achieved by finding solutions to problems. Educators began to appreciate that students could learn through questioning and collaboration within the social context (Savin-Baden & Major, 2004:10). Change did not only result from the reports and teaching experiences, but from the changes in the social system as well.

The global health care system has undergone a lot of changes in recent years; such changes as the focus on primary care, disease prevention and patient-centered approach to health care. There have been rapidly changing trends in health care regarding attitudes and practices that have also necessitated the development of innovative curricula. The recipients of health care services are demanding their health rights and are seeking for accountability for any commissions and omissions from the care providers (Nair & Webster, 2010:856; Badeau, 2010:244).

All these factors prompted educators to identify learning approaches that would actively involve students in their own learning. Learning methods that would motivate students, and promote long-term retention of information that could be retrieved whenever it was required, (Lai, Tang, 2000:2, Irby, Cooke & O'Brien, 2010:221; Huichun & Henriksen, 2010:1). Problem-based learning was viewed as the ideal strategy to meet the new goals of medical education (Allen, Duch, Groh, Watson & White, 2003:1).

### **2.3.1 Why nursing education needs problem-based learning**

Nursing education programmes have for a long time been hospital-based. The educators have utilised the traditional teacher-centred teaching and learning methods, where the teacher was the custodian of knowledge (Richie & Nugent, 2010:228; Beachy, 2007:1498, Savin-Baden & Major, 2004, Shakravati, 2009). Nursing education programmes moved from the apprenticeship hospital-based model to institutions of higher learning. This move brought with it demands on the educators to produce a graduate who is independent, efficient, capable of looking at problems critically and

examining them and searching for solutions. In order to meet these goals, there has been a need to identify appropriate learning strategies, such as the problem-based learning, (Rich & Nugent, 2010:228).

Morales-Mann and Kaitell (2001:14) report that the implementation of PBL at the School of Nursing at the University of Ottawa was also initiated after the need for the students to develop good communication, critical thinking and problem-solving skills was identified. After identifying these needs they revisited the goals for the undergraduate curriculum, and the characteristics of the graduate that the nursing school wanted to produce. That motivated the staff to seek instructional methods that would enable them to accomplish their desired goals. Driven by these identified needs they embarked on a PBL programme which was introduced in the second-year group of students. Similarly, the nursing and midwifery programmes at the University of Dundee changed from a traditional to the PBL curriculum. They reported that the old curriculum did not promote critical thinking in students and that students were unable to integrate theory with practice. The faculty decided on addressing the lack of critical thinking and to meet the demands forced upon the nursing education and to change in response to the knowledge explosion. They also wanted to respond to the demands made on the student nurse by changing global health care needs (Savin-Baden & Murray 2000:109).

Nursing profession does not function in isolation; it functions in the milieu of the multidisciplinary medical team. As such nursing as a profession is required to keep pace with all members of its professional team. With the indisputable rapidly changing developments and the inevitably increasing knowledge in the medical field, the educators in nursing identified the need for the professional nurse to be a critical thinker. This skill would enable him or her to function in harmony with the other members of the medical professional team, (Yuan, Kunaviktikul, Klunklin, & Williams, 2008).

Different institutions including those of nursing education have been implementing PBL and others are still in the process of initiating the implementation. A variety of factors have been observed as enabling the successful implementation of PBL while others are seen as barring its successful implementation, (Vahidi, Azamian & Valizadeh, 2007:193). Some of these factors will be discussed in the following paragraphs. However, first to be presented will be a few of those studies that have been conducted to evaluate the effectiveness of problem-based learning on students' learning to show why institutions concluded that PBL is an ideal approach to improve student learning.

#### **2.4 Studies conducted on the effectiveness of problem-based learning**

The literature review highlighted the effectiveness of PBL in many instances. It showed that PBL improves students' motivation, critical thinking skills and self-directed learning. PBL is also reported to enhance the skills of independent study, reasoning, group interaction, active participation and help students attain long-term learning, (Tseng *et al.* 2011 :41; Hwang & Kim 2006).

A quasi-experimental pre-test and post-test study was conducted on a group of Chinese nursing students to test the effect of PBL on critical thinking. The randomly selected experimental and control groups were exposed to a one-semester course in introduction to nursing. The experimental group was taught using PBL, while the control group was taught using the lecture method. The Chinese-Taiwanese version of the California Critical Thinking Skills Test Form was used to test critical thinking. There was no significant difference in critical thinking skills between the two groups. However, the post-test results showed a greater improvement in critical thinking skills in the PBL group of students than their counterparts in the lecture group. It was concluded that PBL fosters nursing students' critical thinking (Hwang & Kim 2006).

While evidence has shown that PBL promotes students' critical thinking skills, some critics believe that it still does not solve most of the problems of the professional nurse. For instance, Tylee (1992:5) argues that although PBL by its nature promotes problem-solving skills and critical thinking in patient situations, it ill-prepares students for future changes in the profession. Nursing as a profession is based on scientific knowledge and is very dynamic. The professional nurse is expected to make contributions to the ever-changing situation in her field, which PBL preparation fails to address in the student. The orientation in PBL is narrow and linear instead of looking at the broad aspect of practice within which the graduate nurse is going to function. It was further argued that although PBL might assist students in solving clinical problems it does not necessarily improve the quality of care that is given to the patients, (Kilroy, 2004:413).

In contrast to the above arguments, Conway and Little (2000:4) claim that a PBL curriculum that is well planned and organised can address all areas of the profession including student attitudes. They suggest that professional practice situations should drive the development of the PBL curriculum. The problems and scenarios that are prepared in the curriculum should emerge from the profession's conceptual framework. For instance, in the nursing curriculum, situations that are life-threatening or preventative measures in health care situations may be selected to guide the choice of scenarios to

be included in the curriculum. PBL scenarios can also address issues of attitude as well as quality of care, from which students can learn and improve on the quality of care (Conway & Little 2000:4).

The effectiveness of PBL on various facets of self-directed learning including motivation and learning strategies with traditional teaching methods was compared by Chakravarthi, Paul and Vijayan (2009: 66). Subjects were randomly selected to this quasi-experimental pre-test, post-test study; the subjects were phase 1 Bachelor of Medicine Bachelor of Surgery (MBBS) students. The PBL group was the experimental group while the lecture group was the control group. The Motivated Strategies for Learning Questionnaire was administered pre- and post-instruction on reproductive system and haematology topics. The results showed that PBL promotes motivational beliefs and self-directed learning strategies in students. However, it did not affect control of learning beliefs, self-efficacy for learning and test anxiety. Although PBL was reported to promote student motivation, self-directed learning and critical thinking it was observed that PBL students had difficulties in solving basic science problems (Chakravarthi, Paul & Vijayan 2009: 66).

The effectiveness of PBL has been seen through many different studies, this has been a motivation for educational institutions to implement PBL in their own programmes.

### **2.5 Implementation of problem-based learning in different universities**

The Victoria University in Australia implemented a PBL programme. Apart from a response to the call for medical education reforms, the staff also saw the need for the change. They were dissatisfied with student learning that was achieved through lectures. Students learned through memorisation of information. They had problems recalling information that they had gained at the beginning of the semester in the end of semester examinations. Students were unable to relate theory to practice but they also demonstrated no motivation for their work, (Huichun & Henriksen, 2010:1).

The change to PBL was initiated from the management going down. The vice chancellor communicated the decision to implement PBL to the staff and it was to be initiated within six months of the announcement. The staff devised a programme in collaboration with their colleagues from Central Queensland University, Aalborg University and other outside partners who had already implemented PBL in their curricula. They held a series of workshops and staff training programmes in PBL which were ongoing. Large sums of money were invested by the university into restructuring the infrastructure to accommodate students' small group discussions for PBL. They developed a hybrid

curriculum which was implemented alongside lectures. Students were reported to have been utilising information from the lectures to solve problems depending on the unit of study.

According to Huichun & Henriksen, (2010:4) factors that facilitated the PBL implementation included the enthusiastic involvement of the top management staff; the vice chancellor, deans of faculties and heads of departments. These members motivated and mobilised the rest of the staff during the implementation process. Ongoing workshops and seminars and staff training kept the staff updated and motivated. The benefit from the employment of other institutions was very significant to the success of the programme since staff were able to observe the facilitation, problem formulation from their colleagues who had experience in PBL. Staff who were involved with the implementation were obvious candidates for promotion and this was a motivation that positively impacted the implementation process. In the face of all these positives aspects to the implementation, the university also experienced some challenges (Huichun & Henriksen, 2010:4).

Most staff received the news of the change with reluctance. Reasons for the resistance included issues such as short preparation time for the initiation of the programme. There was a lot of resistance to change some members reported that they saw nothing wrong with the old lecture method. Some members were not prepared to give up their authority in the classroom where students would look to them as the only sources of information. The pedagogical argument was that PBL would not cover all the content, and that students would not be able to learn significant information on their own. The top down change process that the university used was also cited as one of the weaknesses because it was viewed as having short-term effects. In addition that type of change denied the implementing staff the chance to take ownership of the programme (Huichun & Henriksen, 2010:6).

The programme was initiated and eventually the willing members of staff continued with the implementation which eventually became a success (Huichun & Henriksen, 2010:7).

In response to the American Association for the Advancement of Science recommendations for medical education reforms, the University of Delaware adopted the original PBL model from McMaster University into their undergraduate programmes. Initially they had a workshop where staff were informed about PBL, how it works and its benefits and limitations. The workshop was reported to have been an eye opener that transformed participants' thinking towards student

learning. Teachers realised that with PBL students would be honest about the content that they knew as well as that which they did not, therefore creating opening for further learning. They understood that PBL helped students with long-term information retention and that students would become life-long learners. It was also perceived that cooperative learning would expose students to a variety of thinking and learning. All these factors were reported to have become motivation to the staff for the implementation (Allen, Duch, Groh, Watson & White, 2003:1).

After a series of workshops for which they had received funding a new PBL curriculum was developed for different programmes such as art history, business, nursing, agriculture. Staff embarked on the development of problem scenarios for students which they formulated cooperatively across the different departments. During facilitation sessions of large groups, they had an expert facilitator who was working with different groups of students. The use of what they called a “roving facilitator” one who would go round into the groups to see if students were working towards their objectives was made alongside the expert facilitator. The use of peer facilitation also proved to be beneficial. Students who had completed a module and had done well were being utilised to facilitate the junior groups of students. They also utilised faculty from other institutions to assist with the facilitation (Allen, Duch, Groh, Watson & White, 2003:1).

The initiation of the implementation did not go without challenges. They were faced with increased demands for teaching staff, and lack of infrastructure for small group meetings for students. The management of the university was supportive; they provided funding and renovated buildings to suit PBL requirements when students would work in groups before initiation of the programme.

According to Allen, Duch, Groh, Watson & White, (2003:8) success in the PBL implementation at the University of Delaware was enhanced by committed facilitators. He reports that they were prepared to give up their role of information provider and recognise their task of facilitation and brought it into play. Ongoing training with hands on experiences during training was a very important aspect to the implementation’s success. Availability of funding to run the programme promoted its accomplishment and management support of the programme was very also crucial to its success.

McMaster University in Canada embarked on the first PBL curriculum in 1969. Motivation for the change came from multifaceted issues. The educators had noted that they were giving too much content to students therefore; they sought other approaches to learning that would satisfy both

teachers and students. The other reason was that studies had shown that conventional methods inhibited students' clinical reasoning and that students had demonstrated short-term retention of information. Finally the calls for medical education reform, in particular the GEP report also put pressure on them to initiate the change (Barrows, 1996:3; Wood, 2004:22).

In his report Barrows (1996:8) and Barrows (2000:117) summarised the factors that promote the success of the PBL implementation in many places. He suggested that the leadership of the college, the dean of faculty that provides support to staff members or persuades them is a tool to the success. The availability of staff that are willing to go through with PBL also goes a long way in the success of the programme. When the clinicians are involved with PBL and are willing, students get adequate support and the programme is promoted. Another significant factor is visits that are made to those institutions which are already established in PBL implementation for both staff that are willing to follow through with PBL and those that are not. This Barrows asserts that has been seen to stimulate interest as these people observe the commitment and motivation of the staff from the other PBL established institutions.

In conclusion he says that once the PBL programme has been initiated it should be nurtured and be given a chance to expand (Barrows, 1996:8).

### **2.5.1 Problem-Based Learning Implementation in African Universities**

A problem-based learning programme was successfully implemented in the Faculty of Medicine at the University of Makerere in Uganda. The approach to the planning for the implementation of the programme was participatory. Several committees were formed that looked at a variety of aspects, such as the curriculum and the needs of the community by analysing the health status. Consultations were held with faculty and all stakeholders who included members of the community involved in curriculum review. Organised sensitisation workshops, core curriculum committee working retreats and training of tutors' workshops were held. The curriculum was aligned with the governmental changing policies to address the needs of the community. Visits to other universities who had already implemented PBL were conducted, including Kenya, New Mexico in the USA, the Netherlands and Australia (Kiguli-Malwadde *et al.* 2006:129).

Student feedback at Makerere University showed that they enjoyed learning using the PBL approach. The teachers, on the other hand, complained that they had lost their identity as educators. According to Kiguli-Malwadde *et al.* (2006:129) the implementation of PBL was successful because the students

learned to take charge of their own learning, to solve problems and developed skills that would enable them to address the health problems of the community and to be successful in the job market.

The success of the implementation of PBL in Makerere University was accredited to several factors, which include recognition of the need to change the curriculum, the realisation that they could not do it on their own (and thus sought the involvement of stakeholders in the planning), utilising their collaborators from other universities, planning in line with government health policies, training of teachers and the participatory approach, which provided ownership and student sensitisation (Kiguli-Malwadde *et al.* 2006:129).

The Department of Nursing at the University of Natal (now known as the University of KwaZulu-Natal (UKZN) after a merger with the University of Durban-Westville (S. E. Duma, personal communication, 12 January 2013), implemented a hybrid PBL programme in their nursing degree programme. The leaders in the implementation decided on strategies to make the change a success (Gwele 1997:2). They conducted bi-weekly meetings and workshops and lobbied with various stakeholders, where all members of the department were informed about the proposal. They involved staff in research work on PBL, and made visits to McMaster University to learn facts about PBL, such as its implementation, facilitation and assessment. They set up clear objectives and responsibilities for the nurse tutors in the PBL programme.

Eighteen months from the time of implementation a study was launched to monitor the progress of the proceedings, where facilitators were interviewed concerning their experiences. The findings showed that most facilitators complained that other members of the department did not provide them with adequate support; they did not show ownership of the programme as they did during the preparatory phase. Most of them felt that PBL was exciting as they observed students demonstrate self-directedness and academic growth within a short time (Gwele 1997:9-11). This is similar to what Heinrichs says in another report on PBL implementation, that both staff and students found PBL to be immediately relevant, interesting and motivating in comparison with the traditional methods (Heinrichs 2002:197). Gwele and the UKZN nursing study team concluded that apart from all the strategies used in preparation for the implementation of PBL, the most basic factor that led to the success of the implementation was the facilitators' commitment.

This report shows evidence that the leaders in the change process were committed, well organised and involved their members enough to motivate them and help them develop commitment.

## **2.6 Enablers to problem-based learning implementation**

The success of the implementation of PBL depends on several factors and in this text these are called enablers. Enablers are factors such as processes or procedures that facilitate or enhance the effective implementation of PBL (Edison & Murphy, 2011). The enablers include the role played by the facilitator, competent facilitation, involvement of management, commitment of the staff and collaboration with stakeholders (Wells *et al.* 2009:194; Kiguli-Malwadde *et al.* 2006:129; Gwele 1997:9-11).

Before the introduction of PBL, institutions are required to look at their objectives in relation to the outcomes of PBL, the need for the change from traditional methods to PBL, and their capabilities to make those changes. Resistance to change among the staff and students must be anticipated and be well managed. The resistance to change can be overcome by the manager's own positive attitude, good and effective communication, staff development, proper training of the staff in PBL and availability of resources (Otto 2011:2; Zaid, Zaid, Razzaq, Luqman & Moin 2010:441). The introduction of PBL into a programme should entail a change in the curriculum, and adoption of different roles and responsibilities by both teachers and students for successful implementation (Yeo 2005:542). The introduction of PBL in the programme involves a major conceptual shift from the teacher-centred traditional teaching paradigm to the learner-centred PBL paradigm (Savin-Baden & Wilkie 2004:103).

Communication is one of the fundamental instruments in bringing change in the organisation (Wallace 2007:8). Communication that is detailed and elaborate and the type which involves members of the staff from the planning phase has been found to be an important aspect in the successful implementation of PBL. It gives the members of staff ownership and instils commitment among them. Communication should include information such as details of what the forthcoming change entails, the identified problems which led to the need for the change, and objectives and anticipated problems. Staff should be well informed enough to develop an interest in and show commitment to the change (National Institute for Health and Clinical Excellence 2007:22; Victorian Quality Safety Council & Quality in Health 2006:3). Literature further showed that academic members who are well informed and involved in the implementation process are motivated and are

important in the successful implementation of PBL (Kiguli-Malwadde *et al.* 2006:129; Gwele 1997:9-11).

### **2.6.1 Facilitator preparation for PBL implementation**

Facilitator training is an outstanding attribute in PBL implementation (Barrows 2000:37). Literature showed that another important factor apart from training on facilitation is teachers' reactions to the changes brought about by PBL implementation. The personal goals and beliefs of the teachers lay a foundation for the strategies that they implement, and this must be considered during teacher preparation prior to PBL implementation (Hmelo-Silver & Barrows 2006:22). If such factors are not adequately addressed, then the implementation may be negatively affected.

The teachers need a lot of support for the implementation of PBL to be successful. The challenges that the teachers face are their own beliefs about PBL, their commitment to the innovation, and worries about content knowledge as they will not only be facilitating in their areas of specialty (Kwan 2000:3). To offset these anxieties facilitators should be supported by supplying them with materials like the curriculum guide, expected outcomes of the group discussions, regular meetings with fellow facilitators. The novice facilitator also benefits from the use of a consultant facilitator who provides formative feedbacks on their performance. The consultant facilitators also provide for self-evaluation, which helps facilitators to look at how they themselves influence the students as they facilitate PBL (Ertmer & Simons 2005:8; Heinrichs 2002; Gwele 1997:12).

The background of the new PBL facilitators plays a vital role in their adjustment to the implementation of PBL. There is an indication in the literature that teachers reported that it was not easy "to change their teaching style to PBL format" (Azer 2005:676). Most of the teachers that get involved with PBL facilitation come from a traditional instructional background; therefore they need time to adjust in order to take up the new challenge. Reminding teachers that in PBL they need not to be subject experts and that they are only expected to facilitate student learning can allay their anxieties (Kwan 2000:2). This might increase their ease and confidence as they facilitate the groups, and can promote successful facilitation and the success of the PBL programme as a whole.

During the transition period to PBL it is the teachers who resist the change more than the students (Kwan 2000:2); he says the main reasons for this resistance are ignorance, insecurity and fear of the unknown. In addition, they feel that they have lost control of the class since students will no longer be looking to them for the supply of information, and that they have lost their positions as

custodians of knowledge. These lead to high levels of anxiety, which in turn leads to avoidance, resistance and rejection. (Kwan 2000:2). The leaders in the implementation of change to PBL should recognise and address these issues and design strategies to overcome them for implementation of PBL to be successful.

Gwele (1997:10) reported reduced staff anxieties through bi-weekly staff meetings and monitoring the progress of the proceedings, where facilitators were interviewed concerning their experiences. This was reported to influence the success of the implementation of PBL positively, and to improve the PBL facilitators' commitment.

In their study Carrera, Tellez and D'Ottavio (2003:799) reported that they identified four basic requirements for full implementation of a PBL curriculum at the Rosario University School of Medicine. These included low number of students in each group, appropriate number of facilitators in specific science courses such as Sociology and clinical areas, and adequate human and financial resources. However, the knowledge of facilitators in PBL facilitation and adequate motivation was neglected. The social and psychological aspects of the change affecting the members involved, including staff and students alike, were also neglected. Carrera *et al.* (2003: 801) report that though the institution implemented PBL in the curriculum, they still had a lot of problems to overcome. Identified problems included the sources of students (their backgrounds and educational entry levels differed widely), and the availability of resources (both human and financial). There was also inadequate motivation that was reported on the part of the staff.

As an institution decides to implement the PBL curriculum they should ensure the preservation of the philosophy and essential elements of pure PBL, but assume enough flexibility to accommodate the needs of individual teaching and learning contexts (Carrera *et al.* 2003:801). The implementation of PBL should be done in such a way that facilitators see that it is addressing the set objectives in their curriculum. The knowledge of the objectives and their implementation motivates them, as it gives them satisfaction that they are doing their work. As Kwan puts it, that teachers have a natural need to justify that they are being paid for being lecturers (Kwan 2000:2).

### **2.6.2 Role of leadership in PBL implementation**

The importance of executive (or senior) support for the success of implementation of projects such as PBL implementation in organisations (Chaudron 2003) has been observed. Literature also highlighted the need for top government leaders' involvement for example, the ministries of education and health (in case of PBL in the medical health sciences education). An awareness of the

needs of a country's educational system by the government has been reported as being beneficial. The involvement of Political leaders in matters of the educational systems is critical for the successful implementation of programmes such as PBL (UNESCO Chair for Problem-based Learning, 2009). Majumda, D'souza and Rahman (2004:376) assert that, if the political leaders took the lead in educational issues such as the introduction of PBL, a lot would be achieved as they are very influential in all matters.

It must be appreciated that where involvement of political leaders comes in, it also goes a long way beyond the nation's borders. This is because of globalisation, which has forced countries to solve issues on more common ground. An example would be issues of human rights and models of democracy which affect decisions in all sectors, including health science education (Norwegian Church Aid 2007:12; National Institute for Health and Clinical Excellence 2007:4). Once the politicians of the country take an interest and get involved with issues of PBL they do contribute to its success, because they support the institutional heads in their operations (Majumda *et al.* 2004:376).

Committed administrator involvement and a lot of staff motivation to the faculty were found to be very beneficial factors (Collaborative Action 2002:4; Barrows 2000:117; Owens 1998:61). Barrows reports that apart from an enthusiastic team of teachers, it was the determined leadership that initiated and propelled successful PBL programmes (Barrows 2000:117). "Management that walks the talk" and lives by example makes it easy for the staff to follow (Collaborative Action 2002:4). The deans of the medical schools that succeeded in PBL implementation were very much in the leading role, right from piloting up to the actual implementation of PBL (Barrows 2000: 117).

The literature reviewed revealed that good financial management is another beneficial factor in change management during PBL implementation. PBL is known to demand a lot of resources, and the managers of an institution should allocate funds properly to meet such needs. Where there were insufficient resources the programmes were likely to fail (Carrera *et al.* 2003:801; Wood 2004:22). One of the obstacles that were identified in the implementation of PBL at the University of Rosario in Argentina was the lack of adequate funds for PBL implementation. Though the university embarked on a series of fundraising campaigns, the issue of inadequate funds still adversely affected the success of the PBL programme (Carrera *et al.* 2003:801).

Apart from the issue of inadequate economic resources other factors that bar the effective implementation of PBL have been identified.

## **2.7 Barriers to problem-based learning**

Barriers are factors such as processes or procedures that inhibit or hinder the effective implementation of PBL, (Edison & Murphy, 2011). Some factors have been identified as hindering the implementation of PBL. For instance when the management of the institutions is not involved in the implementation process, staff members lack leadership and they are demotivated. This concurs with the findings of an Iranian study that was conducted among nursing lecturers at the Tabriz University of Medical sciences. It was reported that 80% of the respondents indicated the failure to obtain commitment of managers in the PBL implementation process hindered the implementation of PBL (Vahidi, Azamian & Valizadeh, 2007:195).

Results of studies have also indicated shortage of staff against large numbers of student intake, the economic implications of PBL implementation and its maintenance. Attempting to utilise the traditional curriculum to implement PBL strategy and lack of teacher training are other hindering factors to PBL implementation. Changing roles for the teacher from lecturer to facilitator was also seen as barrier if the teachers were not properly prepared (Vahidi, Azamian & Valizadeh, 2007:196; Carrera *et al.* 2003:801). These findings are similar to what Ertmer and Simons (2005: 7) found. They reported that teachers meet a lot of challenges as they introduce the PBL approach in the educational programmes. While efforts have been made to equip teachers for the implementation of new PBL programmes the teachers face problems of adjustment to the new role. According to Kwan (2000:3) this can result in anxiety among tutors, who may eventually reject the approach.

Another factor that has been reported to hinder PBL implementation is the lack of proper communication to staff about the implementation which may cause resistance from them. Change that starts from top to bottom when management disregards to employ proper communication channels may meet opposition from the staff. This is in line with the experience that was reported in the PBL implementation at the University of Victoria in Australia. The change was initiated by the leadership of the college and it involved no proper consultations with the staff. The results were that there was a lot of resistance to the change that was reported from the staff. Most of them sited that they saw no indication for the change and therefore they could not accept it (Huichun & Henriksen, 2010:1). Lack of proper communication in the implementation maybe a cause of failure to the programme.

## **2.8 Conclusion**

The above review of the relevant literature reveals the importance of undertaking a literature review in qualitative studies prior to data collection. The literature guided the researcher to know the type

of the culture to be studied and also guided on the type of questions to prepare for data collection. The different models of implementation of PBL that are being utilised by different institutions according to their individual institutional needs (Savin-Baden & Major 2004:35) have been described. These also helped the researcher to identify the type of PBL model that is being utilised in the case study college and enabled her to see how it impacts the success of the programme. The discussion also reveals that the success or failure of the implementation of PBL is influenced by several factors. Good leadership, adequate facilitator preparation and adequate availability of resources, commitment of the leadership and the staff, support of the staff and motivation support the success of a PBL programme. The absence of these factors however, hinders the implementation (Collaborative Action 2002:4; Barrows 2000:117). The researcher in this study concludes that the review of literature prior to data collection in a qualitative study is useful to the findings of the study.

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## **CHAPTER THREE THEORETICAL FRAMEWORK**

### **3.1 Introduction**

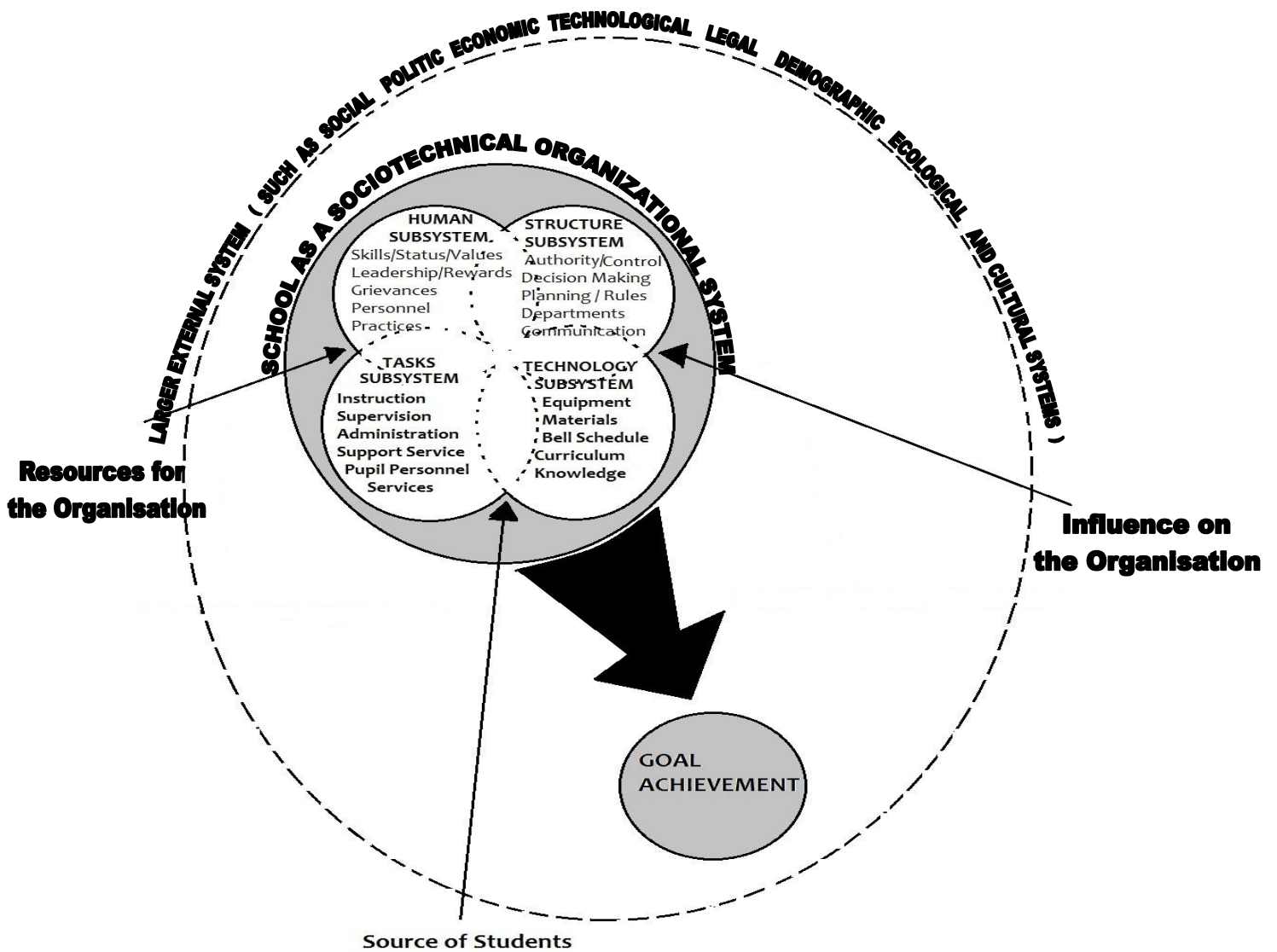
This chapter presents the theoretical framework that guided this study and how it was utilised throughout the study process. Theoretical frameworks that are utilised in qualitative research are tradition-oriented. Ethnographic studies are guided by theories of culture (Polit & Beck 2012:90).

This ethnographic study was guided by the sociotechnical theoretical framework as described by Owens (1998: 61). This theoretical framework is based on the organisational culture of a school. The sociotechnical theoretical framework was originally designed for general schools. Owens and Steinhoff's 1976 framework was selected based on the fact that it represents a school as an open system and from what the researcher had learned from the literature on PBL implementation. PBL implementation involves the internal as well as the larger external environment of the institution. The contributions made by both environments are what ensure the success of a PBL programme, (Kiguli-Malwadde *et al.* 2006:129, Barrows 2000). The theoretical framework therefore, was ideal for this study.

Conceptualisation of the theoretical framework is illustrated in Figure 1, which has been adapted from Owens and Steinhoff (1976), as cited by Owens (1998:64).

### **3.2 Description of the sociotechnical theoretical framework**

The sociotechnical theoretical framework is based on general systems theory, which views a system such as a school as a composition of independent yet interdependent parts that mutually interact as parts of a focused whole to achieve a goal. It is believed that joint optimisation of the social and technical factors of the workplace function to manipulate outcomes such as group productivity and job satisfaction (Owens 1998:64). The sociotechnical systems theory recognises the usefulness that that technology offers to people in workplaces, with reference to the complexity of societal structures' interaction with human behaviour as an integrated open sociotechnical system (Owens 1998:64; Walker, Stanton, Salmon & Jenkins 2007:5).



**Figure 1 Theoretical framework.**

Four primary organisational subsystems characterise the internal arrangements of the school systems and the school. Adapted from Robert G. Owens and Carl Steinhoff, 1976, *Administering Change in Schools*, p.143, Prentice-Hall, Eaglewood Cliffs, NJ, as cited By Owens (1998:64).

The concept of sociotechnical systems in organisations was introduced by Eric Trist, Ken Bamforth and Fred Emery in the 1960s (Ghosh & Sahney 2009:1; Trist 1981:24). It consists of two main components: the school as a sociotechnical organisational system, and the larger external system which is its environment. The two components share a dynamic relationship. The sociotechnical system theory illustrates the influence that the internal and the external factors have on operations of the school in its efforts to attain the organisational goals, such as the implementation of PBL in the current study.

Sociotechnical systems theory has four main characteristics, which include: (a) goal achievement, (b) resources for the organisation, (c) sources of students, and (d) influence on the organisation. Within these four main characteristics of the theory there are four fundamental concepts: the task subsystem, structure subsystem, technology subsystem and human subsystem (Owens 1998:61-62).

### **3.2.1 Goal achievement for the institution**

According to Owens (1998:61) the school as an organisation and as a sociotechnical system exists for the purpose of achieving something, reaching some goal or sets of goals. When applied to nursing education, the nursing college as a sociotechnical system exists for the purpose of producing safe and competent nurse practitioners (Keating & Gabb 2005:3; College Association of Registered Nurses of Alberta 2003:1).

### **3.2.2 Resources for the organisation**

Owens (1998:61) states that the school as an organisation should be structured, equipped and staffed appropriately in order to accomplish its main aim. One of the fundamental resources that is required for a nursing college, for instance, is a manager who is qualified for both administrative and academic matters. Such a manager would be able to understand the changes in educational matters such as the PBL implementation (Kotze 2008:119). An organisation needs adequate numbers of staff that are committed to their work, and this is more so in a nursing college because it is a non-profit-making organisation, and therefore their commitment works towards the success of the college. When the staff are assigned tasks the management should encourage teamwork among the staff and make resources available for the work that is to be done. When staff are empowered and encouraged then high-quality production will result (Armstrong 2008:139).

### **3.2.3 Sources of students**

The students' background such as culture, age and instructional background can have effects on organisational activities such as PBL implementation (Das Carlo, Swadi & Mpofu 2009:64). If, for

instance, students came from a background that requires them to keep silent as a norm to show respect in the presence of elders, such students would not freely contribute to the PBL group discussion in the presence of the facilitator, a fact that hinders achievement of their learning goals (Khoo 2003:402). In other cultures students are stimulated to relate the PBL process to their religious symbols, such as the Buddha in Thailand, making the PBL process easy for them (Lekhakula 2012: slide 22). Students from a PBL background find it easy to fit into the new PBL curriculum because of their previous experiences (Carrera *et al.* 2003:801). Male students who come from a male-dominated school display behaviours that have a lot of disregard for group norms in a PBL group, and this has negative effects on their learning (Das Carlo *et al.* 2009:64). Students' background was seen as an important factor in implementation of a PBL programme.

#### **3.2.4 External influence on the organisation**

This refers to the influence of the external system on the school as a system. According to Owens (1998:64) the larger external system includes the social, political, economic, technological, legal, demographic, ecological and cultural subsystems. In the nursing education system as applied in the current study, the main external systems were identified as the Malawi Ministry of Health's need to improve the production of nursing professionals who are skilled and empowered to address the health needs of the population. This was seen as having both a political and economic influence on the school's operations.

### **3.3 The four fundamental concepts of the sociotechnical system**

The four fundamental concepts of the school as a sociotechnical system are presented below. For technical purposes each is discussed separately; however, the interconnectedness of these fundamental concepts should be appreciated at all times.

#### **3.3.1 Task subsystem**

The task subsystem is concerned with the actual work that members of the organisation carry out, how it is done, and how employees are involved (Owens 1998:61). The task subsystem is made up of several elements, which include instruction, supervision, administration, support services, pupil personnel and services (Owens 1998:64). In the school as a system tasks involve teaching and performing student evaluation activities. In PBL implementation tasks involve the teacher facilitating students' PBL groups and guiding their learning besides creating problem scenarios from which students can learn (Ertmer & Simons 2005:5).

### **3.3.2 Structure subsystem**

The structure subsystem represents the organisational structure of the school. The structure gives an organisation its characteristics as well as order and system. The structure gives people authority by investing power in the individuals as it outlines the roles of members such as top management executives, middle management supervisors, bosses and workers. It also helps members to know the power and authority of other members of the organisation. In addition, the structure also dictates patterns of communication networks, which in turn direct decision making (Owens 1998:61).

The individuals who perform related duties are grouped together to facilitate sharing of information and learning according to the organisational structure. The structure also determines how tasks will flow through the different levels in order to meet the organisational goals (Owens 1998:61).

In the school structure the head of the institution, such as the principal, is seen as the topmost followed by people who occupy other positions. In the case study college the top management staff included the Vice Principal, who was followed by the Dean and then heads of departments and the teachers after them. The college had different departments such as the midwifery department, community health and general nursing departments in which the staff were operating. This demonstrated a clear order of the system where authority and communication flowed smoothly. It also indicated the levels of power in the system that guides individuals in their performance.

Elements in the structure subsystem include authority, decision making, control, planning, rules, departments and communication (Owens 1998:61).

### **3.3.3 Technological subsystem**

The technological subsystem refers to materials, activities or ideas that will facilitate task achievement for the members of the organisation. Anything that the members will use in an attempt to achieve organisational goals is viewed as a technological resource. The technological subsystem focuses on procedures and related knowledge (Owens 1998:61). Apart from computers, projectors, machines, textbooks, chalk and microscopes, the technological resources also include plans and programmes made in the organisation, such as in-service training of workers in various skills so that they can perform the different tasks. The teachers' daily lesson plans, class schedules, curriculum, PBL modules and simulations and course outlines are all technological resources since they assist in task achievement.

The elements in this subsystem include equipment, material, bell schedule (timetable), curriculum and knowledge (Owens 1998:61). The task is to be performed by people who are found within the

structure, and they are the ones who use the technological resources in their pursuit to achieve organisational goals.

Availability of resources in the college for PBL implementation, such as the revised curriculum and its organisation, classroom timetables, training of staff in PBL, and other resources such as computers, the Internet and other library resources, are all seen as organisational resources that would aid in the implementation of PBL.

#### **3.3.4 Human subsystem**

The human subsystem is concerned with the availability of people in the organisation. The contribution of the people is crucial in the organisation; it determines the organisational behaviour, which then directs and communicates the outcomes of the organisation. The behaviour of the people in the organisation, for instance commitment or lack of it, determines the production. Selection of activities and the way in which activities are planned in line with objectives will also affect both the running and outcome of the organisational activities. The way in which the line of communication is relayed among members within the different levels of the structure affects the running of the organisation, and hence task accomplishment and finally goal achievement (Owens 1998:61).

In the school as a system the availability of and contributions made by the staff are seen as a resource for the school. In the college the human resources make contributions, sharing same basic values which were seen as a fundamental contribution that positively affected the implementation of PBL in the college.

#### **3.4 Interaction of subsystems within the sociotechnical system**

According to Owens (1998:61) the above four subsystems differ from time to time in any given organisation, but are highly interactive and mutually interdependent. Each tends to shape the others. A change in one subsystem results in change in other subsystems, which adapt to the initial change in order for the school as the system to retain constant balance (Owen 1998:58). To illustrate this, a change such as the introduction of PBL in the curriculum (technology subsystem) affects the goals of the school, and influences new skills for lecturers such as facilitation instead of giving lectures (human structure). This in turn influences the planning and decision making needed (structure subsystem) and the form of teaching and learning or instruction and supervision of students (task subsystem).

### **3.5 Conclusion**

Sociotechnical systems theory was the ideal theory to guide this study because of its applicability to the nursing college as a school which has subsystems and functions as an open system. The four characteristics (i.e. goal achievement, resources for the organisation, sources of students and influence on the organisation) and the four concepts (including the task, structure, technology and human subsystems) were utilised to guide the objectives of the study, the research questions and code frame during data analysis.

The final product of this study, i.e. the thesis, is based on the findings on how one nursing college in Malawi as a sociotechnical organisation system implemented PBL. The critical factors for successful implementation of PBL were identified from all of the characteristics and concepts of the school as a sociotechnical organisational system as applied to the nursing college.

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## **CHAPTER FOUR METHODOLOGY**

### **4.1 Introduction**

This chapter describes the methods that were employed to investigate the characteristics which enhanced the implementation of PBL in the identified college in Malawi as a case study. It includes the ethical considerations that were applied. The chapter includes a discussion of the strategies of data management and the data analysis methods that were utilised in the current study.

The primary purpose of the study was to explore, analyse and describe the characteristics which enhanced the implementation of PBL in the identified college in Malawi as a case study. The secondary purpose was to utilise the analysed data to identify a set of critical success factors that could guide the implementation of PBL in nursing education in Malawi.

### **4.2 Research design**

This was an exploratory and descriptive qualitative case study design, within the ethnographic approach. An exploratory and descriptive qualitative design was selected because the implementation of PBL in a nursing college was a phenomenon that had not been explored nor was well understood in Malawi. The selection of this design is supported by Neuman (2006:33), who stated that the primary purpose of exploratory research is “to examine a little understood issue or phenomenon”. The researcher was also interested in investigating all factors that influenced the phenomenon of implementing PBL in a nursing college as a case study. Therefore, an exploratory research design which examines the full nature of a phenomenon and its relating factors was ideal (Polit & Beck 2008: 20-21). The descriptive nature of this design was supported by Neuman (2006:24), who states that researchers discover new meaning, describe what exists, determine the frequency with which something occurs and categorise information through descriptive studies.

Qualitative research is an in-depth and holistic investigation of a phenomenon in which the data collected is narrative material which is obtained through the use of flexible research designs (Polit & Beck, 2012:729). It seeks to understand personal experiences and constructs and how these are interpreted by the people involved. The different qualitative approaches to data collection observe respect for the humanity of the study participants. This is a fundamental aspect in nursing education and made the design relevant to this study (Marshall & Rossman, 2011:20).

In qualitative studies the data are collected in the form of words directly from the participants, researcher’s observations, visual images and documents (Marshall & Rossman 2011:20; Schneider,

Whitehead, Elliot, LoBiondo-Wood & Haber 2007:106; Hansen 2006:4). Qualitative design was the best choice for this study. It would allow the researcher to understand the factors that enhanced the implementation of PBL through personal interviews with and observations of the implementers of PBL. This is in order to understand the view of the world that the people under study had and to acquire the real meaning of the implementation of PBL as a phenomenon (Polit & Beck 2012:727; Neuman 2006:381)

Ethnography is believed to be the hallmark of qualitative research and is the oldest qualitative method, having originated from anthropology and social research. It stresses the study of human behaviour from the natural setting. The approach is described by its four main features: the use of large amounts of data, the naturalistic approach to data collection, the use of key informants, and the 'emic' and 'etic' dimensions. This means that the truth can only be told by an insider of the culture (emic) as opposed to an outsider (etic) (Holloway & Wheeler 1997:83-84). This approach was considered the best choice for this study. The approach allowed the researcher to become part of the college community in order to collect large amounts of data to deepen her understanding of characteristics that enhanced the implementation of PBL in the identified college in Malawi as the phenomenon of interest.

#### **4.2.1 The case study method**

A case study is an in-depth investigation of an entity which could be an individual, family, group, institution, community or other social unit (LoBiondo-Wood & Haber 2006:91). It is an empirical inquiry that investigates a phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin 2009:18). In this study a single institution, i.e. the nursing college in Malawi, was used as a case study because it represented a unique case as proposed by Polit and Beck (2008:235). It was to the researcher's knowledge that the college under study had managed to implement PBL in its curriculum. However, the researcher sought to understand what the college of nursing under study had done in order to be able to implement PBL when other colleges had not. That is why the phenomenon under investigation which was 'PBL Implementation' was not evidently clear as to how it had been achieved. The researcher desired to comprehend the context within which the PBL implementation had been accomplished (Yin 2009:18). Therefore, the "boundaries between the phenomenon and the context were not clear".

The opponents of the case study criticise it as being unscientific and lacking rigour; it is seen as a narrative of people's everyday thinking which cannot offer grounds for establishing reliability of

findings. The extensive exposure of the researcher to the study is seen as a source of bias in the findings of the study (Polit & Beck, 2008:236).

The proponents of the case study, including Yin (2009:14) argues that bias can occur even in experiments. The extensive exposure of the researcher to the study is believed to be the very essence for case study designs, for the reason that it provides an opportunity for the researcher to gain an in-depth understanding of the phenomenon under study (Polit & Beck 2008:235; Yin 2009:18; Lo-Biondo-Wood & Haber 2006:91). Schell (1992:7) further defends the case study method by highlighting that some scientific traditions were built around some narratives obtained from case studies. These include the earliest philosophical concepts, which were conveyed as allegorical accounts. He further declares the case study's relevance as a basis for formulating a hypothesis in preparation for quantitative research.

Yin (2009:15) argues that even in experiments the results are only generalised after repetition. This means that if case studies were repeated, they would also prove to be generalisable. Moreover, the researcher in a case study does not desire to generalise results to populations or even universes. He concludes by pointing out that a case is generalisable to theoretical propositions.

The views of both the opponents and proponents of case study as a methodology were considered seriously before selection of this methodology. The methodology remained the best for the researcher because it was the only method that could provide her with an opportunity for achieving the objectives of the study.

The six-month period of data collection and immersion in the college as the community gave the researcher the opportunity to attain a deep understanding of the factors that influenced PBL implementation in the college as a case study. This was made possible because of the use of ethnography as the research approach (Polit & Beck 2012:493; Hansen 2006:61,180; Neuman 2006:382).

### **4.3 Study population**

A study population is the total collection of circumstances that meets a selected set of criteria. This could be the people or elements that are under study (Polit & Beck 2004:289). The population in the present study was all thirteen nursing educational institutions in Malawi.

### **4.3.1 Sampling**

Sampling is the process of selecting representatives of a study population with the intention of drawing conclusions about that population (Polit & Beck 2012:275). Purposive sampling technique was employed for selecting both the college to be studied as a case study and the participants. In purposive sampling the participants who are selected are known to have the information that the researcher is looking for. The selection of participants is made after careful consideration of the study objectives. (LoBiondo-Wood & Haber 2006:228-229; Hansen 2006:52-53).

The college was purposefully sampled as the unit of analysis for this case study. This was based on the information obtained from the minutes of the quarterly regional nursing college meetings and the periodical minutes of regional PBL workshops for nurse educators. The minutes of these regional meetings indicated that the identified college was the only college that had implemented PBL among all the nursing colleges in Malawi (Chalanda 2008:8). The specific nurse educators for the programmes who were involved in implementation of PBL at the identified college were selected purposefully according to the inclusion criteria below. Twelve participants were sampled for interviews, and two were selected for participant observations. The number of observation sessions was not predetermined because the researcher decided that this would be dependent on the amount and type of data that would be collected.

Documents for review were also purposively sampled based on the researcher's knowledge of the requirements for curriculum reviews and the study objectives. This is further explained in the inclusion criteria below.

#### **4.3.1.1 Inclusion criteria**

Inclusion criteria are the criteria that specify the characteristics of a study population (Polit & Beck 2008:338). For technical purposes the inclusion criteria for the study were divided into the following categories: inclusion criteria for key informants and other participants (i.e. nurse educators involved in the actual implementation of PBL); and inclusion criteria for documents to be reviewed

#### ***Inclusion criteria for key informants***

- Academic staff of the college who were in top management positions from the time of the launch of the PBL implementation in 2008 to the time of conducting the study. These were likely to have the required experience and relevant information with regard to the implementation of PBL in the college.

- Academic staff of the college who were in top management positions for a period of not less than 12 months at the time of conducting the study, even if they were not initially there at the launch of PBL in the college. It was assumed that they ought to have gained enough experience on the implementation of PBL, and thus had relevant information that could be shared with the researcher.

***Inclusion criteria for study participants***

- Undergraduate programme nurse educators who were involved with the PBL implementation at the time of the launch of PBL implementation in 2008 to the time of conducting the study. These were considered to have experience in the implementation of PBL and relevant information to share with the researcher.
- Undergraduate programme nurse educators who had been involved with PBL implementation for a period of at least 12 months at the time of conducting the study even if they were not there at the time of the launch. It was assumed that they ought to have gained enough experience on the implementation of PBL and thus had relevant information that could be shared with the researcher.

***Inclusion criteria for documents to be reviewed***

- Only undergraduate nursing curriculum-related documents that related to the revision of the curriculum from traditional to PBL implementation, dating from at least 12 months prior to the launch of the implementation of PBL to the time of conducting the study.
- Undergraduate nursing curriculum-related documents from the time of the launch of PBL to the period of conducting the study.

***4.3.1.2 Exclusion criteria***

***Exclusion criteria for key informants***

- Academic staff who were in top management positions and had been working in those positions for a period of less than 12 months at the time of conducting the study. They were considered to be unlikely to have adequate experience and relevant information on the implementation of PBL to share with the researcher.

***Exclusion criteria for study participants***

- Nurse educators that had implemented PBL in the postgraduate programmes. The implementation of PBL in the postgraduate arena was considered as different from the

undergraduate nursing programme because this was at specialisation nursing level and did not involve integration of many aspects of teaching.

- All undergraduate nursing programme nurse educators who had been involved with PBL implementation for a period of less than six months. They were considered to be unlikely to have adequate experience and relevant information on the implementation of PBL to share with the researcher

***Exclusion criteria for documents to be reviewed***

- All undergraduate nursing curriculum documents that related to the previously used curriculum or curriculum used prior to the introduction of PBL, as these did not have relevance to the study.

**4.3.2 Sample size**

The complete sample size for data collection was nine participants for interviews and two participants for participant observations. This sample comprised two academic members of the college academic top management staff and seven nurse educators. The proposed sample size was twelve participants. However, only these nine participants were interviewed because there were no more new data emerging from the interviews, the researcher had reached data saturation. The number of observations sessions was not determined beforehand but planned that it would be decided upon when all the required data from the observations had been collected.

The small sample size in this study provided the researcher with the required information at an in-depth level. The researcher had time to engage with all participants and was enabled to collect rich data. Mackenzie and Crouch (2006: 484) state that small sample sizes of less than twenty (20) facilitate the researcher's close association with the respondents and enhance the validity of findings. In addition, the qualitative researcher works laboriously with qualitative data and therefore he or she has to work with a small sample size (Mackenzie & Crouch 2006: 484; LoBiondo-Wood & Haber 2006:236; Brink 2003:141).

The sample of documents to be reviewed comprised the following documents: PBL curriculum planning documents; curriculum documents which included course outlines, PBL modules, PBL simulations, class schedules (timetables) and assessment documents, and clinical supervision plans which included case studies used by students.

#### **4.4 Gaining access to the research setting**

Access to the research setting and participants was gained after receiving ethical clearance from different research ethics authorities including the University of Cape Town Health Sciences Ethics Committee (HREC REF: 058/2012; see Appendix A) and the National Research Health Committee of Malawi (NHSRC #1012; see Appendix B). Permission to conduct the study was requested and obtained from the 'gatekeepers' of the college. The gatekeepers at the college included the Vice Principal who heads the campus under study, the college Principal of the main campus and the Dean of the college on the campus under study.

The researcher was aware of the gatekeepers' powers to permit or restrict entry into the study setting. She therefore introduced herself to them through email, which was followed by a formal and official letter. This facilitated the development of rapport and allowed her to explain the objectives of the study to gain the gatekeeper's support for the study, as recommended by Hansen (2006:43). The gatekeepers were given full details of the study in the form of an information sheet and ethics approval to facilitate their decision to grant permission. This is suggested by Polit and Beck (2008:206), who state that gatekeepers always need information on which to base their decision about granting access, and advice that such information should be put in written form. Access to the research setting was granted by the gatekeepers with ease after all the above mentioned steps had been taken.

#### **4.5 Data collection instruments**

1. The interview guide for interviews with key informants and other informants.

This is an instrument that the researcher had designed and it was approved by her supervisor. The design was guided by the theoretical framework that was guiding the study (See chapter 3 figure1 pg 29) and the study objectives (section 1.6.1 pg 5). The guide was designed following the subsystems of the framework as topics to be covered in the interview (Polit & Beck, 2008:394). These included questions on the, goals of the college, sources of students, availability of resources, influence on the college from the larger external system of the college. The questions were open-ended to allow the respondents to give as much information as possible. The first copy of the guide was amended following pre-testing of the instrument and based on the comments that were made by the participants on whom the tool was tested. The first copy of the interview guide had a total of forty (40) questions, after the amendments were done there were thirty-four (34) questions (see appendix H).

## 2. Guidelines for document review

This was a list of PBL documents that the researcher had planned to review during data collection. The list had been compiled by the researcher and approved by her supervisor. It was designed guided by the study objectives and from the literature as the components of the list were reported to be necessary tools in the success of a PBL implementation programme (Barrows, 2000:117). The type of documents has been described in the inclusion criteria.

## 3. Checklist for participant observations

This was a tool that was designed by the researcher and it was approved by her supervisor to be used in collecting data during participant observations. This tool was designed guided by the study objectives, the theoretical framework guiding the study (see figure 1 pg 29) and the literature. Literature provides a description of the activities that are expected to be performed by the teachers in their daily activities in the PBL environment. Activities such communication among staff, the skill that they have in PBL, the processes of self-evaluation as PBL facilitators (Barrows, 2000:49-51; Bokonjic *et al.* 2011:9; Archike & Nain 2005:310). (See appendix K).

### **4.5.1 Pre-test of study tool (the interview guide)**

In the present study pretesting of the interview guide was done for appropriateness and clarity of the questions. This was also done to see if the questions would elicit the data that the researcher was looking for hence ensure validity and reliability of the results. As a novice researcher, the researcher also wanted to polish her interviewing skills (Collins, 2003:229). The guide was pre-tested in the first week of May 2012. The interviews were conducted with two nurse educators who were responsible for the implementation of PBL in the postgraduate programme of the same college used as a case study. These educators had also undergone PBL training. At the end of the interviews each participant was asked to comment on the questions asked and to give relevant observations that were made with regard to the interviewing skills of the researcher. Although the participants reported satisfaction with the questions, they also reported that the interview session was too long and that there were too many questions.

Based on the constructive comments made by the two participants, the interview guide was revised and the number of questions reduced while ensuring that the study objectives were retained (see

Appendices G and H). The revised interview guide was shared with the research supervisor, who approved the changes and confirmed that the essence of the research objectives had not been lost. The data that were collected from the pretesting of the interview guide were not incorporated into the results of the main study because they were collected from a programme that was different from that of the main study.

#### **4.5.2 Data collection**

Data collection for the main study was conducted between May and October 2012. Three main data collection methods were used, including semi-structured interviews, participant observations and document reviews, in order to obtain a deep understanding about the implementation of PBL. This is supported by LoBiondo-Wood and Haber (2006:119), Polit and Beck (2012:590) and Hansen (2006:54), who say that the different sources of data, complement one another. The different sources allow the researcher to compare data from the various sources to attain a comprehensive understanding of the phenomenon.

The rationale for the use of different data collection methods was to ensure that all possible data had been captured to accomplish the objectives of the study. It was also done for triangulation purposes, where the researcher hoped to produce data that would be an accurate representation of the meaning of the phenomenon, reduce bias and guarantee the credibility of the study (Brink *et al.* 2012:99; Hansen 2006:68; Baxter & Jack 2008:554; Yin 2009:101; LoBiondo-Wood & Haber 2006:119). All three data collection methods occurred simultaneously. This meant that as the researcher was in the field she had access to all sources of data within the same period. On some days she would observe a PBL group discussion in the morning and conduct an interview in the afternoon of the same day if she was granted an interview at that time. However, for technical purposes the data collecting methods are presented separately below.

##### **4.5.2.1 Semi-structured interviews with key informants and other participants**

The first set of data was collected during recorded interviews with both the key informants and other study participants, using the semi-structured interview guide (appendix H). The interview questions were logically arranged, starting from the general to specific questions as proposed by Polit and Beck (2008:394) and Yin (2009:108). The interviews were conducted in each participant's office. These venues were preferred by the participants and the researcher for privacy and confidentiality. They were also free from noise and interruptions that could otherwise disturb the recording of the interviews (Hansen 2006:105). The researcher considered these venues as natural a setting in which to capture the context of the participants' lives and experiences. This is supported by Polit and Beck

(2008:57). The interviews were conducted in English because both the researcher and all the participants had a good mastery of the language. They all use the English language in their daily work for teaching the students and formal communication. English was therefore the most appropriate language for conducting the interviews (Hansen 2006:103).

Probing questions were used to encourage the interviewees to give more information when this was deemed necessary by the researcher at a particular point during the interviews. Probing questions are those that are used in an interview with the aim of stimulating the interviewee to give more useful and more detailed information than they have already volunteered (Polit & Beck 2008:762). These questions helped the researcher to gain more insight into the factors that enhanced the implementation of PBL as a phenomenon of interest (Polit & Beck 2008: 394). The probing questions were also used to follow up on issues and gain further clarity in areas that were not understood. This stimulated interviewees to further elaborate on their responses. The researcher as a tool of data collection was probing using different modes of communication in order to gather as much information as possible. These included the use of body language such as nodding, encouraging smiles or leaning forward. Field notes were taken throughout the interview sessions to capture points that were thought to be valid for follow up later on and inclusion as part of the data. Field notes were taken to avoid interrupting the participants (Hansen 2006:70).

At the end of each individual interview the participants were thanked for taking time off from their busy schedules and for their participation in data collection. They were informed of the possibility for follow-up interviewing in case of the need for clarification of points in the information as well as for member-checking purposes. Member checking is a technique in which the researcher gives feedback to the participants on his or her interpretations of the collected data, and allows them to indicate if that is a true reflection of the information they gave. It helps the researcher to establish the credibility of the study (Polit & Beck 2008: 545).

#### **4.5.2.2 Document review**

The review of documents was utilised to investigate the influence of the technological subsystem. According to Owens (1998:61) the technological subsystem includes timetables, curriculum, and knowledge of staff. The documents that were sampled and reviewed included the following:

- The curriculum (undergraduate)
- PBL simulations (documents that had sets of problem scenarios adapted from the curriculum in text form and video clips)

- Assessment documents (e.g. portfolios, scenarios used in objective structured clinical examination (OSCE))
- Clinical objectives
- Case studies from the clinical area used by students
- Classroom timetables
- Minutes from a PBL workshop

The document review exercise took place in the college's conference room. Documents were made available to the researcher according to the inclusion criteria provided to the key informants. In total seven types of documents were reviewed, as indicated above (see Appendix I). In the curriculum the researcher was looking for the structure, whether it was content-based or process-based and organised in the form of problem scenarios. She was also looking for the objectives: whether they were content-based or outlined a process of the expected particular type of graduate. The problem-based modules were reviewed to see if the problems or scenarios were motivating enough for students to stimulate self-directedness in the learning. For example, did the scenarios presented to students represent real patient scenarios for students to gain the PBL objectives? The assessment documents were reviewed to see if they could assess the students' critical thinking and problem-solving skills. The classroom timetables were reviewed to see if their organisation accommodated PBL sessions or whether they were arranged in slots which would not allow time for free flow of the PBL session (for example, allowing a class of PBL to use the whole morning instead of just providing a slot of two hours). (See Appendix K for guidelines for document review.)

#### **4.5.2.3 Participant observations**

In participant observations the researchers planned to observe teachers daily activities in the PBL environment. These included preparation for PBL sessions, preparation of PBL scenarios, the facilitation of small PBL groups and how they evaluated themselves.

Permission for participant observation was sought from the beginning of the study as part of obtaining the voluntary consent from each participant. The two participants who were observed were aware of the observations and had given voluntary consent to it. Only two participants were selected for observation because the researcher wanted to have a close and prolonged engagement with them in order to get into the details of their activities both in class and outside the classroom. The first participant was observed in the first two months and the second in the last two months of data collection. The period of time allowed the researcher to spend time with the participants and observe different activities such as facilitation of PBL groups, preparation for practical examinations.

It also allowed time to observe different evaluation meetings being held. Researcher obtained the participants' schedule, which was prepared weekly, so every Friday she would obtain a copy of the schedule from the participants' offices for the following week.

#### **4.5.2.3.1 Descriptive observations**

Descriptive participant observations occurred while the researcher as a participant observer took part during facilitation of PBL sessions. Descriptive participant observation entails observation of everything that is going on, starting from the way the staff communicated among themselves to the communication between staff and students. The way the classes were organised, and the seating plan. Observations also included looking at how the teachers worked with the students in their PBL groups, their facilitation skills, and the way feedback was given to students after the group work (Holloway 2008:165). The researcher attended all of the sessions of PBL facilitation of the participant under observation. The researcher had a checklist (see appendix K) which she used to observe the activities of the group proceedings. The checklist was developed based on the PBL activities including facilitation as reported in the literature (Bokonjic *et al.* 2011:9; MacLoughlin 2005:190; Archike & Nain 2005:310; Barrows 2000:49-51). She observed the group size and time allocated to the session on the timetable. She observed if the facilitator presented objectives for the problem scenario that students were supposed to discuss, and the type of objectives and their accessibility to students. Observations included the setting of ground rules at the beginning of every facilitation session, acknowledgement of the group members' positions and reinforcement of their duties (e.g. group leader and scribe), and respect for teamwork. Keeping of an attendance register was another area that was observed.

The researcher observed how the facilitator directed the group discussions, whether she demonstrated confidence, how she engaged the quiet students, and how she dealt with the dominating ones. The researcher was also interested to see if the facilitator referred students to relevant resources for the problem under discussion. Ability to deal with criticism during end of session feedback was also observed, and the fixing of a date and tasks for the next tutorial. Through these observations the researcher was able to appreciate the PBL skills needed for successful facilitation of PBL groups. Observations were also made while the researcher joined a class in which the facilitator gave a short introductory lecture prior to PBL group discussions. Other observations were made when students were presenting the findings of the individual groups to the whole class after their group work. Afterwards the researcher and the facilitator would give feedback to the

students and beef up some of relevant information that students had left out (Family Health International 2012:19; Holloway & Wheeler 1996:4).

Participants were observed preparing for PBL sessions as they grouped the scenarios for the small groups of students. Preparations included the development of PBL scenarios or reorganising scenarios that were already set up. Participants were also observed during preparation for practical evaluation sessions the OSCE (which was conducted in a series of meetings several of which the researcher attended) and during peer evaluation sessions. The peer evaluation was done in two forms: the researcher would be asked to make verbal comments of her observations while the participants jotted them down or they would make use of a checklist which would be filled in by the evaluator.

#### **4.5.2.3.2 Field notes**

Field notes of observations were made during the observation sessions, mostly as soon as a session ended to avoid disturbing participation. The field notes would help with data recording and analysis and provide comprehension of meanings (Polit & Beck 2012:548). Field notes were expanded into narratives within 24 hours of writing to avoid losing memory of important points and loss of rich data (Family Health International 2012:24; Hansen 2006: 86). The field notes were guided by the checklist for participant observations (see appendix K). It was deemed important to observe skills in relation to the technological and human subsystems of the conceptual framework (see sections 3.3.3 and 3.3.4) because this would give the researcher a clear picture of the availability of resources, skills and knowledge of teachers, and provide her with a deeper understanding into the factors that enhanced PBL implementation. Further data were collected from participants in the form of informal interviews after a facilitation session to get clarification on issues that were not clear from just observing.

The data that were collected included the following; facilitator knowledge and PBL skills which were observed during preparation and the actual facilitation sessions. In addition the type of PBL scenarios or problems that were utilised which demonstrated the capacity to stimulate students' critical thinking and self-learning also demonstrated such knowledge and skill in the teachers. Furthermore, the observations allowed the researcher to see the available resources that had been reported during interviews. She could see the infrastructure, the computers, and the skills laboratory, the internet resources such as the different websites and journals. The teachers' collaboration with all other personnel who were involved with PBL implementation in their different roles such as library,

the ICT staff and fellow teachers were also observed, the type of communication that was utilised among the staff and management.

#### **4.6 Scientific rigour of the study**

Scientific rigour is referred to as excellence in research (Burns & Grove 2011:545). In qualitative research scientific rigour is defined in terms of a study's trustworthiness, which provides a standard for judging the quality and truthfulness of the findings (Brink *et al.* 2012:171; Miles & Huberman 1994:277).

##### **4.6.1 Credibility**

Credibility refers to the truthfulness of the research findings, or having confidence in the truth of the data (Polit & Beck 2008:196). In order to achieve credibility a researcher must undertake prolonged involvement with participants and using triangulation/s (Hansen 2006:49; Duma 2007:29).

In this study credibility was achieved by prolonged involvement with participants. The researcher spent a period of six months in the college as the research setting for data collection, including interviewing, observing participants and reviewing documents to see how PBL was implemented. During this prolonged engagement with the participants data were collected from different sources for triangulation. During this period the researcher was also able to see the interactions between the academic staff members and management and among the teachers. She observed their collaboration and their commitment. These observations were a strong source for triangulation and corroboration of data. The types of resources (both human and material) needed for the implementation of PBL were also identified during this period of prolonged engagement.

The researcher also employed inter-coder agreement in order to verify the code clarification. This ensured the accuracy and reliability of the codes, thus promoting the truthfulness of the results.

The use and triangulation of data from multiple data sources also played a significant role in ensuring the credibility of the study. The researcher interviewed respondents; the information from the interviews was confirmed through documents which were reviewed and observations of the activities of the college. She was able to identify themes from across the different data sources and make comparisons. This increased the truthfulness of the findings.

Member checking was conducted with all participants at different levels for verification of data, when the researcher returned to the participants with the transcripts to confirm the correctness of

what she had transcribed. Corrections were made wherever it was necessary and for confirmation of analysed data (Polit & Beck, 538).

#### **4.6.2 Confirmability**

In order to achieve confirmability of the study, the researcher's description of the results should result from or display no trace of bias or prejudice on the part of the researcher. He or she should report without any distortion of the findings. Confirmability also refers to how the aims of the study have been achieved. The methodology and data analysis procedures must be described in detail so that the reader can be convinced that there was no bias on the part of the researcher. There should be a link between the data and their sources for the reader to come to the conclusion that indeed the data came from them (Polit & Beck 2012:585; Duma 2007:29; Hansen 2006:49).

Confirmability was achieved by providing a detailed description of the methodology and step-by-step data analysis procedure. The researcher also utilised inter-coding agreement to ensure that the codes that were identified were a true reflection of the existing codes within the data. The findings from the study were retained for reanalysis procedures, as the researcher was aware of her own possible biases and assumptions. The researcher also utilised the contributions of an experienced qualitative researcher in checking and confirming the authenticity of the identified themes, and she has included reports of the input made by this researcher (her research supervisor). All of these factors have helped to ensure the confirmability of the study (Duma 2007:29; Holloway 2008:239).

#### **4.6.3 Dependability**

Dependability of a study refers to its reliability, which is tested against the time span and conditions, because it focuses on how stable the results will remain over time and under certain conditions (Polit & Beck 2012:585; Miles & Huberman 1994: 278).

The supervision that was provided by an experienced qualitative researcher, (who was also the other independent coder in the inter-coding agreement) that was mentioned earlier also served to ensure accuracy of the codes. This supervision and technical assistance enabled the researcher to go back and do refinements of the study to ensure dependability of results.

Before conducting the main study the researcher performed a pre-test of the study tool that enabled her to conclude that the data collection methods were practical and the research question (see section 1.6 pg 5) was clear. This agrees with what Miles and Huberman (1994:278) state, that dependability of a study can be achieved if the study questions are clear and corresponding with the study design.

According to Miles and Huberman (1994:278) dependability can also be achieved through clear description of the researcher's role and status at the study site. The researcher's role and status as co-facilitator and researcher were described during participant observations (see section 4.5.2.3).

Formal member checking was done for dependability. Participants were provided with feedback on the findings of the study, and they also gave feedback confirming that the findings were a reflection of the information that they provided (Miles & Huberman 1994:278).

#### **4.6.4 Transferability**

This refers to the extent to which findings of a study can be applied in other settings or groups of people or populations (Polit & Beck 2012: 85). Transferability is achieved by the researcher providing a detailed report of the whole research process, so that readers can decide whether the results can be applied to their own situation if they consider it similar to that in the study (Shenton 2004:69).

Transferability in this study has been ensured by providing the background data of the study as a whole, with a detailed description of the phenomena so that readers can compare their own situation to that of the research (Shenton 2004:73). The researcher kept an audit trail of the whole research process, with step-by-step documentation which serves to allow the reader to follow every step of the process (Polit & Beck 2012:720; Shenton 2004:72). The researcher provided information about the background information of the study, study objectives, study setting (see Chapter one), description of the study sample and sample size, data collection methods, and time period of data collection (see section 4.3.2). Clear and detailed presentation of results is provided in Chapter five. These descriptions of the whole process of the research as well as issues arising that have been explained should assist the readers to compare the study situation to theirs, and enable them to decide on the transferability of the results of this study to their own situation (Polit & Beck 2012: 585; Duma 2007:29).

#### **4.7 Ethical considerations**

This study complied with the terms laid down by the World Medical Association's ethical principles on research involving human subjects, as specified in the Declaration of Helsinki (2008:2), in that the proposal was submitted and ethical clearance was obtained from the following ethics authorities in order to meet all ethical requirements and ensure protection of the study participants:

- The Department of Health and Rehabilitation Postgraduate Proposal Review Committee.
- The University of Cape Town Health Sciences Ethics Committee (REF: 058/2012; Appendix A).
- The National Research Health Committee of Malawi (NHSRC #1012; Appendix B).

- The head of the institution at the case study college (Appendix J)

The researcher observed the stipulations of the Constitution of the Republic of South Africa under the Bill of Rights in chapter II (1996: Section 12 no. c: 1249), which declares that “Everyone has the right to bodily and psychological integrity, which includes the right not to be subjected to medical or scientific experiments without their informed consent”. This was done because the study was conducted under the auspices of the University of Cape Town, South Africa.

The Constitution of the Republic of Malawi under the Bill of Rights in chapter IV (1999, section 19 no. 5: 2 of 9), which states that “no person shall be subjected to medical or scientific experimentation without his or her consent”, was also observed as described below.

The ethical principles that were observed during the study included the following:

- Autonomy
- Non-maleficence
- Beneficence
- Justice
- Confidentiality and anonymity.

#### **4.7.1 Autonomy**

Autonomy means that an individual has right to self-rule has authority to make moral decisions about that which they want to do, (Brink et al, 2006:35). This means that the adult individual who is medically and legally acceptable as having a sound mental capacity has the right to decide that which can or cannot be done to their body (Brink 2003:43).

The participants were given a verbal explanation of the study and the information sheet (Appendices D & E) with full details of the study before being asked for informed consent to participate in the study, to ensure participation that was voluntary. The information sheet contained the following information:

- The type of the study,
- The rationale for the study,
- The risks and benefits of participating in the study (see Appendices D & E).

### ***Informed consent***

- Each participant signed a consent form after reading and signing the information sheet which served as confirmation of their voluntary consent to participate in the study (Appendix F).
- A copy of the signed consent form was kept by the participant. The researcher kept the original signed copy.
- Prior to signing the consent form the participants were informed that they were free to withdraw from participation at any point during the study (World Medical Association 2008:3; Polit & Beck 2004:147; Brink 2003:43). The researcher identified herself and her purpose for being at the college and among them. Consent to be interviewed and observed was repeated at the beginning of each interview and during the observations. This is supported by Hansen (2006:30), Polit and Beck (2004:148). No respondents opted to withdraw from this study.

#### **4.7.1.1 Recruitment of the study participants**

A list of eligible participants to the study was obtained from the gatekeepers. This list was drawn up using the inclusion and exclusion criteria mentioned in 4.3.1.1 and 4.3.1.2. The Vice Principal and Dean of the campus under study and seven nurse educators were purposefully identified and approached for recruitment to participate in the study. They were given the information sheet and consent form. The recruitment process took three weeks (from 16 May to 5 June 2012) to accommodate each individual potential participant's teaching or working schedule.

All the nine participants who were recruited were to be interviewed while two of the participants from among the seven educators were to be observed during participant observations.

#### **4.7.3 Non-maleficence**

The principle of non-maleficence means that "the researcher is obliged to avoid, prevent or minimize harming the participants. Participants must not be subjected to unnecessary risks for harm or discomfort" (Polit & Beck 2008:170). In this study there were no foreseeable risks. However, throughout the data collection process the participants were reminded that the interview or observations could be stopped at any time if they felt uncomfortable. They were also reminded that their withdrawal or refusal to be observed or to answer specific questions would not have any effect on their relationship with the researcher or on their job (Hansen 2006:31).

#### **4.7.4 Beneficence**

The principle of beneficence stresses doing good, removing any harm, and provision of benefits to the individual. The principle states that one is under obligation to help others to further their interests. It can be described as the maximising of benefits and the minimising of harm. The researcher must conserve the well-being of participants through protection from “discomfort and harm that is physical, psychological, emotional, spiritual, economical, social and legal” (Brink *et al.* 2012:35; Polit & Beck 2008: 170). In this study there were no direct benefits to participants as individuals. This was explained to the participants, who were also informed that the potential benefits to the college were that the findings of the study could assist them to reflect on their successes in the implementation of PBL and identify areas for future improvements.

#### **4.7.5 Justice**

The principle of justice refers to “the participants’ right of fair treatment and selection” (Brink *et al.* 2012:36); the fair treatment also refers to the right to privacy (Polit & Beck 2012:155). To ensure that the principle of justice was adhered to and there was no favouritism, the inclusion criteria were shared with the participants and the exclusion criteria were also explained to them. This is supported by Brink *et al.* (2012:36) and Polit and Beck (2012), who state that selection of participants must be fair and “based on study requirements and not vulnerability” (Polit & Beck 2012:155).

All participants in the study must be treated fairly and equally and with respect. All agreements that were made with the participants were respected; the researcher kept time for scheduled appointments for interviews, and anonymity was maintained. This agrees with what Brink *et al.* (2012:37) states that the researcher must honour all agreements made with participants.

#### **4.7.6 Confidentiality and anonymity**

To comply with the World Medical Association’s Declaration of Helsinki (2008:3), which says “Every precaution must be taken to protect the privacy of research subjects and the confidentiality of their personal information and to minimize the impact of the study on their physical, mental and social integrity”, no names were used on the recorded interview data and the observation notes; only codes and numbers were used (Brink 2003:45). Participants were assured that information would only be accessible to the researcher and her supervisor, that it was locked away, and that the computer on which transcripts were typed had a password which was only accessible to the researcher. There would be no chance of data being traced back to the individual participant.

The information accessed from document reviews was kept safe. Data collected were used for research purposes only. This is supported by Hansen (2006:30) and Polit and Beck (2004:148).

#### **4.7.7 Researcher-participant relationship**

The Researcher-participant relationship is the interaction that occurs between the researcher and participants of a study, which involves conversation and dialogue between the researcher and the participants for the purposes of research (Eide & Kahn 2008:199). This should be a mutually beneficial relationship where each individual is treated with respect as a human being. If there is no trust of the researcher, the participants might not feel free to provide all the required information (Rubin & Rubin 2005:83-84).

A collaborative relationship between the researcher and participants which entailed mutual benefit was developed and maintained throughout the study. The researcher provided the participants with information concerning the details of the research. She introduced herself as a researcher as well as a nurse educator. The researcher explained how she would make contributions to the college during participant observations as she facilitated PBL groups alongside the participants. The researcher also provided feedback to nurse educators on their facilitation skills when asked to, using the evaluation form provided to the researcher. This enabled the facilitator to reflect upon her own performance and make the necessary adjustments, which is recommended in PBL facilitation. She also made contributions during clinical assessment preparations for practical assessments. She also shared with the participants the information on how the study findings would be utilised in nursing education. Based on this information participants felt that they were going to gain something from the study; they also felt that they were being investigated by a peer and were more relaxed in their interactions with the researcher (Bourdeau 2000:5).

The research participants as nurse educators are constantly involved in research work, and they expressed that their participation in this study served as an opportunity for them to enrich their experiences in research. They shared information on issues that had enhanced PBL implementation in the nursing college (Huisman 2008:377). Such a mutually beneficial exchange of information between the researcher and the research participants is what is known as 'reciprocity' and is encouraged by Carolan (2003:6) and Duma (2006:28).

## **4.8 Data management and analysis**

This section discusses the strategies of data management and the data analysis methods that were utilised in the current study.

### **4.8.1 Data management**

Data management is the starting point in data analysis, and it involves a complete and accurate recording of all data. The quality of data management affects the quality of data analysis (Speziale & Carpenter 2007:43; Duma 2006:113).

In qualitative research, data management centres on handling large amounts of data throughout the research process. Miles and Huberman (1994:45) recommend that plans of how data will be handled must be put in place before the actual analysis commences. The researcher must keep track of all the data and how they can be accessed every time this is required throughout the research period.

Miles and Huberman (1994:45) further describe Levin's five general principles for data storage: formatting; cross-referral; indexing or coding; abstracting; and pagination. Formatting refers to the structure in which the research notes are laid out, while cross-referral is tracing data that are stored in one file from another file/s. Indexing or coding involves the storage of data that have been coded. Abstracting is summarising or condensing long material into a shorter format, while pagination is the use of numbers or letters to locate items in filed notes. The above principles describe a variety of ways in which data can be organised and then retrieved as needed. They were all utilised in management of the transcribed data in the current study.

Speziale and Carpenter (2007:43) state that high-quality data can be ensured when there is accuracy in transcription. In order to ensure high-quality data and accuracy in transcription the interviews in this study were transcribed verbatim by the researcher within the first 24 hours of their occurrence. Microsoft Word was used and each file was given a pseudonym alphabetically for storage and easy retrieval. All of the data obtained from participant observations and field notes were also documented and stored in Microsoft Word, and given file names according to the dates when the observations were made for retrieval purposes. Data from document review were typed and given file names alphabetically for storage and retrieval purposes. Copies of all typed documents were filed in different flash drives for safety in case of loss or damage of the computer or one of the flash drives, as suggested by Hansen (2006:112) and Polit and Beck (2004:574).

#### **4.8.2 Data analysis**

Data analysis is a process of systematically organising raw data in order to give it structure, and to allow the researcher to detect patterns from the data, describe them and develop explanations about the phenomenon under study (Polit & Beck 2008:507; Levin 1997:1). Although data analysis is presented in a linear form for purposes of description, in reality it was recursive at every level of the process and started immediately after each data collection session.

Data analysis commenced soon after data collection as the researcher began to search for meanings from the narratives of the informants (Polit & Beck 2012:564). Data analysis was done manually, except for the use of Microsoft Word to store and retrieve coded data.

The following four steps of data analysis, as described by Spradley (1979) in his book *The Ethnographic Interview*, were used these included: domain analysis, taxonomic analysis, componential analysis and theme analysis.

#### **4.8.3 Domain analysis**

Domains are larger units of cultural knowledge that include other categories (participants' knowledge). In this step of the analysis the researcher identifies the categories or domains (Leech & Onuwugebuzie 2007:507; Spradley 1979:94).

In the current study the researcher looked for patterns of meaning from the informants' narratives, participant observations and documents. She identified categories and subcategories of data that were significant to the study objectives and research question. These categories were identified deductively, guided by the study's theoretical framework (Constas 1992:261; Fereday & Muir-Cochrane 2006:85). To achieve the identification of categories and subcategories, the researcher immersed herself in the data in order to understand the meanings within the text and in context (Braun & Clarke 2006:19). She listened to recorded interviews then transcribed them verbatim within 24 hours of each interview. Transcribing offered a deeper understanding of the concepts and their context as reported by the informants; it also supported confidentiality as data were not handled by other people (Polit & Beck 2012:543).

Field notes from participant observations were elaborated soon after an observation, giving the researcher an opportunity to recall all events of relevance made during the observations and therefore promoting accuracy. The notes were typed and stored in the computer in Microsoft Word and printed out. Data from document review were also made into readable transcripts, typed in

Microsoft Word and printed. All the data from the three sources were analysed together and not separately (Speziale & Carpenter 2007:43). Each transcript of raw data was read and reread line by line in order to make sense of the data and understand the key experiences of the informants, while looking for patterns of meaning and their similarities, differences and relationships. Interview transcripts were checked against recorded interviews to ensure accuracy (Bradley, Curry & Devers 2007:1763; Braun & Clarke 2006:36; Spradley 1979:94).

The patterns were identified and grouped into categories and subcategories of data that were significant to the study objectives and research question. All data that related to the factors that enhanced PBL implementation were noted and underlined. Different colour codes were given to items with similar meaning; this is termed coding. Coding is a process of transforming raw data into harmonised, manageable form in preparation for analysis; it is achieved through reading and breaking the content of scripts into smaller parts and assigning them a label (Burns & Grove 2011:94; Polit & Beck 2008:749).

The process of coding began with the development of codes prior to data collection, arising from the theoretical framework (see figure 1 pg 29) and the study objectives (see section 1.6 pg 5); this is termed deductive coding. Codes are labels which are assigned to paragraphs, sentences or words which help to register key concepts while preserving the context in which these concepts occur (Polit & Beck, 2012:722; Bradley *et al.* 2007:1761; Miles & Huberman 1994: 56). The development of codes was guided by the sociotechnical theoretical framework as described by Owens (1998:64) (see Figure 1 in Chapter 3). The researcher utilised the four concepts to design codes and a code structure, which was done *a priori* from the conceptual framework and the study objectives – what Miles and Huberman (1994:58) term “the start list” (Fereday & Muir-Cochrane 2006:83).

The next step in coding was the development of a code frame or template (Fereday & Muir-Cochrane 2006:83). The selection of the four particular codes was based on their contextual meaning that is what they were representing in the framework. This is supported by Miles and Huberman (1994:57), who state that when selecting codes it is not the words themselves that are significant but their meaning.

Each code was assigned an operational definition for precision and consistence throughout the study period. This was fundamental because the codes are a significant guide in extracting relevant data from the text for analysis (Miles & Huberman 1994:63). The codes were identified by different

colours using coloured pencils. A bold line of a different colour was used for each code and thinner lines for the subcodes.

The codes' applicability was tested on two transcripts from the pilot study data. The researcher sought the opinion of her research supervisor for inter-coder agreement purposes. The codes were verified as accurate on both transcripts. This verification procedure of inter-coder agreement is proposed by Miles and Huberman (1994:64). Testing of the codes by the researcher and her supervisor was done independently using the same set of data, and a score of 85% was achieved. This satisfied the researcher and her supervisor that the codes had been clearly defined and that there was mutual exclusivity between the codes (Lombard, Snyder-Duch & Bracken 2004:3. This verification procedure and inter-rater coding was necessary to ensure usefulness of the code structure and accuracy of the data extracts (Fereday & Muir-Cochrane 2006:85; Miles & Huberman 1994:64).

The researcher was open to new codes developing inductively from the data; therefore code development was not limited to the code frame. This was to allow the researcher to capture as much data as possible, provide a chance for rich descriptions of the data, and also prevent forcing data into codes or categories (Fereday & Muir-Cochrane 2006:85). Most important was the need to identify the critical factors for implementation of PBL as per the objectives of the study.

A list of data that was relevant to the researcher was made using the same colour for similar information according to the existing codes. For instance, any piece of data which related to the code 'Goal achievement' was underlined with a broad green line and a thin blue line was used for the sub-code 'Review of the curriculum'; a broad green line and a thin red line were used for the next sub-code, 'Embracing PBL'. Thus a piece of data would be underlined with two lines, a broad one for the code and a thin one for the sub-code.

Notes were made of points that seemed relevant to the researcher and those that were not clear. She also took note of the way the coding was progressing for further planning and adjustments (Marshall & Rossman 2011:99). The researcher returned to the participants to ask further questions on the noted points, in order to get clarification and also to ensure that correct data extracts had been placed against the right codes. Data were modified according to the responses and necessary changes were made.

The categories and subcategories were identified from coded data. According to Spradley (1979:117) these categories are the domains. A temporary code named 'Others' was created for the patterns of

meaning which did not fit into any of the *a priori* identified codes as per code frame (Braun & Clarke 2006:19).

This identification and naming of categories was guided by the study's theoretical framework that was guiding the study. This is supported by Fereday and Muir-Cochrane (2006:85). This process was repeated several times as more data arose from the interviews.

A total of five broad categories with subcategories were identified. Four of the categories were deductively identified and one category was inductively identified by data analysis of all sources of data collected. The list of categories and corresponding subcategories appears in Table 1.

**Table 1 Categories and subcategories**

Category	Subcategory
Goal achievement	Review of curriculum Embracing PBL
Resources for the organisation	Human subsystem Task subsystem Technological subsystem
Sources of students	Cultural background of students Instructional background (PBL or traditional)
Influence on the organisation	Larger external system
Others	Staff involvement in planning

The second step in the analysis was the taxonomic analysis.

#### **4.8.4 Taxonomic analysis**

In the taxonomic analysis the researcher classified the data by organising them into a table. This table offered some clarity to the researcher concerning the relationships among the different domains. The internal structure of the domain was then revealed and the contrasting sets within the data were identified (Leech & Onuwugebuzie 2007:572; Spradley 1979: 94). Each single category,

subcategory and extracts from participants' responses were taken from the data that had been underlined in the domain analysis, and arranged in a table by cutting and pasting the data (Leech & Onuwugebuzie 2007:572). This step was utilised to identify sets and subsets from the data (Bradley *et al.* 2007:1761).

Further identification of relevant information was done, while referring to the code frame at all times for relationships within the categories from all raw data about the factors that influenced PBL in the case study college, in order to classify them into precise categories. The researcher returned to participants with further structural questions to better understand the relationships among the categories from the data (Thorne 2000:68). This process was carried out repeatedly as new data emerged from the raw data until all data were coded, assigned categories and added to the table.

Finally the five main categories emerged and were confirmed with their subcategories in the designed table. An additional category, which was described previously as 'Others', was then assigned the name 'Critical success factors' in line with the last objective of the study, according to the perceived interpretation of its meaning which was becoming clearer to the researcher (see definition of critical success factors on pg iv). The table below represents an example of the category 'Goal achievement' and its two subcategories, 'Review of the curriculum' and 'Embracing PBL', with examples of extracts from the narratives of participants as raw data.

**Table 2 Taxonomic analysis**

Category	Subcategory	Extracts from data
Goal achievement	Review of the curriculum	<ul style="list-style-type: none"> <li>- <i>“the first point was the curriculum review for the Bachelor of Science in Nursing undergraduate programme”</i></li> <li>- <i>“first it’s because the curriculum was being reviewed with the aim of incorporating the PBL strategy”</i></li> </ul>
	Embracing PBL	<ul style="list-style-type: none"> <li>- <i>“But on the whole we knew that we were going towards embracing the PBL”</i></li> <li>- <i>“... everything has its own problems but people are willing to take the problem-based learning forward”</i></li> </ul>

**4.8.5 Componential analysis**

Componential analysis helped the researcher to further discover the meaning of the similarities and differences in data. The researcher was looking for components of meaning associated with the different categories. She looked at how similar or how different the information within each category was (Leech & Onuwugebuzie 2007:574; Atkinson & Abu El Haj 1996:441).

The main aim of this step was to sort the categories into what would develop into themes. To identify meanings from the data the researcher further read the scripts and examined the coded data (Braun & Clarke 2006:19). From these she was able to interpret the data and identify different factors which played different roles in the implementation of PBL. She was able to picture that the factors that influenced PBL implementation originated from both within and outside the college environment, and that these were complementing one another in the PBL implementation.

The interpretations were achieved by examining the associations among the statements that were made by participants during interviews and the relationships of those statements with the information from the other sources of data. For instance, how they related or associated the importance of support rendered by management to the implementation of PBL and the support from government and other organisations from outside the college. This was also related to a document that was reviewed in which it was reported that a PBL training session had been funded by NCA in support of PBL implementation.

Throughout data analysis the main issues that kept recurring and emerging from the data were classified into five main characteristics that had been identified as categories or domains. It was explicit that four ( see below) of the five main categories formed the basis of all the activities and strategies that the college was involved with during the PBL implementation process and appeared to have enhanced the implementation of PBL.

The researcher's conclusion, which was also supported by her research supervisor, was the emergence of the four themes from the data with subcategories which became subthemes. These four themes were as follows:

- a. Having a goal to achieve
- b. Resources for the organisation
- c. Influence on the organisation
- d. Critical success factors

#### **4.8.6 Theme analysis**

Theme analysis was the fourth and final step in the analysis of data, as suggested by Spradley (1979). The researcher sought to identify how the domains were related to each other and how these related to the studied phenomenon (the PBL implementation) as a whole. The significant consistency of data within the themes was sorting order to affirm that the differences that existed between the identified themes were authentic. Some of the themes and subthemes that did not appear to generate meaningful data were discarded (Braun & Clarke 2006:21; Spradley 1979: 94). The discarded The identified themes were revisited to see how they related to and differed from each other.

Further literature was reviewed in order to identify factors that enhanced the implementation of PBL in other colleges in order to confirm that the identified themes could be utilised as themes and enable the researcher to make inferences (Braun & Clarke 2006:20; Spradley 1979:154). For instance,

Gwele (1997:8) in her study confirmed the theme 'Resources for the organisation' in PBL implementation in that she identified the importance of resources in PBL implementation.

The researcher then reread all of the coded extracts one by one for each theme to see if they formed a logical pattern. All of the themes appeared to be logical, and all of the data fitted into the main concepts of the theoretical framework well. However, one theme, 'Sources of students', and one subtheme, 'Task subsystem' (under 'Resources for the organisation') were discarded as they did not yield meaningful data. A theme map was developed: a list of themes and subthemes that were used in the next step of checking the themes (Braun & Clarke 2006:21).

The researcher re-reviewed the data as a whole and checked each script against the code frame, revisited the categories and also examined the coherence of the theme map. Some more data which had been missed before were coded and added to the themes. Finally, when there were no new data emerging for coding, the exercise was stopped.

After thorough examination the following themes were confirmed as the themes for the study. Table 3 gives a summary of the themes and subthemes identified. These themes are discussed in detail in Chapter five.

**Table 3 Themes arising from the data**

Main theme	Subtheme
1. Having a goal to achieve	(a) Developing life-long learners (b) Review of the curriculum (c) Embracing PBL (d) Gradual introduction of PBL into the curriculum
2. Resources for the organisation	Human subsystem: (a) Committed management and leadership (b) Skills development for staff (c) Having staff with same basic values (d) Additional personnel

	Technological system: (a) Having technological and material resources (b) Staff knowledge of the curriculum
3. Influence on the organisation	Larger external system (a) Social (b) Economic (c) Political
4. Critical success factors	(a) Staff involvement in planning and communication (b) Staff motivation and commitment (c) Collaboration with other colleges and organisations (d) Recognition of the need for change

#### 4.9 Conclusion

This chapter presented details of the methodology that was utilised in this study. This was an exploratory and descriptive case study which utilised the ethnographic approach to data collection. The chapter also presented the purposive non-random sampling technique which was used to sample the participants, documents for review as well as the case study college. Data collection was done within a period of six months utilising three data sources; structured interviews, participant observations and document review. Scientific rigour was achieved by utilising the criteria that was prescribed by Miles and Huberman (1994). A presentation of the ethical consideration was also done: approval was sought from different ethics bodies. Finally was a presentation of the data analysis.

Data analysis was done utilising Spradley's four steps of data analysis and guided by Owens' sociotechnical systems conceptual framework (figure 3 pg 29). This led to the identification of four themes, uncovering the factors that enhanced the implementation of PBL in the case study college. The themes, subthemes and categories and the findings from all sources are presented in Chapter five.

## **CHAPTER FIVE PRESENTATION OF FINDINGS**

### **5.1 Introduction**

This chapter presents the findings of the study, including a description of the sample and the themes and subthemes as factors that enhanced the implementation of PBL in the case study college.

### **5.2 Description of the sample**

The teaching experience of participants ranged between five and more than ten years, with a range of two to four years of experience in PBL facilitation. Their educational backgrounds ranged from Masters to Doctorate degrees in different nursing specialties, including critical care nursing, mental health and psychiatric nursing, medical-surgical nursing, neonatal care, midwifery, paediatric nursing, reproductive health nursing, management and nursing education. These nursing specialties were seen to be an advantage in the PBL facilitation, and the nurse educators were able to draw from their expertise to guide and direct students during facilitation in both classroom and clinical settings.

The sample of documents for the document review included the undergraduate nursing curriculum and its related documents, PBL module outlines, assessment or evaluation tools, classroom timetables, case studies and clinical supervision plans.

### **5.3 Findings**

Relevant and supportive excerpts from raw data are used to demonstrate or support the themes that were generated from data analysis. Four main themes with subthemes were generated from the data, and are presented in Table 3 (see chapter 3)

#### **5.3.1 Theme 1: Having a goal to achieve**

The theme 'Having a goal to achieve' was renamed from 'Goal achievement' as the main concept of the sociotechnical theoretical framework (Owens 1998). This theme had four subthemes which emerged from the data: developing life-long learners, review of the curriculum, embracing PBL, and gradual introduction of PBL into the curriculum. Each subtheme is discussed below, with examples of excerpts taken from the raw data obtained from participants and documents reviewed.

##### **5.3.1.1 Subtheme: Developing life-long learners**

The first subtheme under the theme 'Having a goal to achieve' reflected the participants' desire to develop life-long learners through PBL. This was expressed by four of the participants as follows:

*“We wanted to develop our students to be self-directed learners for life; I think that’s the thing that motivated members of staff to start PBL”.*

*“The feelings were that PBL would bring the desired change, especially that it would make our students become self-directed learners.”*

*“... what we wanted was for the students to understand what they were doing, be able to develop an inquiring mind. If they understand, it will be easier when they graduate and go out there because PBL is not only in classroom, but for even when you are working. So we wanted to develop such life-long learners to go and work out things for themselves out there.”*

*“We wanted the students to be as actively involved in their learning as possible; for their learning to be permanent, if I may say so, otherwise most of them would be left behind”.*

This subtheme was further supported by information that was found in the undergraduate curriculum as a description of the expected attributes of a graduate from the college. The attributes of the college graduate extracted from the curriculum document included the following:

- i. *“The student is expected to take responsibility for life-long learning processes”*
- ii. *“The student is expected to take responsibility for life-long learning, reflective practice and professional development by valuing themselves as growing professionals”*

Further data to support the emergence of this subtheme were extracted from documents on the roles and functions of academic staff involved with PBL:

- i. *“During PBL facilitation, facilitators must do the following: Specify appropriate learning resources and materials for student’s self-learning”*
- ii. *“Promote a questioning, problem-solving attitude in students”*

The following extract from the review of documents also captures the essence of this subtheme, as follows:

*“The teaching, learning and assessment methods serve as examples that will focus much on helping the students to learn for life-long learning processes to promote holistic learning”*

The subtheme was further identified from participant observations, where facilitators were observed giving the students time for problem solving without providing the answers. The students were encouraged to go and search for more information, thus creating an atmosphere that would be motivating for them to want to learn more.

#### **5.3.1.2 Subtheme: Review of the curriculum**

The subtheme 'Review of the curriculum' emerged from data on the goals that the college set for itself prior to the implementation of PBL. One participant conveyed this goal and subtheme in the following extract:

*"The first point for us to do this was the curriculum review for the Bachelor of Science in Nursing undergraduate programme ..."*

Another participant expressed this goal as follows:

*"...curriculum review was done with the aim of incorporating the problem-based learning strategy"*

This also emerged from data from other sources, including minutes held by the college three years prior to the implementation of PBL, captured as follows:

- i. *"The process of the review of curriculum started with a stakeholder's meeting in September, 2005. The purpose of the meeting was to solicit stakeholders' views of the current programme. Stakeholders expressed the need for the college curriculum reviewed in response to emerging issues in the society"*
- ii. *"... the tutors felt the need to use more independent teaching and learning methods with focus on Problem Based Learning (PBL) and Reflection. It is also a requirement in a democratic society that students should participate and take responsibility for their own learning hence:*

*PBL as an Independent Method:*

- *Provides students with the opportunity to examine and try out what they know.*
- *Discover what students need to learn*
- *Develop skills for achieving higher performance in teams*
- *Improve communication skills*
- *State and defend positions with evidence and sound argument."*

### **5.3.1.3 Subtheme: Embracing PBL**

The third subtheme under the theme 'Having a goal to achieve' was 'Embracing PBL'. This emerged mostly from data from participants' interviews. Three of the participants expressed this subtheme in the following ways:

*"But on the whole, we knew that we all had to embrace PBL as our goal"*

*"Everything has its own problems, we also had our own problems, but people are willing to take the problem-based learning with both hands and move forward."*

*"So we are in the process of getting towards perfection in PBL because we are all working towards one goal that of embracing the PBL strategy."*

### **5.3.1.4 Subtheme: Gradual introduction of PBL into the curriculum**

The fourth subtheme of the theme 'Having a goal to achieve' was the 'Gradual introduction of PBL into the curriculum'. Data revealed that as novices in the implementation of PBL the goal of the college was to start with the hybrid PBL as opposed to the full curriculum PBL. This was identified as a strategy to enhance implementation of PBL slowly, without causing an overhaul, and is captured in the following extract:

*"Personally, I would not advise anybody in this region to start with a full PBL curriculum; we had to start small because of the challenges known to be associated with full PBL. To avoid failure, we went for the hybrid model. But also, our students are from a traditional teaching background, so we could face challenges if we went along with full PBL."*

The subtheme was also observed during participant observation, where the use of some conventional teaching methods, such as the lecture method, was identified. One participant also confirmed this observation as follows:

*"We have not completely done away with the lecture method; we are not using a full PBL curriculum here. So for some content we still use lecture method since we are not yet completely established in PBL."*

Also supporting the identification of this subtheme is that participant observation of teachers showed that they added more information where the students' presentations fell short during group presentations.

The curriculum document also indicated that PBL was one of the learning strategies which would be combined with other conventional learning and teaching methods.

### **5.3.2 Theme 2: Resources for the organisation**

The theme 'Resources for the organisation' was named from the main concept of the sociotechnical theoretical framework (Owens 1998). The theme emerged from data from interviews and other sources such as participant observations. The theme had two subthemes: the 'Human subsystem' and 'Technological subsystem', and these each had four and two categories respectively emerging from the data.

#### **5.3.2.1 Subtheme: Human subsystem**

The subtheme 'Human subsystem' emerged from data and had four categories: Commitment of management and leadership, Skills development of staff, having staff with the same basic values, and Additional personnel. The subtheme and its related categories are discussed below, with examples of excerpts from the raw data from participants and documents reviewed.

##### **5.3.2.1.1 Category: Commitment of management and leadership**

The category 'Commitment of management and leadership' under the subtheme 'Human subsystem' emerged mainly from interviews with participants. Describing the commitment shown by the management and leadership, one participant said:

*"The college Management and Leadership took the leading role and actually emphasised on using PBL, encouraging everybody to change from the traditional method of teaching to this modern strategy of learning"*

Two other participants described the commitment of management and leadership as follows:

*"The Dean who was in office was very much interested. Her Master's degree was in Education. She is the one who motivated most members to accept PBL"*

*"The management and leadership team was on the forefront to see that PBL is being implemented. For instance they sourced funds and material assistance from other organisations like Norwegian Church Aid"*

#### **5.3.2.1.2 Category: Skills development for staff**

The second category under the subtheme 'Human subsystem' was 'Skills development for staff'. Data revealed that before initiating the PBL implementation, the college was involved with the development of the PBL skills of its staff in PBL implementation. One participant described this as follows:

*"... the secret is educate the teacher; if not everybody can be at PhD level then people can have in-service education and that's how we have managed"*

Further describing the category three other participants said:

*"Staff were trained in PBL skills, like group facilitation and planning the problem scenarios. We also had training on computer searching skills and basic computer skills"*

*"We went through training on what PBL is and also during this training there was role playing on how we can conduct the PBL. So that helped us gain skills in PBL like group facilitation"*

*"There were workshops for the staff to be oriented in PBL, and visits to other places like Norway to see how PBL is done".*

#### **5.3.2.1.3 Category: Having staff with the same basic values**

The third category that emerged from the subtheme 'Human subsystem' was 'Having staff with the same basic values'. Data revealed that the staff having the same basic values was one of the factors that enhanced PBL implementation. Describing these 'same basic values', one participant expressed herself as follows:

*"Willingness to change and a hard-working spirit have helped and teamwork has been one of the major factors that have helped in the implementation of PBL in the college".*

Supporting the same category, two other participants said:

*"One of the values that has helped us was hard work, a hardworking spirit and teamwork"*

*"We have the culture of wanting to share, wanting to learn from each other this has also helped us to embark on this PBL easily and we are very often receptive ... yes very receptive to new things".*

Further data to support the emergence of this category were noted by the researcher during participant observations of the staff as they performed their daily activities inside and outside the classroom. She observed teamwork among the staff; for instance, when organising a practical examination members of staff from different departments of the college would come together to assist the members of that department, and sometimes even those from the main campus would come to assist their colleagues. They would share assignments, and every person would complete the assignments within the allocated time. Members also demonstrated hard work, in that they would always be engaged in their daily assignments; they would skip lunch breaks and often work overtime (past the prescribed hours), for which they would not be paid extra money.

#### **5.3.2.1.4 Category: Additional personnel**

The fourth and last category under the subtheme 'Human subsystem' was that of 'Additional personnel'. Data (mainly from interviews with participants) revealed that the college had embarked on recruiting more staff for the implementation of PBL. Said two of the participants:

*"There has been recruitment of more lecturers and clinical instructors recently. From last year we recruited more lecturers and clinical instructors on government secondment; this has helped a lot to beef up staff for PBL implementation"*

*"They have also made efforts to increase the human resource, for instance more IT staff were appointed to assist students and staff in the computer labs and material in order to promote the PBL implementation".*

#### **5.3.2.2 Subtheme: Technological subsystem**

The subtheme 'Technological subsystem' was identified as another subtheme under the theme 'Resources for the organisation. The three categories described under this theme included Having technological equipment and material resources, Staff knowledge of the curriculum, and Organisation of the curriculum. Each of these categories is described below.

##### **5.3.2.2.1 Category: Having technological equipment and material resources**

This category emerged from the subtheme 'Technological subsystem'. Data revealed that for PBL implementation to be achieved there was a need for resources for both staff and the students. The resources that were required were described by different participants. One of them gave the following description:

*“Infrastructure like we didn’t have a computer lab, so they renovated a room turned it into a computer lab for students. For example, here in Blantyre the current computer lab was a classroom. But if they had not accepted to do that we wouldn’t be able to implement PBL”*

According to data the library as a resource proved to be a necessity in the implementation of PBL, and the service providers in the library were just as important. They had made an impact in the implementation process as they made sure that resources were made available to students and staff:

*“We have a very strong library and ICT services; if you have to do PBL you should have resources so the students should be able to search for information, so we have a very good library with good books, and also a very good librarian. Our librarian is very resourceful and he has been very useful in the implementation as both teachers and students were able to be assisted in the library every time they needed information”.*

Stressing the importance of having resources, data showed that the college took the responsibility to see to it that the type of resources that students accessed were up to date. Participants said that the college also subscribed to journals and books for students to use:

*“The college subscribes to many e-journals and a few e-books so the students can go online and access whenever they need information in their PBL groups”*

The availability of adequate technological and material resources in terms of books and Internet accessibility was identified from the data and described by one participant as follows:

*“For PBL implementation, on the part of resources as a college I think we are doing quite okay because the resources are the materials students will refer to when they want to go and do their own studies. So we have the library which has got adequate books and we have got computers in the computer labs, and we also have the skills lab. They can also access the Internet to get information to use at any time”.*

#### **5.3.2.2.2 Category: Staff knowledge of the curriculum**

This was the second category that emerged from the subtheme ‘Technological subsystem’. Knowledge of the curriculum by the facilitators was identified as an essential factor that enhanced the implementation of PBL. The knowledge of the staff was described by two of the participants as follows:

*“...in PBL the teacher is not a source of knowledge but a facilitator of knowledge acquisition. But it was also important for staff to have knowledge of the curricular content so that they could easily assist students”.*

*“People knew what PBL was all about because they had learned and they knew what they should expect when they start implementing the PBL curriculum. Another important issue that was helpful was the fact that the facilitators had knowledge of the curriculum ... yes ... otherwise how do you facilitate something you don’t know?”*

This category showed the fact that apart from orientation to PBL process; the facilitators were also required to have knowledge of the curriculum that students were using. (The lack of knowledge of the curriculum would limit the facilitators’ effectiveness in facilitation for the reason that it would be difficult for them to perceive if students’ discussions were addressing the curricular requirements.) One participant described the importance of facilitators having knowledge of the curriculum as follows:

*“...the PBL facilitators, apart from the training in PBL also had knowledge of the curriculum. We were informed during training that this is a necessity for you to be able to assist, know and evaluate that students learn material pertaining to their curricular requirements ... yes I think it was a necessity”*

#### **5.3.2.2.3 Category: Organisation of the curriculum**

The third category under the subtheme ‘Technological subsystem’ was ‘Organisation of the curriculum’. This emerged from interviews with participants and was further confirmed by data from reviewed documents. One participant expressed this as follows:

*“It is not a full PBL curriculum but hybrid PBL and so PBL is one of the learning strategies that are being utilised in our curriculum for our students as such some of our modules have PBL scenarios but others do not have them because we are not using full PBL”.*

*“The college is also using a modular system which is more on self-learning of the students”.*

More data that supported this category emerged from the information that was found in the undergraduate curriculum and from information identified during participant observations. The curriculum was modular in design and the PBL scenarios or problems for students were arranged in the modules. It was also seen that the structure of the curriculum was content-oriented, and PBL was included as one of the learning strategies.

Some of the learning objectives that were stipulated in the curriculum as well as the modules were more content-based, as seen in the following extract:

*“At the completion of a four week clinical placement in antenatal clinic the student will be able to demonstrate competence in ...”*

Another example of expected learning outcomes from a class on ethics was as follows

- i. *“You will be required to take the practice of documenting your practice objectives and learning experience (strengths and weaknesses) in your log book in order to be able to evaluate your self-learning on ethical issues.*
- ii. *Method of writing;*
  - *Introduction; your personal biography and description of the attribute learned*
  - *Description of the practice experience*
  - *Reflection and analysis of the experience*
  - *Recommendation on how you will conduct yourself in future in similar experience*

The assessment tools were also reviewed; they were organised in a way that required the students' to have critical thinking skills, as seen in the following examination scenario:

*A client is admitted to the male ward with a history of headache, joint pains, nausea and vomiting since two days ago. You suspect that the client has malaria. Demonstrate how you would collect subjective data under the following:*

- *History of present illness*
- *Family history*
- *Environmental history*
- *Past health history*

### **5.3.3 Theme 3: Influence on the organisation**

The theme 'Influence on the organisation' was named after a main concept of the sociotechnical theoretical framework (Owen 1998). Data revealed that the college had been influenced by the external environment to implement PBL. This theme had one subtheme with three categories.

### **5.3.3.1 Subtheme: Larger external system**

The only subtheme under the theme 'Influence on the organisation' was the 'Larger external system', which emerged from data from interviews. This subtheme had three categories under it: Social influence, Economic influence, and Political influence.

#### **5.3.3.1.1 Category: Social influence**

The category 'Social influence' under the subtheme 'Larger external system' was the first category to be identified. One participant described this category as follows:

*"The comments made by communities such as 'your students just know the theory but not practice when they graduate', among other issues, impelled us to review our teaching methods. We identified the gaps and saw that some of the weaknesses originated from our students' lack of critical thinking skills, and we decided to institute the PBL since it is known to enhance critical thinking in students. We considered such comments useful as they helped us in terms of giving us feedback on how we can improve our programmes in the college".*

The following extract from one participant also captures this category of 'Social influence':

*"Globally, nursing education has undergone a lot of changes including the instructional methods, and one of the changes made is the introduction of PBL in the nursing curriculum. Therefore, as an institution that offers nursing education we felt the social pressure that we could not continue with the traditional teaching methods only but we had to introduce PBL into our curriculum as well in order to stay abreast with our colleagues around the globe".*

#### **5.3.3.1.2 Category: Economic influence**

The second category under the subtheme the 'Larger external system' was the 'Economic influence', and emerged mainly from data from interviews with the participants and review of documents. One participant had the following to say here:

*"Norwegian government through the Malawi government invested a lot of money into the initiatives for improved nursing education in Malawi project which included implementation of PBL. The project was advocating and orienting colleges in student active learning and teaching methods (SALTM) intended to promote democratic ways of learning for students. This initiative helped to influence this college to implement PBL".*

The subtheme was further supported by data from the review of minutes from a PBL training of trainers' workshop:

*“This four-day workshop was organised by the Norwegian Church Aid in collaboration with the Christian Health Association of Malawi with funding from the Royal Norwegian Embassy under the Improved Health Training in Malawi – Nursing Colleges Cooperation Project”.*

#### **5.3.3.1.3 Category: Political influence**

The category ‘Political influence’ under the subtheme ‘Larger external system’ was the second category to be identified. One participant described it as follows:

*“Some organisations, such as Norwegian Church Aid and others were on the forefront encouraging and supporting the college and other colleges to implement PBL. They even organised sensitisation workshops. Up to now other organisations are still sponsoring some of the students, for example the WHO, National Aids Commission, Nursing Education Partnership Initiative and others, and they are also providing computers so the computer labs have really improved”.*

The following extracts from participants also capture the essence of this category:

*“The Ministry of Health has got priorities in the implementation of its programmes that is why when we were developing the PBL curriculum we also invited them for their input to ensure that we were planning within these priorities. In fact it was in an effort to respond to some of the priorities of the Ministry of Health, such as improving nursing education in Malawi that necessitated the implementation of PBL in our college.”*

*“Most of our collaborators such as the nursing colleges in Norway, the University in Scotland, the Michigan State University, had already implemented PBL in their nursing curriculae and it made our collaboration somehow uncoordinated because we needed to be speaking the same language. As a result we had to decide to implement PBL in our curriculum.”*

*“The other organisation which has also made an impact in getting the college where it is today is the nurses’ and midwives’ council of Malawi, because as a teaching institution we work hand in hand with them; for example, they supervise us, they check on whatever we are doing, they look at our programmes, the curriculum, and they also make proposals, I mean they propose on some of the changes we want in the curriculum”.*

#### **5.3.4 Theme 4: Critical success factors**

This was the fourth and last theme, and the only one that emerged inductively from the data. It was identified from the study objective ‘to identify a set of critical success factors that could guide the

implementation of PBL in nursing education in Malawi'. In this theme five subthemes emerged from the data: Staff involvement in planning and communication, Staff motivation and commitment of staff, Collaboration with other colleges and organisations, Recognition of the need for change, and Provision of additional resources.

#### **5.3.4.1 Subtheme: Staff involvement in planning and communication**

The subtheme 'Staff involvement in planning and communication' emerged from data on the critical success factors that enhanced the implementation of PBL. One participant conveyed this factor in the following extract:

*"Whenever there is something new the Dean or the Vice Principal informs us and everyone is aware that is how it worked with the PBL for people to be involved. I would say that this has been one of the strengths where PBL implementation is involved"*

Further supporting this subtheme, two other participants expressed themselves as follows:

*"From the word go, college management emphasised on teamwork and this was very motivating for most of the staff. A curriculum is not implemented by an individual there has to be teamwork so we started planning together for the implementation."*

*"The people in management took charge but they were also accommodative of our suggestions and any form of input that we brought forward was taken with respect"*

Further data to support the emergence of this subtheme was identified from observations of communication patterns among the staff and between those in management and their staff during meetings.

This aspect of the management team being accommodative was also seen by the researcher during participant observations of staff meetings. Members of management addressed and treated staff with respect, and respected their opinions concerning issues under discussion.

#### **5.3.4.2 Subtheme: Staff motivation and commitment**

The second subtheme under 'Critical success factors' was 'Staff motivation and commitment of staff' in the implementation of PBL. This was expressed by one participant as follows:

*"I must be honest with you, most of the staff here are very motivated, and their motivation played a very crucial role in PBL implementation"*

Another participant described this as follows:

*“The positive side is that people are very creative, they continue to create good resources for their students; they are very motivated and committed to PBL implementation.”*

Another participant expressed herself as follows:

*“One, maybe it was because of the conducive environment that the college management created and supported it, they allowed everyone to see the benefits. They encouraged staff to come up with ideas, and this was a source of inspiration and motivation for most of us.”*

#### **5.3.4.3 Subtheme: Collaboration with other colleges and organisations**

The subtheme ‘Collaboration with other colleges and organisations’ emerged from data on the critical success factors that enhanced implementation of PBL. One participant conveyed this factor and subtheme in the following extract:

*“Our collaboration with College of Medicine because they are ahead of us in IT and e-learning has helped us, especially in training workshops on the use of IT services, and this been very instrumental in our PBL implementation”*

Two other participants said:

*“But we also have institutions that are not in the university, like the one which is in Domasi, the education centre; they provide us with a lot of technical assistance in the PBL implementation”.*

*“Those programmes which are doing management, they also get a lot of support, they also rely on Malawi Institute of Management and this has helped us a lot in the implementation of PBL”.*

#### **5.3.4.4 Subtheme: Recognition of the need for change**

‘Recognition of the need for change’ was the fourth subtheme emerging from the theme ‘Critical success factors’. It emerged from interview data about the factors that influenced the implementation of PBL. Expressing this subtheme one participant said:

*“You know I was doing a survey in one area of education and some of the responses that students gave was ... like they want to be involved in their own learning; they are tired of the*

*lectures, that kind of thing. This also opened my eyes, and when it was shared among colleagues we all felt that PBL seemed to present itself as an answer.”*

Another participant expressed herself as follows:

*“People have developed a culture of saying things are changing and we are looking at ... we are working in this environment where people are looking at evidence-based information and these people read a lot, they are research-oriented, that is why the staff felt that it is also time for us to change, you know ... and implement PBL”*

Another participant said:

*“I think the students we have now are the ‘dot com’ generation, they don’t want to be served, and they want to discover things on their own. The lecture method was boring to them so they like this problem-based learning that they have to solve problems, they have to invest on their own; it really stimulates their learning. As teachers we saw that we also have to move with the times and implement this PBL thing in our college”*

#### **5.3.4.5 Subtheme: Provision of additional resources**

This was the fifth and last subtheme that emerged from the theme ‘Critical success factors’ that enhanced PBL implementation in the college. Two participants expressed this subtheme as follows:

*“We have a skills lab with some equipment; special equipment has been procured for use in the clinical labs and we have also made links with, for example, the College of Medicine where there is a multi-professional skills lab which our students are also able to access and work in their PBL groups each time there is need. This served as additional equipment and it eased the PBL implementation.”*

*“The college had to negotiate for a building that was close to the college, but it belonged to the Ministry of Works. They then renovated this building and we now use it as a computer laboratory. It also contains three large classrooms and a research office. That initiative really played a big role in our PBL implementation”.*

The following excerpt from the document review supports this category as follows:

*“So the planning stage was very crucial, I think we also looked at what do we want to achieve, do we have the resources in terms of the finance and human resources, that’s when they decided to recruit more lecturers”*

#### **5.4 Conclusion**

The chapter presented a description of the study sample and the findings of the study. Four themes and subthemes with categories emerged from the study. The first three themes were identified deductively while the fourth theme was identified inductively based on the study objectives. The findings show that several factors were important for the implementation of PBL, and these factors originated from both within and outside of the college. Critical success factors that enhanced the implementation of PBL were also identified.

University of Cape Town

## **CHAPTER SIX DISCUSSION, RECOMMENDATIONS, LIMITATIONS AND CONCLUSION**

### **6.1 Introduction**

This chapter presents a discussion of the findings, the recommendations for different stakeholders, the limitations of the study and the conclusion.

This ethnographic study aimed at exploring, analysing and describing the characteristics which enhanced the implementation of PBL in the identified college as a case study. A set of critical success factors that could guide the implementation of PBL in nursing education in Malawi was identified and is also discussed in this chapter.

## **6.2 Having a goal to achieve**

‘Having a goal to achieve’ was one of the main themes that were identified as having enhanced the implementation of PBL in the case study college. This theme was identified from a set of specific goals identified by the college prior to the implementation of PBL. These specific goals, which formed the subthemes of the main theme, included the development of life-long learners, review of the curriculum, embracing PBL and the gradual introduction of PBL into the curriculum.

The case study college had set the above goals which were guiding them during the implementation process. Setting of goals that are specific for students and staff in the implementation of PBL is identified as a significant factor (Barrows 2000:23). Barrows stated that carefully worked out goals were fundamental to designing any change in the educational method. The clearly stated goals allow those who implement a programme to continuously conduct evaluations of the programme and determine whether success is being achieved or not. The setting of goals in the present study assisted the implementers of PBL to have a target that they were working towards as they went through the implementation process. The college reviewed the traditional curriculum which was converted to a hybrid PBL curriculum. This facilitated the implementation because they needed to develop a PBL curriculum in order to successfully implement a problem-based learning programme.

Setting specific goals prior to implementation of a PBL programme facilitates the recognition of the basic rationales for selecting the PBL learning strategy. If the goals in PBL implementation are not well deliberated, then the real grounds for selecting PBL against conventional teaching methods cannot be defined and supported (Barrows 2000:4). The set goals in the present study prevented the implementers from diverting from their plans. Participants expressed that the goals were a constant reminder to all staff about their rationales for initiating the PBL which also served as a motivation. Participants reported that every time the goals were reviewed members of staff were able to see if the activities that they were engaging in were in line with the achievement of the set goals or not (Barrows 2000:4).

### **6.2.1 Production of life-long learners**

The production or development of life-long learners was one of the goals set by the college and a subtheme under the theme 'Having a goal to achieve'. It was one factor that enhanced implementation of PBL in the case study college. Studies have shown that PBL is a learning approach that develops life-long learning among students. The students that learn through this approach become self-directed in their learning, and develop the culture of an inquiring mind (Yeo 2007:875).

PBL was identified as a learning strategy that could assist the college to achieve this goal of developing life-long learners. The teachers recognised the fact that the use of the PBL approach would stimulate students to go out and seek further information. As students sought to solve the problems that would be presented to them in their working groups, they would also be motivated to want to know more leading to searches for further information. The teachers were aware of the fact that this would be on-going until the students would develop a culture of wanting to learn and discover information for themselves. Eventually, these students would become life-long learners. Barrows (2000: xiii) recognised that PBL promotes life-long learning among graduating students as compared with other traditional teaching and learning methods, in which student participation is very minimal.

The findings of this study support the results of the study by Schmidt, Vermeulen and van der Molen (2006:563) who studied the long-term effects of PBL in medical training on the professional competencies of graduates. Questionnaires were utilised to elicit information on how the graduates from a PBL and those from a conventional background rated themselves on eighteen (18) professional competencies derived from the literature. The results were that the graduates from the PBL group scored higher than their counterparts. Conclusions drawn from the study were that apart from the skills that are gained through the use of PBL such as good interpersonal skills. The PBL students also gained skills and competencies that are directly connected to the professional practice that they will utilise and continue to polish up as they grew professionally. Such skills open the students intellectually to seek information more and always wanting to learn more, and eventually they become constantly motivated learners throughout a lifetime (Vermeulen & van der Molen, 2006:563).

Results in the present study indicated that the college identified the need for their graduates to become life-long learners. Informants reported that they believed that such practitioners can

discover the need for continued education even after graduating from college. As one of them expressed that PBL is not only for the classroom. These graduates would thus be able to empower themselves with the required knowledge and skills. Ultimately they would utilise that knowledge and skills to address the health problems and ever-changing health needs of the Malawian community and the world at large.

The current working environment in Malawi and elsewhere for the nurse has patients and clients who are well informed about their health care needs and rights. The modern health care consumers demand the services of nurse practitioners who are accountable for their actions at all times. Such working environments require practitioners who are always in possession of information regarding the recent trends in the profession and care provision. Practitioners like these are capable of developing themselves when they discover the need to continue education after graduating from college. PBL is believed to produce life-long learners who can easily fit into such working environments as they will be seeking for new knowledge to update themselves for personal and professional growth throughout their professional life (Badeau 2010:246; Beers & Bowden 2005:513).

A study was conducted by the Department of Medicine and Pharmacology, at a university (Universitätsklinikum) in Germany on medical students. The aim was to compare the learning outcomes between PBL and lecture taught students. Findings indicated that though the PBL group of students used a lot more resources than their counterparts, they enjoyed the learning a lot more. The PBL students' learning behaviour was reported to have changed dramatically from passive learners to active self-directed learners and they continuously demonstrated a desire to search for more information and learn more throughout the study. It was concluded that PBL develops a sustained desire to learn which may eventually become a life-long desire for learning in students. The recommendations that were made from this study were that medicine is a dynamic profession. As such medicine requires professionals who have developed a steady motivation for learning, and so PBL was the ideal method of learning for the medical students.

The knowledge that the educators in the present study had about the long-lasting effects of PBL on the students' learning desire; had inspired them to ensure that the implementation of PBL became a success. They had pictured the type of graduate that they intended to produce. The result was that all their activities in the implementation process were geared towards achieving this goal. They

worked towards producing a graduate that was a life-long learner. This became one of the enhancing factors of PBL implementation.

### **6.2.2 Review of the curriculum**

Problem-based learning implementation in the case study college was also enhanced by the review of the old conventional curriculum done by the college. This was embarked on prior to the implementation of PBL. For the reason that the new curriculum served as a guide on the way students would be expected to learn (student-centred rather than teacher-centred), the use of the new curriculum was viewed as having facilitated the implementation process.

Before faculty reviews or develops a new curriculum, they need to consider the type of graduate that they want to produce. The very characteristics of the product should be envisioned before the review. This determines the choices of activities that the students should engage in, in order for them to develop the sought after skills and attitudes (Barrows, 2000:4). PBL is said to be a curriculum as well as an instructional strategy. As such the organisation of the PBL curriculum has to be designed in a way that it addresses the goals of PBL (Barrows 2000:4; Conway & Little 2000:2). PBL utilises real life problems, simulates the real world or represents real life situations. Forrester, (2004:49) asserts that the real world is dominated by problems, projects and challenges. It is a curriculum that addresses such issues that can accomplish the goals of PBL. Conway & Little, (2000:2) caution against utilising the old curriculum to fit in the PBL approach. They advise it that may cause significant problems as there is going to be discord between the method of implementation and the curriculum.

The case study college had indicated that they aimed to produce students who were life-long learners. The curriculum was reviewed to incorporate the PBL approach that would address this goal. The outcomes of the curriculum were well thought-out to be student centred in order to meet the goals of PBL as well as those of the college. PBL aims to develop learners that are motivated, self-directed and corporative. The PBL curriculum is professed to be student centred (Hmelo-Silver, 2004: 240). The student centeredness of the curriculum in the Case Study College was identified in the reviewed curriculum document. It was stated in the document that the graduates would take responsibility for life-long learning processes, reflective, self-directed practice and professional development by valuing themselves as growing professionals. When such changes are made to the curriculum both teachers and learners are organised and they have clear ideas of how learning should be addressed by both teachers and students. At the same time the PBL objectives are achieved, therefore promoting success in the implementation programme (Hmelo-Silver, 2004: 240).

Similar findings were reported by the State University of New York, which implemented the PBL strategy in the medical curriculum in the neuroscience programme. The university reviewed its curriculum to address the goals of PBL. They changed from a linear type (one that just followed module after module based on subject content) to a curriculum that was student centred. It was based on problem scenarios in the modules that would be delivered using PBL. It was a hybrid PBL model so there was a synchronisation of topics on similar subjects to follow one another. For instance, a lecture on Neuron Receptor Functions would be delivered before a PBL group discussion of Schizophrenia would be conducted. The review of the curriculum was reported to have promoted the success of the PBL implementation process, since the new curriculum was designed to address the goals of PBL (Trappler, 2006:4).

Several other universities that introduced the PBL implementation also reported to have started by conducting a curriculum review. Such places as the University of Delaware, McMaster, Makerere, Kwa Zulu Natal, Victoria University, reviewed their curricula ahead of PBL implementation (Huichun & Henriksen, 2010:1; Allen, Duch, Groh, Watson & White, 2003:1; Barrows, 1996:3). This undertaking was essential for the reason that a successful PBL programme cannot be initiated utilising the existing conventional curriculum (Conway & Little, 2000:2).

The paradigm shift from conventional teaching and learning methods to PBL is a major one and requires well thought out preparation, including curriculum review. The change in the curriculum design in the case study was beneficial to the college as it helped the teachers with content delivery approaches which were being guided by the curriculum. The college implemented PBL in the undergraduate programme with the belief that the changes that the PBL approach brings in the learning activities and attitudes of the students would be developed and remain throughout their professional lives. They believed that the students would become motivated, collaborative learners, who would be responsible for own their own learning for life. This became a motivation and enhanced the implementation of PBL in the case study.

### **6.2.3 Embracing the PBL**

Embracing something involves the acceptance of a phenomenon after examination of the positives versus the negatives (Parasuraman, 2000:308). When something has been embraced it means that the idea has been welcomed; it has been taken up and accepted willingly.

The third goal that the college had set was to embrace the PBL as a learning strategy. Results of the current study concur with what Barrows (2000:117) says. He states that some of the initial plans in

PBL implementation include determination of the number of staff willing to take up the programme. He continues to say that it would be very frustrating for the leaders of an institution to commence the programme with disregard to the ideals of its faculty members. There would be no support from the staff and student learning may be negatively affected (Barrows 2000:117). Similarly, if it is just a handful of the faculty willing to take up the PBL, those who engaged with the approach would be discouraged for the reason that it would be very unlikely for the uninterested members to offer them support (Savin-Baden 2003:341).

Horton (2012:3) describes the world that we live in today as constantly undergoing change at a fast rate in all spheres of life. He asserts that in order for institutions and organisations to survive in the present day then change should become inevitable. He concludes by asking the question whether change should be feared or embraced. The introduction of PBL in a curriculum is one category of change. In the present study, it was to the advantage of the college that although PBL was a new concept in the college the staff were willing to embrace it. PBL was a paradigm shift which brought with it new ways of thinking and implementing learning activities for both students and teachers. The teachers could no longer supply information but rather observe and facilitate its acquisition among students. Merely by aspiring to embrace the PBL the college had taken the first step towards the success of the programme. Participants indicated that they were still working on ways to improve their PBL implementation. Such efforts would only be initiated where there was acceptance and the new approach was embraced (Horton, 2012:2).

Acceptance of the PBL approach was therefore an enabler in the PBL implementation. Teachers were willing to go along with the programme.

#### **6.2.4 Gradual introduction of PBL into the curriculum**

The gradual introduction of PBL is another feature that was identified as a factor that enhanced the implementation of PBL in the case study. This gradual introduction was done by selecting certain modules in which PBL could be introduced while using the conventional methods for other modules of the basic courses that are offered in the undergraduate programme in the curriculum. PBL approach would be introduced in the second year of the programme.

Participants explained that PBL was introduced slowly into the curriculum. The model that was selected by the case study college was the funnel model of PBL (presented in section 2.2.3 page11), as described by Savin-Baden and Major (2004:35); this is a type of hybrid PBL. Members of the

academic staff in the college agreed to teach students using the lecture method in first year and then progress to PBL in their second, third and fourth years. The choice of the model was influenced by the information about the merits and demerits of both the full PBL curriculum and hybrid PBL, which the staff gained from the PBL training. Teachers were aware that the selected model would provide an opportunity for students to gain foundational knowledge and principles of nursing through lectures before engaging in PBL. The other rationale was that the teachers' consideration of the students' different instructional backgrounds. Participants said that the staff had assumed that some of the students might experience difficulties in making cognitive adjustments from the traditional background to a PBL environment. One respondent expressed that the staff believed that their support through lectures would help the students understand PBL better. This is in agreement with what Savin-Baden and Major (2004:36) said that in the funnel model of PBL teachers believe that when they give lectures to students, they will support them and enhance their understanding during PBL sessions.

Literature supports the strategy of gradual introduction of PBL into the curriculum. For instance, Benson (2012:428) recommended that it is good to start with a small, successful PBL project rather than to have a large programme that fails. His recommendations were based on his personal experience of using PBL, when he experimented on students' responses to PBL in seminar and laboratory situations in Australia. His opinion is that PBL may be more effective when used in conjunction with conventional methods in its early stages of implementation.

The idea of gradual implementation of PBL in the current study concurs with further recommendations made by Wood (2003:239). She suggests that a PBL curriculum may be designed to use PBL with one subject within a module, or one selected module at a time. As an alternative the module can be delivered using both a PBL approach and a traditional method of teaching. She adds that prior to a PBL group discussion the teacher can give a short introductory lecture or cover seemingly difficult areas. The University of Samford initiated a PBL implementation programme. The programme only involved five of the eight schools that the university had. In addition the PBL implementation programme only included a few selected courses and not the entire course that the university was running (Major 2002:240). Major reported that they only selected the 'softer' courses (referring to the simpler courses), and that the programme was a success. Starting PBL on a small scale allowed the implementers to manage the programme well and also made programme evaluation easy. She concludes by saying that the implementers did not become burned out therefore, they remained motivated.

Gwele, (1997:4) evaluated a PBL implementation programme at UKZN, which was introduced gradually. Implementation started only within the community health department of the nursing school. This decision for gradual implementation was arrived at for the reason that the university had a long history of utilising traditional methods. Starting small was logical and realistic for them to allow both teachers and students to make necessary adjustments. Following the evaluation the staff were reported to have been motivated and that the programme was a success (Gwele 1997:4).

Gradual introduction of PBL is believed to have enhanced the implementation of PBL in the case study college. It is advisable for academic staff planning to introduce PBL into their curriculum to consider starting it gradually where it is not feasible to start with a full PBL curriculum. Starting PBL on a small scale allows proper and effective programme management; evaluation is also facilitated. Another benefit is that gradual introduction of PBL provides adequate time for students to slowly get used to independent and collaborative learning. Hence the students are given time to adjust from traditional thinking paradigm to the PBL paradigm. Those teachers who are involved with the implementation do not become weighed down and become demotivated while they are still able to achieve the goals of PBL (Benson 2012:428; Major 2002:240).

### **6.3 Resources for the organisation**

'Resources for the organisation' was another theme that emerged from the data on factors that positively contributed to implementation of PBL in the case study. The main subtheme under this theme was the 'Human subsystem', which included management and leadership commitment, skills development for staff, additional personnel, and having staff with the same values were all viewed as vital resources for the college.

Findings in the present study revealed that the commitment of those people who are in leadership and management was critical for the implementation of PBL. This was demonstrated through the Dean and Vice Principal's involvement of every academic staff member in the first days of planning for the PBL implementation, through planned meetings and workshops. Staff were encouraged to find more information regarding PBL implementation for comprehension of the strategy that would enable them to make necessary contributions. Management allowed staff to attend PBL workshops in Malawi and outside the country in addition to those workshops that the college had organised. The Dean's commitment in turn yielded considerable support for the implementation of PBL by the majority of the academic staff members.

Barrows (2000:117) describes the significance of leadership and particularly the Dean's motivation and leadership in implementing PBL. He states that most of the universities that reported a successful PBL implementation programme had a Dean that was very enthusiastic about PBL. One who took the lead in motivating the unwilling staff while pledging support to those who were willing to follow through with PBL. This also supports what Hoon (2003:407) suggested that in PBL, strong support from the academic administrators especially the Dean was a prerequisite to its success.

Respondents in the present study reported that more support from the leadership of the college was demonstrated through efforts that they made in ensuring the availability of learning resources such as computers, skills laboratory equipment. Savin-Baden and Murray (2000:112) reported on the importance of the Dean's support during the preparation phase for the implementation of PBL in a nursing and midwifery programme at the University of Dundee. The Dean of the college was reported to have played a major role in advocating for PBL within the curriculum. She also provided financial support for the training of staff in PBL. The result was that majority of the staff were motivated and the implementation programme was reported to have been a success. In a study where he sought to explore the challenges of PBL in a higher learning institution in Singapore, Yeo (2005:347) conducted focus group interviews. Participants to the study included administrators, management personnel, lecturers and students. Among his key findings was the role played by the people that are involved with PBL implementation. Based on these results Yeo recommends that management support is very crucial in various ways such as; the provision of resources and administrative and technical support. He states that this also brings the staff together and promotes commitment to the implementation of new PBL programmes.

The support that the management of the case study college was providing to the staff enhanced the implementation of PBL. These teachers needed to know that they were not alone and that management too valued the strategy. Such support was very beneficial because it increased the facilitators' ease and gave them more confidence. The availability of resources made the facilitation possible and the implementation realistic therefore motivating the teachers. Management support therefore promoted the teachers' enthusiasm in facilitation of student learning which resulted in successful implementation of the PBL programme as a whole.

The development of teachers' skills in PBL was also found to be very essential for the implementation of PBL in the case study. All academic staff members of the college were trained in PBL-related skills, including the facilitation of student learning groups, designing problems for students to solve in the

PBL groups. Areas of training also included PBL-related assessment methods utilising the problem-solving approach. Some of the academic staff members also visited other international universities which were reported to have well established PBL programmes to learn from them how PBL is implemented in other places. Staff visited the Vestfold University and other university colleges in Norway. These visits were reported to have equipped the prospective PBL implementers with appropriate skills for their task as they saw the enthusiasm of the other teachers during facilitation. Participants also reported that watching PBL facilitation in action made it appear to be much more practical than the theory bit.

Visits made to established PBL centres by potential PBL implementers have been reported to be very beneficial to the success of PBL programmes. It is reported that the teachers do learn much more than just facilitation skills. Reporting on the PBL implementation programme at Samford University, Major (2003:247) explains that the visits that were made by the University to other PBL centres included both academic and management staff. The reason was that they required to learn from their colleagues how PBL was implemented both by academics and administrators (they visited Alborg and Maastricht Universities). After the visits the academic staff reported that they had gained a lot in facilitation skills, but in addition they also learned programme organisation and management of PBL group dynamics. Therefore the inclusion of visits to other PBL centres is very beneficial to the success of the implementation programme.

Facilitator training is an outstanding attribute in PBL implementation programmes, however, it must be noted that even after training the staff require to get continuous support from peers and management. For the success of the programme, the new PBL teachers need to function within an environment that allows them to develop confidence as they go on the long journey of mastering their PBL skills.(Barrows 2000:43).

The teachers in the college under study took a courageous step to initiate the implementation of PBL before any other Malawian nursing colleges could do so. They had no local reference among the other nursing colleges for support and sharing of experiences on challenges locally, although they had observed the implementation of PBL elsewhere internationally. Some respondents expressed that they had a lot of anxiety at the initial stage of the implementation. They said that the first days were very difficult in that they were burdened with a group of students who were wasting time brainstorming wrong answers. This was frustrating and apparently time wasting for the teacher who had the correct answers yet she was not supposed to give them to students. So they would sit there

and wonder 'why am I here'?" This finding supports what Kwan (2010:3) and Kiguli-Malwadde *et al.* (2006:129) found that the new PBL teachers face a lot of challenges. They may face up to such issues as; feelings of loss of identity from that of a teacher as a knowledge custodian to an observer of students learning by themselves. However, they further said that these challenges can be overcome if the teachers are given enough support by the administrators which is what was happening in the case study college.

The findings revealed that though the teachers lacked confidence in the beginning of PBL implementation, they quickly regained it. Over time the facilitators' became poised through the supervision and encouragement that was being offered by the Dean and Vice Principal. Peer support was also reported to have instilled confidence in them. The confidence of the facilitators was seen by the researcher during participant observations. Facilitators worked with the groups of students, directing them and posing questions in a manner that demonstrated their knowledge of facilitation skills. They would pose questions that would stimulate students to think and to search for answers while preserving the learning objectives of the discussion. They were also able to handle queries without necessarily providing answers to students but rather directing them towards searching for the correct answers. Such transition from a state of lack of self-assurance to a confident facilitator was also seen by Gwele (1997:18). She reported that the main concern that the new facilitators expressed was that of being unsure if they would be able to facilitate the learning and not end up lecturing to the students. However, by the end of the first week of starting the facilitation the same facilitators reported that they had already started to facilitate and allowed students to continue with their discussions. The facilitators also reported that they gained their confidence through the support of their peers and that of the PBL programme coordinator.

Training of the teachers in PBL was found to be beneficial in enhancing the implementation of PBL in the case study college. Having been equipped through the training, the teachers slowly overcame their frustration and eventually developed confidence. The knowledge of PBL and the development of facilitation skills among the teachers promote the achievement of PBL goals and therefore the accomplishment of the rationales for the implementation. Successful PBL facilitation provides students a chance to develop self-directedness, motivation and collaborative learning. When this is achieved then the PBL programme is believed to be working along the PBL goals (Archike & Nain, 2005:310; Gwele 1997: 19). Therefore knowledge that the staff had of the PBL strategy was an enhancement to the implementation of PBL. However, it must be noted that for the teachers to be

able to deliver, knowledge alone was not sufficient but the seniors' support allowed them to develop confidence and ability to utilise their skills in PBL.

Sharing same values among the staff regarding the PBL implementation was regarded as one of the factors that had made the implementation easy for the college. Respondents in the current study expressed that the majority of them valued the implementation of PBL. For this reason the staff had put in a lot of hard work, commitment and that they worked together as a team. Barrows (2000:117) states that the success of PBL implementation lies with a group of educators who demonstrate a willingness to work together towards implementing the PBL programme. The findings in the current study are similar to findings of a study by Gwele (1997:8). She found that one of the basic factors that contributed to the success of the implementation of PBL in the Department of Nursing at UKZN was the staff working together as a team and showing commitment to PBL implementation. PBL as a new strategy requires teamwork, starting from the planning level. Where the staff work together as a team, the PBL programme is likely to succeed. Teachers require to collaboratively create PBL scenarios where they can share ideas. There is need for continuous evaluation of their own skills as well as those of their colleagues in order to improve on weak areas. A lot of effort and hard work are requisites for the success of a PBL programme and these are possible where there is oneness. Teamwork is sometimes disregarded in programme development but it is essential for its success (Barrows 2000:117; Carrera *et al.* 2003: 801).

Findings in the current study revealed that new appointments of academic and support staff had been effected by the college and this was on-going in order to beef up the numbers. PBL requires a substantial number of tutors to facilitate the different small groups of students. Determining the number of staff that would be involved with PBL implementation against the number of students before implementation is advisable. As part of PBL planning, management should have clear information of the numbers of the staff especially the teachers well in advance (Barrows 2000:117).

According to Mclean and Van Wyk (2006:675) the bulk of the teaching staff in PBL programmes is formed by the facilitators. Therefore there is a need for management to recruit more staff prior to PBL implementation when the need is identified. The managers should realise that a PBL programme can never be successful with inadequate numbers of facilitators. It is suggested that once the staff have been recruited the managers should ensure that they are kept motivated, for instance by training them so that they are retained.

### **6.3.1 Having technological and material resources**

According to the findings in the current study, having technological and material resources was important in the implementation of PBL for the case study college. The learning materials that the case study college was utilising included; library with additional books, scientific journals (both electronic and printed), computer and skills laboratories. Respondents reported that the resources had been helpful in PBL implementation for the reason that students knew where to search and find information as they worked in their groups. If the PBL students do not get access to the required resources of information for their learning they become frustrated and this negatively affects their learning. PBL students are expected to be self-directed learners who are supposed to source information on their own and this information needs to be made readily accessible to them (Hmelo-Silver & Barrows 2008: 56; Loyens Magda & Rikers 2008: 424).

Respondents however, reported that students preferred to utilise electronic resources more than the printed material which might sometimes be recommended by the facilitators for a particular topic. The teacher may recommend to students an article from a printed journal but students would prefer to go online and search further for that same information. These findings were in line with trends reported in Canada. Veale (2007:378) conducted a study on how students decided on the information that they wanted to learn, compared to that which was provided by the teacher. She also investigated how students utilised the available resources during PBL group research. Results showed that students utilised electronic resources more than other resources. Veale consequently suggested that teachers should prescribe very relevant electronic resources for students in order to keep them motivated and for their objectives to be achieved.

As PBL facilitators, respondents explained that they utilise the technology for curriculum management, where the curriculum as well as modules are uploaded on the intranet for students to access. Students are able to work online and solve problems in a form of a test. Similar findings were reported at the University of Delaware where facilitators are making use of information technology to help students learn problem solving because they believe that it enhances success in PBL. By use of technology PBL courses are organised online and electronic resources are made available to students through the same (Watson 2002:2).

Another crucial factor that was identified in the implementation programme in the case study college was the staff having knowledge of the curriculum. Staff of the college worked with student groups

according to the different departments of the college. Staff members from the midwifery department for instance would facilitate PBL groups of midwifery students. This meant that the staff facilitated group discussion in the subject area in which they had good knowledge of the curriculum. Respondents expressed that when facilitation had to be done across departments, members with a background of the topic under study were assigned to facilitate the student groups. Knowledge of staff regarding the curriculum was evident during participant observations when they demonstrated competence in PBL facilitation. The type of PBL scenarios that students were given, besides allowing the students to think critically and search for more information, also addressed their curricular objectives. Whenever there was need facilitators controlled discussions that were diverting from the set learning outcomes and guided student back on the right track.

The significance of staff members having knowledge of the curriculum besides knowledge and skills in facilitating PBL groups has been supported in the literature. According to Kwan (2000:2) the staff do not necessarily need to be subject experts, but knowledge of the curriculum is essential for them to be able to keep track of the students' discussions ensuring that it fulfils curricular requirements. If the staff are not familiar with the curriculum, they may mistake a merely interesting discussion for one that works towards achievement of learning outcomes. It is the facilitators who have knowledge of the curriculum who will become conscious when the discussion is diverting from the set objectives or not and take the necessary action (Ertmer & Simons, 2006:42).

When the facilitators have knowledge of the curriculum they are able to guide the students properly and also provide useful resources to the students. They may also work as resource staff in cases where students identify the need for the teacher to be their resource person. For instance they may organise a short lecture in an area of their expertise that students may request for guidance on (Barrows, 2000:118). In a PBL implementation programme it must be ensured that the facilitators have knowledge of the curriculum, this has proved to be beneficial to both students and staff.

#### **6.4 Influences on the organisation**

The external influence on the organisation was identified as one of the major factors that enhanced the implementation of PBL in the case study college. The larger external system that had a major influence on the college and enhanced the implementation of PBL included the social, economic and political systems.

Some participants explained that the social external system influenced the college in the implementation of PBL through comments that were made by influential community members on the performance of students prior to implementation of PBL. One of the key informants elucidated that, such comments included that; 'the college graduates just know theory but they are not competent practical nurses'. In response to this feedback the college management a review of the possible causes of such problems was conducted. Students lacking in critical thinking skills was identified as one of the major causes. This was further reflected on the type of teacher-centred curriculum that was being implemented by the college. The participant expressed that the curricular content did not prepare the learners adequately for critical thinking and problem solving. The college consequently had identified the introduction of PBL in the curriculum as a strategy to remedy the situation.

The influence made by the community on the case study college to review their curriculum was also experienced by Morales-Mann and Kaitell (2001:14) at the University of Ottawa School of Nursing. Morales-Mann and Kaitell (2001:14-15) reported that the community has power and ideas that ignite promotion of the country's health services. Suggestions that are made by the community about their own health needs influence the nurses' planning of their programmes to be more aware of the needs of the community. As nurse educators also plan the curriculum with the aim of addressing the health needs of the consumers of health care, their decisions are also in many ways influenced by the community's input. The influence of the community on educational institutions in curriculum planning was also reported by Kiguli-Malwadde et al. (2006:129-130) at the University of Makerere in Uganda. One of the reasons for the university to introduce PBL into its curricula in 2001 was a response to community feedback on their graduates. The community reported that the training that the graduates were undergoing did not prepare them to address the health needs of the community. The university thus developed their curriculum with the aim of addressing these requirements in the students. They reported that the Faculty of Medicine at the university was committed to responding to the changing needs of the community. They thus developed a curriculum that was needs-driven, one that would produce health professionals who would have gained the appropriate competences to address the needs of the community in which they practice (Kiguli-Malwadde et al. 2006:129-130).

The importance of considering the needs of the community can never be over-emphasised, since the communities are the beneficiaries of health care services. They are the very reasons the health care training institutions exist. The colleges have to address these needs in preparation of the students in order to be able to meet the broad objectives of a country's health care system as well as the global

health care needs. It is the duty of the health educational system to always ensure that their objectives are addressing the community's health care needs. It should be known to the planners of nursing education and all health care education that the involvement of the community in curriculum development is a necessity.

Economically, a contribution that was made to the college in implementation of PBL was funding for the training of staff in PBL by Norwegian Church Aid in conjunction with the Malawi government (Chalanda 2008:2). Respondents said that the government had influenced the implementation of PBL in the college by setting priorities to improve nursing education in Malawi. To ensure that this was met the Government of Malawi and NCA thus funded PBL training sessions for the nursing colleges including the case study college. This played a major role for the reason that the government made available the required funds for staff training programmes. This is in agreement with what Badeau (2010: 249) established at the St Joseph's Hospital in Ontario. She reported that funding for staff training in preparation for implementation of PBL was provided by the Nursing Secretariat through the Ministry of Health and another organisation known as Long Term Care (Badeau 2010: 249). This assisted the implementers of PBL in achievement of their goals to implement PBL.

Nursing colleges benefit from such support by government and other organisations, especially in situations of low socio-economic status. According to Benson (2012:425) every programme needs funding in order to be implemented, but this is even more so in PBL which is particularly known to require extra resources and ongoing training sessions (Benson 2012:425).

Findings in the current study revealed that the support that was provided by the Government of Malawi had very a positive impact on the implementation of PBL in the college. The government's efforts to promote independence and autonomy in learning for the student nurses influenced the college in identification of strategies that addressed these goals. These findings concur with findings that were reported in Australia. The nursing education system of that country had moved from hospital-based to tertiary education following approval by the Australian government. This move led to the advancement of the nursing education system. One of the major steps taken towards this advancement was the incorporation of PBL into their curricula. Further to this development, the state health departments in Australia started working in collaboration with health care training organisations. The results of these collaborations are the reorganisation of the curricula making them more student centred (McGrath, Graham, Crotty & Jolly 2006:348).

Majumda *et al.* (2004:376) emphasised the importance of a country's leadership that is committed to the education system. They said that the involvement of political leaders in such matters as the introduction of PBL into the educational system would help the health sector's educational system to achieve a great deal. Government is influential, and some of its policies concerning health personnel training would benefit the nursing colleges in implementing such programmes. Government involvement is very motivating for the colleges since it is general knowledge that governments have a great deal of influence in matters of decision making at higher level.

### **6.5 Critical success factors**

The four critical success factors for the implementation of PBL included staff involvement in planning and communication, staff motivation and commitment, collaboration with other colleges and organisations, and recognition of the need for change.

The involvement of staff and open communication with them about the implementation of PBL prior to the event has been critical in the implementation of PBL in the case study. Respondents reported that such communication continued during implementation the Dean and the Vice Principal of the college always communicated new developments to all staff members. This communication included informing staff members about the plans to implement PBL right from the very initial stages, and making them aware of the plans. The good communication motivated the academic staff members towards the PBL implementation programme. They were willing to take up their different roles in the programme as one of them said that the idea of knowing what was coming and why it was coming gave them ownership of the programme.

The provision of information and open communication demonstrated by management helps to overcome the challenges of resistance to change. When staff are aware of what is happening and are given adequate information to make them understand what is going on, they easily cooperate and accept the change (Chapman 2009:3-5). This was identified as a critical factor in the implementation of PBL in the case study, and should be recommended to all colleges which plan to implement PBL or any changes in their curriculum in future.

Acceptance of input from the staff members was a critical factor in the implementation of PBL in the case study. This concurs with what Diamond (2007:3) says that for staff to be persuaded to get involved in the change process they need managers that are approachable and supportive – not those that act as if they are the only ones that are right. Similar findings were reported by Gwele (1997:8); in her study the leaders in the implementation at UKZN decided on strategies to make the

change a success. They involved all of the academic staff in research work on PBL. Some staff members also accompanied the management staff on a visit to McMaster University to learn facts about PBL implementation, facilitation and assessment. Clear objectives and responsibilities of the nurse tutors in the PBL programme were set and shared with staff at every level. UKZN reported that the implementation of PBL in the nursing programme was a success. Gwele's report shows that the leaders in the change process were well organised and involved their members enough to motivate them and help them develop commitment.

McClean and Van Wyk (2006:675) reported that staff members who are involved in planning assignments such as curriculum development are motivated and therefore do not leave the institution. However, they also suggested that the most important factor to keep the staff motivated is the promise of rewards. Although the promise of rewards was not clearly mentioned as a critical factor in the implementation of PBL in the current study, it was obvious from the data that the college invested a great deal in the training of its staff for higher degrees. At the time of the study, of an academic membership of 20 there were three members of faculty at PhD level and three more were studying for their PhD, while the rest of them had Master's degrees and three members who had Bachelor's degrees were studying for their Master's degrees. This can be seen as a reward and a motivator for the staff to remain at the college. Staff motivation is important in retaining them, especially when so much economic resource has been invested on the training in PBL.

Collaboration with other colleges was also identified as a critical factor in implementation of PBL in the case study. The college collaborated with the College of Medicine at the University of Malawi and benefitted from the use of a multi-professional skills laboratory. They also collaborated with and benefitted from the experience of educators from the education institute in Domasi in Zomba-Malawi through their provision of technical advice in curriculum development and PBL implementation. Other international partners and collaborators included Norway and Scotland which assisted the college in the implementation of PBL.

The study results showed that the college had identified a need to produce graduates who were critical thinking problem solvers, who would still use those skills in the field long after they had graduated. Recognition of the need for change is reported to be critical for implementation of PBL. According to Barrows (2000:4), before the staff in an institution embark on implementation of PBL they must have identified a need for change in their educational system. The absence of this may

bring elements of lack of commitment which may result in failure of the programme for the reason that people would work without direction.

Morales-Mann and Kaitell (2001:14) report that the implementation of PBL at the School of Nursing at the University of Ottawa was also initiated after the need for the students to develop good communication, critical thinking and problem-solving skills was identified. The University of Delaware implemented PBL after they identified that the students needed to learn to relate theory to practice and develop motivation for their work (Huichun & Henriksen, 2010:1). Irby, Cooke & O'Brien (2010: 221) reported that the Carnegie Foundation for the Advancement of Teaching had identified a need to reform the educational system in order to allow students to develop active and self-directed learning. This, he reports resulted in the medical schools changing their curriculum from; the teacher-centred to the student-centred learning strategies. Similarly, the nursing and midwifery programmes at the University of Dundee changed from a traditional to the PBL curriculum. Savin-Baden & Murray (2000:109) reported that the old curriculum did not promote critical thinking in students and that students were unable to integrate theory with practice.

In all these reports, the PBL implementation programmes were successful since people saw the need for the change and this need motivated them to work against any hindrances that they faced during the implementation. When the teachers in the PBL implementation programme understand why they are supposed to introduce the PBL, they become motivated and success is mostly certain. Identification of the need for change in PBL implementation is motivation in itself (Hmelo-Silver and Barrows, 2006:21).

## **6.6 Recommendations**

The recommendations that were made were subdivided into those for other nursing colleges which have not yet implemented PBL in their curriculum, in Malawi. Other recommendations have been made for policy makers for nursing education in Malawi. These include the following; the Ministry of Health, Nurses' and Midwives' Council of Malawi, Christian Hospitals Association of Malawi, and Ministry of Education; and recommendation for future research.

### **6.6.1 Recommendations for policy makers**

It is recommended that the policy makers in Malawi including; Ministry of Health, Nurses' and Midwives' Council, Christian Hospital Association of Malawi (CHAM) should organise a midterm evaluation programme to see what nursing colleges have done in the area of PBL implementation.

These authorities should also encourage and provide funding to nursing educators and clinicians to conduct studies on student learning activities which include problem-based learning.

#### **6.6.2 Recommendations for other nursing colleges**

The academic staff who are responsible for the actual implementation of PBL should receive guidance and support from the academic leadership and management of the colleges to promote successful implementation and prevent resistance to change.

PBL should be introduced into the programme gradually to ensure success of the programme, as was seen in the case study. Other types of PBL, including the hybrid models of PBL like the funnel approach have proven to lead to successful implementation in both the case study and elsewhere (Savin-Baden, 2003:341)

Those nursing colleges who intend to implement PBL should seek support from government and other stakeholders to ensure successful implementation of PBL programmes. Consultation with different and influential stakeholders is important for support in the implementation of PBL, as was found in the case study.

It is recommended that the nursing college leadership and management have adequate budget to ensure the provision of all required resources prior to the implementation of PBL.

#### **6.6.3 Recommendations for future research**

Further research is also recommended on the long-term effects of PBL on graduates as life-long learners and retention of problem-solving skills after a PBL programme. The current study employed the qualitative research approach. Other research methods, including quantitative and mixed methods, are recommended in order to highlight other factors that are critical in the implementation of PBL in resource-limited countries like Malawi.

#### **6.7 Limitations of the study**

While this study provides descriptions of the factors that enhanced the implementation of PBL in the nursing college that was studied as a case study, it has some limitations.

This study used an ethnographic approach for data collection, which carries some degree of risk of bias due to the prolonged interactions between the researcher and participants. This may limit the generalisability of the results.

## 6.8 Conclusion

This study concludes that the success of PBL implementation in the Malawi case study was achieved through the following factors;

- i. The institution had set specific goals that they wanted to achieve; such as the development of self-directed and life-long learners in the students, developing a PBL curriculum that would guide them in the implementation of the PBL strategy. They also aimed at introducing the PBL programme slowly into the curriculum which allowed them time to adjust to the new paradigm.
- ii. Prior to the commencement of the implementation programme the case study college had acquired adequate resources, both human and material. They improved the infrastructure of the college, bought new computers and skills laboratory equipment. They also recruited more members of staff both academic and support staff. These were also essential for the success of PBL implementation.
- iii. The training of staff was also of paramount importance. This has been in the skills that the staff of the college had gained in PBL facilitation and setting of problem scenarios for students both for classroom and clinical learning. The knowledge that the staff had enabled them to meet the learning objectives of the students while maintaining the goals of PBL.
- iv. The success of PBL implementation was achieved through the college's positive response to the social, political and economical external influence that these had on the college under study. The recognition of the need for involvement of other organisations was an important factor in the success of the implementation. These included other colleges, government and other stake holders.
- v. Another factor that helped the college to succeed in the implementation was the leadership of the college that took charge of the change process but without leaving out the rest of the staff in the planning for the implementation. This staff involvement helped them win the acceptance, cooperation and dedication of the majority of the staff who then worked together towards achieving the common goals of the college.

## REFERENCES

- Allen, D. E., Duch, B., Groh, S., Watson, G. B., & White, H. B. 2003. Professional development of University Professors: Case study from the University of Delaware. In *International conference Docencia Universitaria en Tiempos de Cambio [University Teaching in Times of Change] at Pontificia Universidad Catolica del Perù, Lima.*
- Ali G.W.M. & El Sebai, N.A.M., 2010. Effect of problem-based learning on nursing students' approaches to learning and their self directed learning abilities. *International Journal of Academic Research*. 2 (4):188-196.
- Applebaum, S.H., 1997. Sociotechnical systems theory: an intervention strategy for organisational development. *Journal of Management Decision*. 35 (6): 452-463.
- Archike, F.I. & Nain, N., 2005. Promoting problem-based learning (PBL) in nursing education: a Malaysian experience. *Nurse Education in Practice* 5, 302-311.
- Armstrong, S. J., 2008. The concept of quality nursing education in W. Kotze (ed.). *Nurse Educators' guide to management* Van Schaik, Paarl, South Africa.
- Aronson, J., 1994 Promoting problem-based learning (PBL) in nursing education: a Malaysian experience, 'A pragmatic view of thematic analysis'. *Qualitative Report*. 2 (1): Spring, viewed 3 December 2012, from <http://www.nova.edu/ssss/QR/BackIssues/QR2-1/aronson.html>.
- Atkinson, S. & Abu El Haj, M., 1996, 'How to do (or not to do) ... domain analysis for qualitative public health data,' *Health Policy and Planning* 11(4): 438-442., from <http://heapol.oxfordjournals.org/> [2012, November 28].
- Azer, S.A., 2005. Challenges facing problem-based learning tutors: 12 tips for successful group facilitation. *Medical Teacher*. 27(8): 676-681.
- Badeau, C., 2010. Problem-based learning: an educational method for nurses in clinical practice. *Journal for Nurses in Staff Development* 26 (6): 244-249.

- Banta, T.W. Black, K. & Kline, K., 2000. Problem-based Learning Insight: to solve, to learn, together. *Assessment Update* 13(1), 3-11.
- Barrett, T., 2005. *What is problem-based learning?* [http://www.aishe.org/readings/2005-1/barrett-What is Problem B L.pdf](http://www.aishe.org/readings/2005-1/barrett-What%20is%20Problem%20B.L.pdf) [2012, October, 16]
- Barrows, H., 1985. *How to design a problem-based curriculum for the preclinical years.* Spring Publishing Company, New York.
- Barrows, H., 2000, *Problem-based learning applied to medical education*, 2nd edn. Southern Illinois School of Medicine, Illinois.
- Baxter, P. & Jack, S., 2008. Qualitative case study methodology: study design and implementation for novice researchers. *Qualitative Report* 13 (4): 544-559.
- Beers, G.W. & Bowden, S., 2005. Problem-based Learning Insight: to solve, to learn, together. The effect of teaching method on long-term knowledge retention. *Journal of Nursing Education* 44 (11), 511-514.
- Benson, S., 2012. The Relative Merits of PBL (Problem-Based Learning) in University Education. *US-China Education Review*. 2 (4): 424-478.
- Bhattacharya, N., 1998. Students' perception of problem-based learning at the PBL Koilara Institute of Health Sciences, Nepal. *Medical Education*. 42: 407-410.
- Biley, F.C. & Smith, K.L., 1998. Exploring the potential of PBL in nursing education. *Nurse Education Today*. 18: 353-361.
- Bokonjic, D., Mimika, M., Pranjic, N., Filipovic, V., Cosovic, S. Bosse, H.M., Huweindiek, S., Kirschfink, M. & Skelin, S., 2011. *Problem-based learning*. Viewed, from <http://www.bhmed-emanual.org/book/export/html/1>.
- Bourdeau, B., 2000, 'Dual relationships in qualitative research,' *Qualitative Report* 4 (3 & 4 March) Viewed, from <http://www.nova.edu/ssss/QR/QR4-3/bourdeau.html> [2012, November 10].

- Bradley, E.H., Curry, L.A. & Devers, K.J., 2007. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health Services Research*. 42 (4): 1758-1772.
- Braun, V. & Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 3 (2): 77- 101.
- Brink, H., 2006. *Fundamentals of research methodology for health care Professionals*, 3rd edn. Juta & Company, Cape Town.
- Brink, H., van der Walt, C. & van Rensburg, G., 2012. *Fundamentals of research methodology for healthcare professionals*, 3<sup>rd</sup> edn., Juta & Company, Cape Town.
- Burns, N. & Grove S.K., 2011. *Understanding nursing research: building an evidence-based practice*, 5<sup>th</sup> edn., Elsevier, Maryland Heights.
- Butler, R., Inman, D. & Lobb, D., 2005. Problem-based learning and the medical school: another case of the emperor's new clothes?. *Advances in Physiology Education*. 29: 193-196.
- Camp, G., 1996. Problem-based learning: a paradigm shift or a passing fad? Viewed from [MedicalEducationOnlineEditor@Med-Edu-Online.org](mailto:MedicalEducationOnlineEditor@Med-Edu-Online.org). [2011,September].
- Carolan, M., 2003, Reflexivity: a personal journey during data collection. *Nurse Research*; 10(3):7-14.
- Carrera, L.I., Tellez, T.E. & D'Ottavio, A.E., 2003, 'Implementing a problem-based learning curriculum in an Argentinean medical school: implications for developing countries', *Academic Medicine* 78(8), 798-801.
- Cassidy, A., 2005. Problem-based Learning, Collaborative Learning, Problem-solving and Use of Cases to Enhance Learning: What's it all about? <http://www.kwantlen.ca/academicgrowth/resources/PBLhandout.pdf> [2013, April, 08]
- Certified Nurse Educator (CNE) 2012-2013. Administered by the National League for Nursing Academic Nurse Educator Certification Program Candidate Handbook October 2012 Revision. Viewed on from: <http://www.nln.org/certification/handbook/cne.pdf> (2013, January 12).
- Chakravarthi, S., Paul, J. & Vijayan, P., 2009. An evaluative study on comparison of problem based

- learning and lecture based pedagogy on self directed learning in undergraduate medical education *Indian Journal of Science and Technology*. 2(12): 59-67
- Chalanda, M., 2008. A report on the trainer of trainer's workshop on problem-based learning and reflection (Unpublished). Zomba.
- Chapman, A., 2010. Management and leadership theories, models and gurus. from <http://www.businessballs.com/index.htm> [2011, August 6].
- Chaudron, D., 2003. Begin at the beginning in organisation change. Retrieved from: <http://www.organizedchange.com/decide/htm> [2011, October 6]
- Cianciolo, A.T., Grover, J., Bickley, W.R. & Manning, D., 2011. Problem-based learning: instructor characteristics, competencies, and professional development. Retrieved from: <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA535416> [2013, February, 01].
- Collaborative Action, 2002. *Recurring barriers to implementing organisational change*. Retrieved from: [http://libres.uncg.edu/ir/uncg/f/B\\_Levin\\_Collaborative\\_2002.pdf](http://libres.uncg.edu/ir/uncg/f/B_Levin_Collaborative_2002.pdf) [2011, August 3].
- College and Association of Registered Nurses of Alberta, 2005. *Nursing Practice Standards 1-34 (A documentary)*. From: <http://www.nurses.ab.ca/pdf/Nursing%20Practice%20Standards.pdf> [2012, December, 24].
- Collins, D., 2003. Pretesting survey instruments: an overview of cognitive methods. *Quality of Life Research*. 12 (3) 229-238.
- Constas, M.A., 1992, 'Qualitative analysis as a public event: the documentation of category development procedures', *American Educational Research Journal* 29 (2), 253-266, Viewed 2 December 2012, from <http://www.jstor.org/stable/1163368>.
- Conway, J. & Little, P., 2000. *From practice to theory: reconceptualising curriculum development for PBL* available on: [www.tp.edu.sg/pbl\\_janeconwaypennylittle.pdf](http://www.tp.edu.sg/pbl_janeconwaypennylittle.pdf). [2012, October 4].

- Creedy, D., Horsfall, J. & Hand, B., 1992. Problem-based learning in nurse education: an Australian view. *Journal of Advanced Nursing*. 17: 727-733.
- Dahms, M. & Stentoft, D., 2008. *Does Africa need problem based learning? Educational change in engineering education*. Viewed from [www.asee.org/.../2008/Dahms-Does-Africa-need-PBL-final.doc](http://www.asee.org/.../2008/Dahms-Does-Africa-need-PBL-final.doc). [2012, Octobers 4)
- Dahlgren M.A., Castensson R. & Dahlgren L.O., 1998. Problem based learning from the teachers' perspective. *Higher Education* 36 (4), 437-447.
- Das Carlo, M., Swadi, H. & Mpofo, D., 2009. Medical student perceptions of factors affecting productivity of problem-based learning tutorial groups: does culture influence the outcome? *Teaching and Learning in Medicine* 15 (1), 59-64.
- De Paulo, 2000. *Sample size for qualitative research*  
<http://www.quirks.com/articles/a2000/20001202.aspx?searchID=215035&sort=5&pg=1>  
[2012, October, 4).
- De Vos, A.S., 2001. *Research at grassroots: a primer for the caring professions*. NBD  
Western Cape
- Dolmans, D. H., De Grave, W., Wolfhagen, I. H., & Van Der Vleuten, C. P. 2005. Problem-based learning: future challenges for educational practice and research. *Medical Education*, 39(7), 732-741.
- Doring, A., Bramwell-Vial, A. & Bingham, B., 1995. Staff comfort discomfort with problem-based learning: A preliminary study. *Nurse Education Today*. 15, 263-266.
- Duma, S.E., 2006. Women's journey of recovery from sexual assault trauma: a grounded theory', PhD thesis, School of Health and Rehabilitation Sciences, University of Cape Town.
- Duma, S.E., 2007, Abused women's shelter as a clinical learning setting. *African Journal of Nursing and Midwifery* 9 (1), 22-36.
- Duma, S.E., Khanyile, T.D. & Daniels, F., 2009. Managing ethical issues in sexual violence research using a pilot study. *Curationis* 32 (1), 52-58.
- Eide, P. & Kahn, D., 2008. Ethical Issues in the qualitative researcher-participant Relationship. *Nursing Ethics*. 15 (2):199-207.

- Ehrenberg, A.C. & Haggblom, M., 2007. Problem-based Learning in clinical nursing education: integrating theory into practice. *Nurse Education in Practice*. 7:67-74.
- Ertmer, P.A. & Simons, K.D., 2005. *Scaffolding teachers' efforts to implement problem-based learning*. from; [http://www.edci.edu.purdue.edu/ertimer/docs/Ertimer\\_LC05.pdf](http://www.edci.edu.purdue.edu/ertimer/docs/Ertimer_LC05.pdf) [2011, July 5].
- Family Health International, 2012. *Participant observation*. Accessed from <http://www.fhi360.org/nr/rdonlynres/ed2ruznpteg> [2012, November 22].
- Fereday, J. & Muir-Cochrane, E. 2006. Demonstrating rigor using thematic analysis: a hybrid approach of inductive and deductive coding and theme *International Journal of Qualitative Methods*. 5(1):80-92.
- Figure 1 Theoretical framework (Adopted from Owens, R.G., 1998. *Organisational Behaviour in Education*, 6th edn. Prentice-Hall, Needham Heights).
- Forrester, V. 2004. Problem-based learning in Hong Kong: an infusion approach to language development and professional studies. In *Comunicación presentada en Lifelong Learning Conference*.
- Gabr, H. & Mohamed, N., 2011. Effect of problem-based learning on undergraduate nursing students enrolled in nursing administration course, *International Journal of Academic Research*. 3 (1):154-164.
- Goetz, R., 2010, *Defining project goals and objectives*. Viewed from <http://www.projectsart.co.uk/pdf/defining-project-goals-and-objectives.pdf>. [2012, October 15].
- Gorman, C., 2008, Malawi halts nursing brain drain. Viewed from <http://edition.cnn.com/2009/HEALTH/07/29/malawi.nurses.shortage> [2011 July, 4].
- Ghosh, S. & Sahney, S., 2009, 'Socio-technical analysis of firm level executive jobs: a comparative study in Indian organizations', *Indian Journal of Industrial Relationships*, viewed 28<sup>th</sup> Dember, 2012 from <http://www.highbeam.com/doc/1G1-210171548.html>
- Greening, T., 1998, *Scaffolding for success in problem-based learning*. Viewed from <http://www.med-ed-online.org/f0000012.htm> [2011, December 20]
- Greenwald, N.L., 2000. Learning from problems. *The Science Teacher*. 67 (4): 28-32.
- Gwele, N.S., 1997. The development of staff concerns during implementation of problem-based learning. *Nursing Medical Teacher* 19 (4).

- Hansen, E.C., 2006. *Successful qualitative health research: a practical introduction*, South Wind Production, Singapore.
- Harpaz, I., Balik, C. & Ehrenfeld, M., 2004. Concept mapping: an educational strategy for advancing nursing education. *Nursing Forum*. 39 (2): 27-36.
- Heinrichs, K.I., 2002. Problem-based learning in entry-level athletic training professional-education programs: a model for developing critical-thinking and decision-making skills. *Journal of Athletic Training*. 37 (4, Supplement): S189-S198.
- Hmelo-Silver, C. E. (2003). Analyzing collaborative knowledge construction: Multiple methods for integrated understanding. *Computers & Education*, 41(4), 397-420.
- Hmelo-Silver, C.E., 2004. Problem-Based Learning: What and how do students learn? *Educational Psychology Review*. 16(3):253-266
- Hmelo-Silver, C.E. & Barrows, H.S., 2006. Goals and strategies of a problem-based learning facilitator. *Interdisciplinary Journal of Problem-based Learning*, 1(1). Available at: <http://dx.doi.org/10.7771/1541-5015.1004>. (November, 2011).
- Hmelo-Silver, C.E. & Barrows, H.S., 2008. Facilitating collaborative knowledge Building. *Cognition and Instruction*. 26: 48-94.
- Holloway, I. & Wheeler, S., 1996. *Qualitative research for nurses*. Blackwell Science, Oxford.
- Holloway, I., 2008. *A-Z of qualitative research in healthcare*, 2<sup>nd</sup> edn. Markono Print Media, Singapore.
- Hoon, K., 2003. Implementation of problem-based learning in Asian medical schools and students' perceptions of their experience. *Medical Education* 37 (5): 401-409.
- Horton, A., 2012. *Is change something to fear or something to embrace?* Viewed, from [http://EzineArticles.com/?expert=A\\_Horton](http://EzineArticles.com/?expert=A_Horton). [2012, October, 19].
- Huisman, K., 2008. Does this mean you're not going to come visit me anymore?" an inquiry into an ethics of reciprocity and positionality in feminist ethnographic research. *Sociological Inquiry*. 78 (3): 372-396.
- Hung, W., Jonassen, D.H. & Liu, R., 2006. Online at: <http://www.aect.org/edtech/edition3/ER5849X-C038.fm.pdf> [2011, October 4]
- Hwang, S.W & Kim, M.J., 2006. A comparison of problem-based learning and

- lecture-based learning in an adult health nursing course. *Nurse Education Today*; 26, 315-332
- Iputo, J.E. & Kwizera, E., 2005. Problem-based learning improves the academic performance of medical students in south Africa. *Medical Education*. 39: 388-393 Retrieved from: [onlinelibrary.wiley.com/doi/10.1111/j.1365-2929.2005.02106](http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2929.2005.02106) [2011, October 4]
- Irby, D. M., Cooke, M., & O'Brien, B. C. 2010. Calls for reform of medical education by the Carnegie Foundation for the Advancement of Teaching: 1910 and 2010. *Academic Medicine*, 85(2), 220-227.
- Johnston, J., 2007. *Reviewing the literature and developing research*. Accessed from; <http://www.docstoc.com/docs/902144/literature-review-in-qualitative-research> [2013, January 15].
- Jones, R. W. 2006. Education and Training Problem-based Learning: Description, Advantages, Disadvantages, Scenarios and Facilitation *Anaesthetic Intensive Care*, 34: 485-488
- Keating, S. & Gabb, R. 2005, *Putting learning into the learning commons: a literature review*. Post Compulsory Education Centre Victoria University, *Putting learning into the learning commons: a literature review*. Post Compulsory Education Centre Victoria University
- Khoo, H.E., 2003. Implementation of problem-based learning in Asian medical schools and students' perceptions of their experience. *Medical Education*; 37:401-409
- Kiguli-Malwadde, E., Kijjambu, S., Kiguli, S., Galukande, M., Mwanika, A. Luboga, S., & Sewankambo, N., 2006. Problem based learning, curriculum development and change process at faculty of medicine, Makerere University, Uganda. *African Health Sciences*. 6 (2): 127-130.
- Kotze, W., 2008, 'The Nursing school environments', in W. Kotze (ed.), *Nurse Educators' guide to Management*, Van Schaik, Paarl, South Africa.
- Kuiper, R.A. & Pesut, D.J., 2004. Promoting cognitive and metacognitive reflective reasoning skills in nursing practice: self-regulated learning theory. *Journal of Advanced Nursing*. 45(4): 381-391.
- Kwan, C. Y., 2000. What Is Problem-Based Learning (PbL) It Is Magic, Myth and Mindset. *Centre for Development of Teaching and Learning Brief*. 3 (3): 1-6.
- Kwizera, E. N., Igumbor, E. U., & Mazwai, L. E. 2008. Twenty years of medical education in rural South Africa-experiences of the University of Transkei Medical School and lessons for the future. *South African Medical Journal*, 95(12), 920.

- Lai, P., & Tang, C. (2000). Obstacles to the implementation of problem-based learning (PBL) in local universities of Hong Kong. *Problem-based learning: educational innovation across disciplines*. Singapore: Temasek Centre for problem-based learning. Viewed from: <http://science.universe.edu.au/courses/scifer/Lai.pdf> [2012, December, 28].
- Lincoln, Y. S. & Guba, E.G. 1985. *Naturalistic inquiry*. Sage Publications. Beverly Hills.
- Leininger, M.M. (ed.), 1985. *Qualitative research methods in nursing*. Grune & Stratton, Orlando.
- Leech, N.L. & Onuwugebuzie, A.J., 2007. An array of qualitative data analysis tools: a call for data analysis triangulation school. *Psychology Quarterly*. 22 (4): 557-584.
- Lekhakula, A., 2012. The ups and downs of PBL in Thailand, where are we now? Prince of Songkla University Hat Yai, Songkhla, Thailand. 24-28<sup>th</sup> October.
- Levin, J. H. 1997. What is data analysis? Viewed from: [http://www.dartmouth.edu/~mss/data%20analysis/Volume%20I%20pdf%20/006%20Intro%20\(What%20is%20the%20weal.pdf](http://www.dartmouth.edu/~mss/data%20analysis/Volume%20I%20pdf%20/006%20Intro%20(What%20is%20the%20weal.pdf) [2013, February1]
- Lietz, C.L, Langer, C.L. & Furman, R., 2006. Establishing trustworthiness in qualitative research in social work: implications from a study regarding spirituality. *Qualitative Social Work* 5, 441, viewed from <http://qsw.sagepub.com/content/5/4/441> (2011, December 9)
- LoBiondo-Wood, G. & Haber, J., 2010. *Nursing research methods and critical appraisal for evidence-based practice*, 7<sup>th</sup> edn. Mosby, St Louis.
- Lombard, M., Snyder-Duch, J. & Bracken, C., 2004. Practical resources for assessing and reporting intercoder reliability in content analysis research projects. viewed from [http://scholar.google.co.za/scholar?q=++Practical+resources+for+assessing+and+reporting+intercoder+reliability+in+content+analysis+research+projects&btnG=&hl=en&as\\_sdt=0%2C5](http://scholar.google.co.za/scholar?q=++Practical+resources+for+assessing+and+reporting+intercoder+reliability+in+content+analysis+research+projects&btnG=&hl=en&as_sdt=0%2C5) [2011, April, 2011].
- Loyens, S.M.M., Magda, R. & Rikers, R.M.J.P. 2008. Self-directed learning in problem-based learning and its relationships with self-regulated learning. *Educational Psychology Review*; 20:411–427
- Mackenzie, M. & Crouch H., 2006. The logic of small samples in interview-based qualitative research. *Social Science Information*; 45(4): 483-499 <http://ssi.sagepub.com/content/45/4/483> [2012, November 12]
- Major, C. H., 2003. Problem-based learning in general education at Samford University: A case study of changing faculty culture through targeted improvement efforts

- Majumda, A.A., D'souza, A. & Rahman, S., 2004. Trends in Medical Education: Challenges and Directions for Need-Based Reforms of Medical Training In South-East Asia. *Indian Journal of Medical Sciences*. 58 (9), 369-380.
- Manafa, O., McAuliffe, E., Maseko F., Bowie C., MacLachlan, M. & Normand, C., 2009. Retention of health workers in Malawi: Perspectives of Health Workers and District Management. *Human Resources for Health*. from: <http://www.human-resources-health.com/content/7/1/65> [2012, October 12]
- Mangham, L. 2007. Addressing the human resource crisis in Malawi's health sector: *employment preferences of public sector registered nurses*. (ESAU Working Paper 18), Overseas Development Institute, London.
- Marshall, C. & Rossman, G.B., 2011, *Designing qualitative research*, 5th edn. Sage Publications, California.
- Martinez, J., Fielding, R. & Chirwa, M., 2008. *Improved health training education in Malawian nursing schools independent mid-term review (Independent Midterm Review)*. Online at: [www.norad.no/en/tools-and-publications/publications/publication/](http://www.norad.no/en/tools-and-publications/publications/publication/) [2011, October, 20].
- McClean, M. & Van Wyk, J., 2006. Twelve tips for recruiting and retaining facilitators in a problem-based learning programme. *Medical Teacher*. 28 (8): 675-679
- McGrath, B.P., Graham, I.S., Crotty, B.J. & Jolly, B.C., 2006, Lack of integration of medical education in Australia: the need for change. *Medical Journal of Australia*. 184 (7): 346-348.
- McInnis, G., 2000. Changing academic work roles: the everyday realities challenging quality in teaching', *Quality in Higher Education*. 6 (2): 143-152.
- Mellish, J.M., Brink, H.I.L. & Paton, F., 2000. *Teaching and Learning the Practice of Nursing*. Heinemann, Johannesburg.
- Michel, M.C., Bischoff, A. & Jakobs, K.H., 2002. Comparison of problem- and lecture-based pharmacology teaching. *Trends in Pharmacological Sciences*. 23 (4): 168-170.
- Miles, M.B. & Huberman, A.M., 1994. *Qualitative data analysis* (2nd edn.). Sage Publications, Thousand Oaks.
- Mills, E.J., Schabas, W.A., Volmin, J., Walker, R., Ford, N., Katabira, E., Anema, A.,

- Joffres, M., Cahn, P. & Montaner, J., 2008. *Should active recruitment of health workers from sub-Saharan Africa be viewed as a crime?* WHO report viewed, from [http://scholar.google.co.za.ezproxy.uct.ac.za/scholar?q=%27Loss+of+health+professionals+from+sub-Saharan+Africa&btnG=&hl=en&as\\_sdt=0%2C5](http://scholar.google.co.za.ezproxy.uct.ac.za/scholar?q=%27Loss+of+health+professionals+from+sub-Saharan+Africa&btnG=&hl=en&as_sdt=0%2C5). [2012, December 27]
- Ministry of Health Malawi, 2004. *Human resources in the health sector: towards a solution*, Government of Malawi, Lilongwe.
- Mitchie, J., Oughton, C. & Bennion, Y, 2002. *Employee ownership, motivation and productivity. A research report for employees direct from Birk Beck and the Work Foundation*, viewed from <http://www.employee-ownership.be/LIBRARY/Employeeess%20Direct%20Report.qxd.pdf> [2012, September 29]
- Moore, T.S., 2009. The student tutor experience in a problem-based learning course: a case Study. PhD thesis, University of Northern Arizona.
- Morales-Mann, E.T. & Kaitell C.A., 2001. Problem-based learning in a new Canadian Curriculum. *Journal of Advanced Nursing* 33(1): 13-19.
- Munhall, P.L. & Boyd, C.O. 1993 (Eds). *Nursing research: a qualitative perspective (2<sup>nd</sup> edn)*. New York; National League for Nursing Press.
- Muula, A.S., Panulo, B. & Maseko, F.C., 2006. *The financial losses from the migration of nurses from Malawi*, 2011, from <http://www.biomedcentral.com/1472-6955/5/9>. [2011,September14]
- National Institute for Health and Clinical Excellence, 2007. *How to change practice, understand, identify and overcome barriers to change*, viewed, from: <http://www.nice.org.uk>. [2011, August 3]
- National Statistical Office [Malawi] and ORC Macro. 2005. *Malawi Demographic and Health Survey 2004*. National Statistical Office and ORC Macro.
- Neuman, W.L., 2006. *Social Research Methods Qualitative and Quantitative Approaches*, 6th edn. Boston; Pearson Education.
- Norwegian Church Aid, 2007. *Country Programme Plan Malawi*, viewed, from [www.kirkensnodhjelp.no/Documents/Kirken](http://www.kirkensnodhjelp.no/Documents/Kirken). [2011, June, 11]

- Notar, C.E. & Cole, V., 2010. Literature review organizer. *International Journal of Education* 2 (2), ISSN 1948-5476
- Online Education, 2011. *Barriers of change in educational organisation*. Viewed from <http://www.inoxpneumatic.com/> [2011, October 4]
- Owens, R.G., 1998. *Organisational Behaviour in Education*, 6th edn. Prentice-Hall, Needham Heights.
- Otto, M., 2011. *Attitude can determine your success as a manager*, viewed, from <http://www.business.consult-guide.com> [2011, December 2]
- Parasuraman, A., 2000. Technology Readiness Index (Tri): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies. *Journal of Service Research*. 2: 307-320. DOI: 10.1177/109467050024001
- Park, S.H. & Ertmer, P.A., 2008. Examining barriers in technology-enhanced problem-based learning: using a performance support systems approach.
- Parton, G., and Bailey, R., 2008. Problem-Based Learning: A Critical Rationalist Perspective. *London Review of Education*; 6(3), November, 281–292
- Pender, N., 1996. *Health promotion in nursing practice*, 3rd edn. Appleton & Lange, Stamford, Connecticut.
- Polit, D.F. & Beck, C.T., 2004. *Nursing research principle and methods*, 7th edn. Lippincott Williams & Wilkins, Philadelphia.
- Polit, D.F. & Beck, C.T., 2012. *Nursing research: generating and assessing evidence for nursing practice*. Library Congress, Philadelphia.
- Polit, D.F. & Hungler, B.P., 1997. *Essentials of nursing research methods, appraisal and utilisation*, 4th edn., Lippincott, New York.
- Polit, D.F. & Beck, C.T., 2008. *Nursing research: generating and assessing evidence for nursing practice*. Lippincott Williams and Wilkins, Philadelphia.
- Republic of Malawi, 1999. *Constitution of the Republic of Malawi*. Viewed, from:

<http://www.sdn.org.mw/constitut//dotIndex.html>. [2011, October 22]

Republic of South Africa, 1996. *Constitution of the Republic of South Africa 1996*. 108, viewed from

<http://www.info.gov.za/documents/constitution>. [2011 October 22]

Rhem, J., 1998, 'Problem-based learning: an introduction', *National Teaching and Learning Forum* 8(1), 1-4.

Rubin, H.J. & Rubin, I.S., 2005. *Qualitative interviewing: The Art of Hearing Data*, 2nd edn. Thousand Oaks California; Sage Publications.

Sangestani, G. & Khatiban, M., 2012. Comparison of problem-based learning and lecture-based learning in midwifery. *Nurse Education Today*. 1-5, from <http://www.sciencedirect.com/science/article/pii/S0260691712000925#> [2012, September 25]

Savin-Baden, M., 2003. Problem-based Learning: disciplinary differences or modes of curriculum practice? Who Promised To Deliver What In Problem-Based Learning? *Biochemistry and Molecular Biology Education*. 31 (5), 338-343.

Savin-Baden, M. & Major, C.H., 2004, *Foundations of Problem-based Learning*. Maidenhead; Open University Press

Savin-Baden, M. & Murray, I., 2000, 'Staff development in problem-based learning', *Teaching in Higher Education* 5 (1), 107-126.

Savin-Baden, M. & Wilkie, K. (Eds), 2004, *Challenging research in problem-based Learning*. Maidenhead; Open University Press McGraw Hill.

Schell, C., 1992. *The Value of the Case Study as a Research Strategy*, viewed, from <http://www.finance-mba.com/Case%20Method.pdf> [2012, August 08]

Schmidt, H.G., Vermeulen, L. & van der Molen, H.T., 2006. Long term effects of

- problem-based Learning: a comparison of competencies acquired by graduates of a problem-based and a conventional medical school. *Medical Education*; 40, 562-567, doi:10.1111/j.1365-2929.2006.02483.x
- Schneider, Z., Whitehead, D., Elliot, D., LoBiondo-Wood, G. & Haber, J., 2007. *Nursing and midwifery research: Methods and appraisal for evidence-based practice*, 3rd edn. Translation and Printing Services.
- Shenton, A.K., 2004. Strategies for ensuring trustworthiness in qualitative research Projects. *Education for Information*. 22 (2): 63-76.
- Soy, S., 1997. *The case study as a research method*, viewed from: <http://www.gslis.utexas.edu/~ssoy/useusers/1391dlb.htm> [2011, October 23].
- Sparrow, P. & Marchington, 1998, *Barriers to Change individual and organisational barriers to change*, viewed from <http://robabdul.com/barrierstochange-individual-organisational-barriers-to-change.asp>. [September, 2011]
- Speziale, H.J.S & Carpenter, D.R., 2007. *Qualitative research in nursing advancing the humanistic imperative*, 4th edn. Williams & Wilkins, Philadelphia.
- Spradley, J. P., 1979. *The ethnographic interview*, Holt Reinhart & Winston, Orlando.
- Tang, C., Lai, P., Tang, W., Davies, H., Frankland, S., Oldfield, K., Walters, M., Tse, P., Taylor, G., Tiwari, A., Yim, M. & Yuen, E., 1997. Developing a context-based PBL model. *Research and Development in Problem Based Learning: Integrity, Innovation, Integration* 4, 579-595.
- Tellis, W., 1997. Introduction to case study. *The Qualitative Report* 3 (2), viewed from <http://www.nova.edu/ssss/QR-3-2/tellis/html> [2011, October 20].
- Thorne, S., 2000. Data analysis in qualitative research. *Evidence Based Nursing* 3, 68-70, doi:10.1136/ebn.3.3.68.
- Thornton, S., 2011. *Organisational structure benefits*, viewed from <http://www.eho.com/about-5171264-oranization>
- Trappler, T., 2006. Integrated problem-based learning in the neuroscience curriculum – The SUNY Downstate Experience. *Medical Education*. 6, 47. doi:10.1186/1472-6920-6-47
- Trist, E., 1981. The evolution of sociotechnical systems: a conceptual framework and an action research programme. *Occasional Paper*; 1-67.
- Tseng, H., Chou, F., Wang, H., Ko, H., Jian, S., Weng, Hui-Chen Tseng, Chou, Wang,

Ko, Jian, S. & Weng, W., 2011. The effectiveness of problem-based learning and concept mapping among Taiwanese registered nursing students. *Nurse Education Today*; 31, (8): e41-e46

Tylee, J., 1992. *The Assumptions of problem-based learning and their appropriateness*

for general nursing education. Viewed from: [http://.education4skills.com/jytlee/problem-based\\_learning/htm](http://.education4skills.com/jytlee/problem-based_learning/htm) [2013, February 02].

Uys, L.R., Van Rhyn, L.L., Gwele, N.S., McInerney, P. & T. Tanga, 2004. Problem-solving competency of nursing graduates. *Journal of Advanced Nursing*. 48(5): 500-509.

UNESCO Chair for Problem-Based Learning, 2009. *Presentation at a National Symposium, Aalborg, Australia*. Viewed from: <http://www.mpbl.aau.dk> [2011, August 03]

Vahidi, R. G., Azamian, A., & Valizadeh, S., 2007. Opinions of an Iranian nursing faculty on barriers to implementing problem-based learning. *Eastern Mediterranean Health Journal*, 13(1), 193-196.

Van Berkel, H.J.M. & Schmidt, H. 2000. Motivation to commit oneself as a determinant of achievement in Problem-Based Learning. *Higher Education*. 40 : 231-242.

Van Teijlingen, E., Rennie, A.M., Hundley, V. & Graham, W., 2001. The importance of conducting and reporting pilot studies. *Journal of Advanced Nursing*. 34 (3) 289-329

Veale, P., 2007. Prospective comparison of student-generated learning issues and resources accessed in a problem-based learning course. *Medical Teacher* 29: 377-382.

Verhoeven, B.H., Verwijnen, G.M., Scherpbier, A.J.J.A., Holdrinet, R.S.G., Oeseburg, B., Bulte, J. A. & Van Der Vleuten, C.P.M., 1998. An analysis of progress test results of PBL and non-PBL students. *Medical Teacher*. 20 (4): 310-316.

Victorian Quality Safety Council & Quality in Health, 2006. *Successfully Implementing Change*. Viewed from: [www.health.vic.gov.au/qualitycouncil](http://www.health.vic.gov.au/qualitycouncil) [2012, August 3]

Walker, G.H., Stanton, N.A., Salmon & Jenkins, D. 2007. A human factors approach to analysing military command and control' paper presented at the International Command and Control Technology Symposium (ICCRTS), 26-28 September, University Arms, Cambridge, UK.

- Wallace, S., 2007. Organisational change management. Viewed on;  
<http://www.empbook.com/resources/traumaofchange.ppt>  
[2011, August 5]
- Washington, E.T., Tysinger, J.W. Snell, L.M. & Palmer, L.R., 1998. Implementing problem-based learning in a family medicine clerkship', *Family Medicine*. 30 (10): 720-726.
- Watson, G., 2002. Using technology to promote success in PBL courses; Commentary, May/June.  
Viewed from: <http://ts.mivu.org/default.asp?show=article&id=969>. [2012, August 3]
- Wells, S.H., Warelow, P.J. & Jackson K.L., 2009. Problem based learning: a conundrum. *Contemporary Nurse*.33 (2): 191-201.
- White, H., 2001. Problem-based learning "Creating problems for PBL" Speaking About Teaching, 11 (1):1-8.
- World Health Organisation, 2008. *A Country case study: Malawi's Emergency Human Resources Programme*.
- World Medical Association, 2008. Declaration of Helsinki 2008. Ethical Principles for Medical Research Involving Human Subjects. Viewed from:  
<http://www.wma.net/en/30publications/10policies/b3/> (2013, February, 3).
- Wood, D. F., 2003. ABC of Learning and teaching in medicine. *British Medical Journal*. 326:328-330.
- Wood, E. J. 2004. Problem-Based Learning. *Acta Biochimica Polonica*.  
51(2): 21-26.
- Wood, S., 2006. Views of the effectiveness of PBL. *Nursing Times*. 102 (21):34
- Worrell, J. A. & Profetto-McGrath, J., 2007. Critical thinking as an outcome of context-based learning among post students: a literature review. *Nurse Education Today*. 27: 420-426
- Wu, Y. & Zhou, B.B., 2006. *The China Papers*. Viewed from

[Http: Sydney.ed.au/science/universe\\_science/pul](http://Sydney.ed.au/science/universe_science/pul) (2011, October 17).

Yeo, R., 2007. Problem-based learning: a viable approach in leadership development? *International Journal of Educational Management*. 19(7): 541-551, 0951-354X doi 10.1108/09513540510625581.


Yin, R., 2009. *Case study research design and methods*, 4th edn, Sage Publications, Los Angeles.

Zaid, Z., Zaid S.M., Razzaq, Z., Luqman, M., & Moin, S., 2010. Training Workshops in problem-based

Universit of Cape Town

## APPENDICES

### **Appendix A: Ethics approval Letter (Health Sciences Research Ethics Committee, University of Cape Town)**

 UNIVERSITY OF CAPE TOWN

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Faculty of Health Sciences  
Faculty of Health Sciences Research Ethics Committee  
Room E52-24 Groote Schuur Hospital Old Main Building  
Observatory 7925  
Telephone [021] 406 6338 • Facsimile [021] 406 6411  
e-mail: sumayah.ariel@uct.ac.za

21 February 2012

HREC REF: 058/2012

Mrs K Giva  
c/o A/P S Duma  
Health & Rehab  
DMB

Dear Mrs Giva

**PROJECT TITLE: IMPLEMENTATION OF PROBLEM-BASED LEARNING IN NURSING EDUCATION: A MALAWI CASE STUDY**

Thank you for addressing the issues raised by the committee.

It is a pleasure to inform you that the Ethics Committee has formally approved the above-mentioned study.

**Approval is granted for one year till the 28 February 2013.**

Please submit a progress form, using the standardised Annual Report Form (FHS016), if the study continues beyond the approval period. Please submit a Standard Closure form (FHS010) if the study is completed within the approval period.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

**Please quote the REC. REF in all your correspondence.**

Yours sincerely

signature removed

**PROFESSOR M BLOCKMAN**  
**CHAIRPERSON, HSF HUMAN ETHICS**



Federal Wide Assurance Number: FWA00001637.  
Institutional Review Board (IRB) number: IRB00001938

This serves to confirm that the University of Cape Town Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), sAAddition

**Figure Appendix B: Ethics approval Letter (National health Science Research Committee, Malawi)**

Telephone: + 265 789 400  
Facsimile: + 265 789 431  
e-mail doccentre@malawi.net  
**All Communications should be addressed to:  
The Secretary for Health and Population**



*In reply please quote No. MED/4/36c*

MINISTRY OF HEALTH  
P.O. BOX 30377  
LILONGWE 3  
MALAWI

18th April 2012

**Karen Rose Nsandu Giva**  
St Joseph College of Nursing

Dear Sir/Madam,

**RE: Protocol # 1012: Implementation of problem based learning in nursing education: A Malawian case study**

Thank you for the above titled proposal that you submitted to the National Health Sciences Research Committee (NHSRC) for review. Please be advised that the NHSRC has **reviewed** and **approved** your application to conduct the above titled study.

- **APPROVAL NUMBER** : **NHSRC # 1012**  
The above details should be used on all correspondence, consent forms and documents as appropriate.
- **APPROVAL DATE** : **18/4/2012**
- **EXPIRATION DATE** : This approval expires on **18/04/2013**  
After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC secretariat should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING** : All serious problems having to do with subject safety must be reported to the National Health Sciences Research Committee within 10 working days using standard forms obtainable from the NHSRC Secretariat.
- **MODIFICATIONS**: Prior NHSRC approval using standard forms obtainable from the NHSRC Secretariat is required before implementing any changes in the Protocol (including changes in the consent documents). You may not use any other consent documents besides those approved by the NHSRC.
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS**: Please contact the NHSRC on Telephone No. (01) 789314, 08588957 or by e-mail on doccentre@malawi.net
- **Other**:  
Please be reminded to send in copies of your final research results for our records as well as for the Health Research Database.

Kind regards from the NHSRC Secretariat.

.....  
**FOR CHAIRMAN, NATIONAL HEALTH SCIENCES RESEARCH  
COMMITTEE**

**Appendix C: Approval Letter from Kamuzu College of Nursing**

**UNIVERSITY OF MALAWI**  
**KAMUZU COLLEGE OF NURSING**

PRINCIPAL  
A. MALATA DipNurse,MRM  
B.Sc. PhD



P/BAG 1, LILONGWE, MALAWI  
TELEPHONE: 01 751 622/200  
TELEGRAMS: NURSING  
FAX: 01 756 424  
EMAIL: principal@kcn.unima.mw  
Website:www.kcn.unima.mw

**Student. No.: GVXKAR001**

**15<sup>th</sup> May, 2012.**

Karen Rose Nsandu Giva  
St Joseph's College of Nursing  
P.O. Box 5505  
**LIMBE**

Dear Madam,

**PERMISSION TO CONDUCT A STUDY AT KAMUZU COLLEGE OF NURSING**

We are glad to inform you that you have been granted a permission to conduct a study at Kamuzu College of Nursing on Implementation of Problem Based Learning in Nursing Education.

We will be looking forward to be working with you.

Yours Sincerely,

signature removed

A. Maluwa, PhD  
**Research Director**  
**For: PRINCIPAL**

Cc: Principal  
Registrar

***Appendix D: Information sheet for interviews***

***Implementation of Problem-based Learning in Nursing Education: A Malawian Case study.***

**RESEARCHER: Karen Giva**

I am Karen Giva a postgraduate student at the University of Cape Town, South Africa. I am conducting a study as a requirement for Masters Degree in Nursing (MSc, Nursing). I am requesting you to take part in this study which aims to explore, analyse and describe the characteristics which enhanced the implementation of PBL in the identified college as a case study. The secondary aim is to utilise the data gathered to identify a set of critical success factors that could guide the implementation of problem-based learning in nursing education in Malawi.

This study has been approved by the:

Faculty of Health Sciences Research Ethics Committee,

Room E52-24

Groote Schuur Hospital Old main Building,

Old Main Building,

Observatory 7925.

Tel: (021) 4066338

and

The National Health Research Committee in Malawi,

Ministry of Health,

P.O. Box 30377,

Lilongwe 3

Kamuzu College of Nursing.

## **Benefits**

There are no direct benefits to you as an individual. However, the findings of the study have the potential to influence the college to reflect upon its PBL implementation strategy. Findings will be used to assist other colleges of nursing to implement PBL and thus benefit the whole nursing education community.

## **Risks**

There are no foreseeable risks. However, some questions may distress you and make you uncomfortable. Should that happen, you will be free to stop the interview. Should you not want to continue with the research (e.g. during participant observation), you will be free to withdraw with no bad consequences to you. However it will be appreciated if you indicate your reasons for withdrawal for data analysis purposes.

## **Procedure:**

If you agree to participate in this study;

- Firstly you will be requested to complete a demographic data form.
- You will be interviewed for an hour or an hour and half hour depending on a need for further clarity.
- The interview will be recorded and you will have an opportunity to listen to the recorded information at the end of the interview. However should you indicate to be uncomfortable with recording, only handwritten notes will be taken

You are allowed to ask questions or to indicate if you want to stop the interview or do not wish to answer some of the questions asked during the interview.

## **Time:**

We will use approximately 1 hour to 1 hour 30 minutes to conduct the interview.

## **Cost:**

The study does not involve any cost to you as a participant.

## **Ethical rights in the study:**

Your participation in the study is voluntary and you can withdraw at any time. You can choose not to answer any question at any point and it will not have any effect on your relationship with me as researcher or your job.

There will be an audio taping of the interview as indicated earlier and it will be transcribed to paper and all information gathered will be confidential.

**Right to Privacy and Confidentiality:**

- Your privacy will be protected at all times.
- Everything we talk about in the interview will be kept confidential. No records of names will be kept and all information will be anonymous and confidential and it will only be accessible to the researcher and her supervisor.
- All recordings will be kept for a period that the study will take place and then will be destroyed after the study has been completed and the thesis has been marked and passed.
- In the analyses, your name will not be mentioned and the researcher will ensure that possible identification will be removed from the description and you will also have the chance to comment on the analyses. You are free to stop taking part in the interview at any time and you may choose not to answer specific questions as you prefer.

**Voluntariness:**

You have the right to withdraw from the study at anytime or refuse to answer any question that you may not wish to answer and your decision will not affect your relationship with the researcher or the college. Your participation is voluntary.

You can use the following contact details if you need to talk to us about anything regarding the study.

**Researcher: Karen Giva Cell Number: (+265) 888879891 address: [rosensandu@yahoo.com](mailto:rosensandu@yahoo.com)**

**Research supervisor: Prof S. Duma: [Sinegugu.Duma@uct.ac.za](mailto:Sinegugu.Duma@uct.ac.za)**

**Participant's Agreement:**

I have read the information above; I consent voluntarily to participate as a participant in this study.

Name: -----

Signature -----

Date: -----

Universit of Cape Town

***Appendix E: Information Sheet for Participant Observations***

***Implementation of Problem Based Learning in Nursing Education: A Malawian Case study.***

**RESEARCHER: Karen Giva**

I am Karen Giva a postgraduate student of the University of Cape Town, South Africa. I am conducting a study as a requirement for Masters Degree in Nursing (MSc, Nursing). I am requesting you to take part in this study which aims to explore, analyse and describe the characteristics which enhanced the implementation of PBL in the identified college as a case study. The secondary aim is to utilise the data gathered to identify a set of critical success factors that could guide the implementation of problem-based learning in nursing education in Malawi.

This study has been approved by the:

Faculty of Health Sciences Research Ethics Committee,

Room E52-24

Groote Schuur Hospital Old main Building,

Old Main Building,

Observatory 7925.

And

The National Health Research Committee in Malawi,

Ministry of Health,

P.O. Box 30377,

Lilongwe 3

Kamuzu College of Nursing.

**Benefits**

There are no direct benefits to you as an individual. However, the findings of the study have the potential to influence the college to reflect upon its PBL implementation strategy. Findings will be used

to assist other colleges of nursing to implement PBL and thus benefit the whole nursing education community.

### **Risks**

There are no foreseeable risks. However, you may not feel comfortable to let me be present in some of your sessions such as: short lectures, PBL group facilitation, demonstrations in the skills laboratory. Should that happen; you will be free to stop the observations. Should you not want to continue with the research, you will be free to withdraw with no bad consequences to you. However it will be appreciated if you indicate your reasons for withdrawal for data analysis purposes.

### **Procedure:**

If you agree to participate in this study;

- Firstly you will be requested to complete a demographic data form.
- You will be observed in any of the above mentioned sessions for as long as a session lasts.
- Notes will be taken on all observations made whether in class, group facilitation, skills laboratory or staff meetings and you will have an opportunity to see what information I have written down at the end of the session. However should you indicate to be uncomfortable with the note taking, only observations without written notes will be undertaken.

You are allowed to ask questions or to indicate if you want to stop the observations or do not wish to answer some of the questions asked during the observations.

### **Time:**

The observations will last as long as a session lasts.

### **Cost:**

The study does not involve any cost to you as a participant.

### **Ethical rights in the study:**

Your participation in the study is voluntary and you can withdraw at any time. You can choose not to allow the researcher to attend any session in which you do not wish to be observed or answer any question at any point. This will not have any effect on your relationship with me as researcher or your job.

The information gathered from notes taken during observations will be kept confidential

**Right to Privacy and Confidentiality:**

- Your privacy will be protected at all times.
- Everything that is observed will be kept confidential. No records of names will be kept and all information will be anonymous and confidential and it will only be accessible to the researcher and her supervisor.
- In the analyses, your name will not be mentioned and the researcher will ensure that possible identification will be removed from the description and you will also have the chance to comment on the analyses. You are free to stop taking part in the observations at any time and you may choose not to answer specific questions during an observed session as you prefer.

**Voluntariness:**

You have the right to withdraw from the study at anytime or refuse to be observed or to answer any question that you may not wish to answer and your decision will not affect your relationship with the researcher or the college. Your participation is voluntary.

You can use the following contact details if you need to talk to us about anything regarding the study.

**Researcher: Karen Giva Cell Number: (+265) 888879891 address: [rosensandu@yahoo.com](mailto:rosensandu@yahoo.com)**

**Research supervisor: Prof S. Duma: [Sinegugu.Duma@uct.ac.za](mailto:Sinegugu.Duma@uct.ac.za)**

**Participant's Agreement:**

I have read the information above; I consent voluntarily to participate as a participant in this study.

Name: .....

Signature .....

Date: .....

**Appendix F: Research Consent Form**

**Implementation of Problem Based Learning in Nursing Education: A Malawian Case study.**

**Researcher:** Karen Giva

I....., have understood what the study is about. The researcher has explained in detail to me about the study and ethical issues applied. I have agreed to take part in the study and accept the use of tape recorder and note taking. I have not been forced to take part in the study. I also understand that I can choose not to answer specific questions or withdraw at anytime and it will not have any effect on my relationship with the researcher or my job.

The study carries no benefits for me, but the findings of the study have the potential to influence the college to reflect upon its PBL implementation strategy. In addition findings will be used to assist other colleges of nursing to implement PBL and thus benefit the whole nursing education community.

Date..... Signature of Participant.....

Date..... Signature of Researcher.....

**Karen Giva (Researcher) Cell: (265) 888879891. Email: [rosensandu@yahoo.com](mailto:rosensandu@yahoo.com)**

**Supervisor: Prof Sinegugu Duma. Email: [Sinegugu.Duma@uct.ac.za](mailto:Sinegugu.Duma@uct.ac.za)**

**Consent to Participate in the Study**

I ..... (Name of participant) hereby agree to participate in the study on **“Implementation of Problem Based Learning in Nursing Education: A Malawi Case study.**

I understand that I am participating freely and can stop the interview or being observed anytime I feel uncomfortable and inform the researcher of my reasons for doing so.

The purpose of the study has been explained to me and I have been given a copy of the information sheet to keep. I understand that there are no personal benefits to benefit me directly from this study.

I understand that my answers to all questions will remain confidential: no records of names will be kept and all information will be anonymous and confidential and it will only be accessible to the researcher and her supervisor.

\_\_\_\_\_

**Participant’s signature**

\_\_\_\_\_

**Date**

Universit of Cape Town

**Appendix G: Semi-structured interview guide**

1. Your college seems to have been the only one to have implemented PBL in the region; can you please tell me how you managed to do this?
2. What would you say helped you to implement?
3. Please explain what made it easy and what made it difficult; what were the sentiments of staff towards the implementation of PBL?
4. What was the role of the personnel behaviour in getting your college to this level?
5. What PBL skills did the staff have prior to implementation, that have assisted in getting your college to this level?
6. What special activities do the staff engage in that have contributed to successful PBL implementation? The common practices of the staff in your college?
7. Were there any grievances presented by both staff and students with regard to PBL implementation?
8. What other additional mechanisms were put in place for the updating of the PBL knowledge and skills of the staff?
9. What are the common practices of the staff in your college that you think have played a role in the implementation of PBL?
10. How have these practices assisted in getting the college to this level?
11. What are the values among the staff that you think have enhanced the implementation of PBL?
12. Were there any mechanisms that the college in place that the college utilises to update your skills in PBL as educators?
13. What role did the availability of funds play in getting your college to this level?
14. What role did the population around your college play in getting your college to this level?
15. What role did the culture of the people around the college play in getting your college to this level?
16. Is there any role that the student body played to enhance the implementation of PBL? What was it?
17. What are the cultural backgrounds of the students that you recruit? Has this had any effect on the students learning using PBL?

18. Apparently the college has both male and female students, do you think gender has played any role in the students' learning using PBL
19. Do the ages of the students have any effects on their learning in PBL? How has this influenced the implementation of PBL?
20. How did the supervision of staff involved in PBL implementation influence the implementation of PBL?
21. What role did the college leadership and administration play in the implementation of PBL?
22. How has the support service in college assist you in getting the college to this level?
23. What was the personnel's response to the actual the facilitation of learning using PBL?
24. What are your tasks in the implementation of PBL?
25. How has the planning assisted you in getting to this level?
26. How has the communication system in the college assisted you in getting your college to this level?
27. How have the different departments of the college assisted in getting the college to this level?
28. How did the authority invested in the staff at different levels assist in getting the college to this level?
29. How did the rules of the college assist you in getting to this level?
30. What control measures of the college contributed to getting the college to this level?
31. What type of equipment do you have in the college?
32. What was the role of equipment such as technology in the implementation?
33. What learning materials pertaining to PBL does the college use?
34. How has the time table assisted you in getting your college to this level?
35. Do you have a PBL curriculum?
36. What was the role of the government in getting your college to this level?
37. What was the role of the nurse's council in getting your college to this level?
38. Were there other stakeholders that have assisted your college with implementation? Who are they? What did they do?
39. What would you say were the main problems in the implementation of PBL?
40. How would you advise anyone wanting to succeed in implementing PBL to look out for?

**Appendix H: Revised semi-structured interview guide**

1. Your college seems to have been the only one to have implemented PBL in the region; can you please tell me how you managed to do this?
2. Please explain what made it easy and what made it difficult; what were the sentiments of staff towards the implementation of PBL?
3. What was the role of the personnel behaviour in getting your college to this level?
4. What PBL skills did the staff have prior to implementation, that have assisted in getting your college to this level?
5. Were there any grievances presented by both staff and students with regard to PBL implementation?
6. What other additional mechanisms were put in place for the updating of the PBL knowledge and skills of the staff?
7. What are the values among the staff that you think have enhanced the implementation of PBL?
8. What role did the availability of funds play in getting your college to this level?
9. What role did the population around your college play in getting your college to this level?
10. What role did the culture of the people around the college play in getting your college to this level?
11. Is there any role that the student body played to enhance the implementation of PBL? What was it?
12. What are the cultural backgrounds of the students that you recruit? Has this had any effect on the students learning using PBL?
13. Apparently the college has both male and female students, do you think gender has played any role in the students' learning using PBL?
14. Do the ages of the students have any effects on their learning in PBL? How has this influenced the implementation of PBL?
15. How did the supervision of staff involved in PBL implementation influence the implementation of PBL?
16. What role did the college leadership and administration play in the implementation of PBL?

17. How has the support service in college assist you in getting the college to this level?
18. What was the personnel's response to the actual the facilitation of learning using PBL?
19. What are your tasks in the implementation of PBL?
20. How has the planning assisted you in getting to this level?
21. How has the communication system in the college assisted you in getting your college to this level?
22. How have the different departments of the college assisted in getting the college to this level?
23. How did the authority invested in the staff at different levels assist in getting the college to this level?
24. How did the rules of the college assist you in getting to this level?
25. What type of equipment do you have in the college?
26. What was the role of equipment such as technology in the implementation?
27. What learning materials pertaining to PBL does the college use?
28. How has the time table assisted you in getting your college to this level?
29. Do you have a PBL curriculum?
30. What was the role of the government in getting your college to this level?
31. What was the role of the nurse's council in getting your college to this level?
32. Were there other stakeholders that have assisted your college with implementation? Who are they? What did they do?
33. What would you say were the main problems in the implementation of PBL?
34. How would you advise anyone wanting to succeed in implementing PBL to look out for?

## **Appendix I: Reviewed Documents**

### **Document 1: Copy of curriculum document aims of the programme and graduate outcome**

The teaching, learning and assessment methods serve as examples that will focus much on helping the students to learn for lifelong learning processes to promote holistic learning.

#### **AIMS OF THE PROGRAMME**

The programme aims to ensure:

- The required academic standard for the award of Bachelor of Science in Nursing and Midwifery
- The achievement of the Practice Competencies required by the Nurses and Midwives Council (NMC) for registration as a nurse midwife on Part 1 & II of the Professional Register
- The acquisition of knowledge, skills, attributes and behaviours that are essential to practice as a competent and accountable nurse midwife
- The ability to manage oneself and participate in inter-disciplinary team working practices
- The development of analysis, synthesis and evaluation skills, and the ability to use and transfer information, knowledge and research to positively influence healthcare outcomes in stable and unstable clinical settings
- The provision of an educational culture that nurtures the development of professional, intellectual and personal growth both within the college campus and within clinical practice placements

*Curriculum approved by Senate February 2008*

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- Direction in post-registration/post-graduate study and the development of the habit of career-long learning
- The ability to prepare for employment and plan a career pathway in the context of the dynamics of the population and diversity of healthcare settings.

#### 5.0 INTENDED LEARNING OUTCOMES

The Intended Learning Outcomes (ILOs) applying to Bachelor of Science in Nursing and Midwifery programme have been mapped in line with Nursing and Midwifery Council (NMC) Practice Competencies.

#### 5.1 Professional Knowledge and Understanding

- Interpret different forms of knowledge and practice and reflect upon professional nursing and midwifery.
- Understand the appropriate life and human sciences that underpin and contribute to nursing and midwifery practice and health promotion.
- Reflect upon the centrality of, ethics, law and the humanities for professional nursing and midwifery practice.
- Acquire sound knowledge of nursing and midwifery methods, nursing and midwifery skills and healthcare management.
- Acquire knowledge and skills in handling information technology related to patient/client care, health promotion and continuing professional development.
- Acquire skills in numeracy necessary for safe patient and client care.

## Document 2: Problem-based learning scenarios

### SCENARIO 1

PERSONAL ETHICAL BEHAVIOR FLOWS FROM VALUE THAT DEFERS OVER TIME.

Describe the three ways by which values can be acquired.

Explain why value clarification is important professionally.

### SCENARIO 2

A NURSE MAY EXPERIENCE AN ETHICAL CONFLICT WHEN CARING FOR A TERMINAL ILL CLIENT WHO REFUSES TREATMENT THAT MAY EXTEND LIFE FOR A SHORT TIME.

Describe the basic moral principles that this nurse is trying to uphold.

### SCENARIO 3

MRS GAZP, 25 YEARS OLD IS BROUGHT TO THE EMERGENCY UNIT BLEEDING PROFOUNDLY FOLLOWING A ROAD TRAFFIC ACCIDENT. HER LEVEL OF CONSCIOUSNESS IS DECREASED; THE SKIN IS COLD AND CLAMMY.

TO SAVE MRS GAZP'S LIFE, EMERGENCY BLOOD TRANSFUSION WAS DONE. LATER HER CONDITION IMPROVED AND SHE WAS INFORMED ABOUT THE BLOOD TRANSFUSION. SHE IS NOW HAPPY BECAUSE THIS CONTRADICTS WITH HER RELIGIOUS VALUES.

Analyze the morality of the actions taken by the health workers based on ethical theories, deontology and consequentialism (utilitarianism).

### SCENARIO 4

A NURSE IN SURGICAL WARD HAS BEEN OBSERVED TO BE DOCUMENTING FALSIFIED PATIENTS' VITAL SIGNS.

Explain the four ethical principles which have been violated in the scenario.

### SCENARIO 5

THE DOCTOR PRESCRIBES A NEW DRUG FOR A NON EMERGENT PATIENT. THE NURSE IS NOT FAMILIAR WITH IT AND WANTS TO VERIFY IT WITH THE DOCTOR WHO HAS PRESCRIBED THE DRUG. JUSTIFY THE NURSE'S ACTION.

**SCENARIO 3.**

Mr. K. is back from theatre where a chest tube was inserted following a haemopneumothorax due to chest trauma. He is to receive an intravenous infusion of normal saline 1000mls alternating with Ringer's Lactate every four hours.

- a) Using the giving set provided calculate the drop rate.

The following were his intake and output measurements:

10 am - 1000 mls of normal saline infused  
12 mid day- 450 mls of concentrated urine drained  
1pm- vomited about 400mls of yellowish stuff  
2pm - 1000 mls of Ringer lactate infused  
3pm -400mls of blood drained from the chest tube bottle

- b) Record and balance Mr. K's fluid intake and output on the chart provided.

## Document 4: Clinical objectives

### **UNIT DESCRIPTION**

This unit builds on the concepts, knowledge, skills and attitudes acquired in Anatomy and Physiology of Obstetrics and Midwifery Science 1 in the provision of antenatal care. Emphasis is placed on individualized, clinically and culturally acceptable care using midwifery management process. Critical thinking and decision making skills and the risk concept approach will be used to manage low risk antenatal clients and their families.

### **UNIT OBJECTIVES**

At the completion of a four week clinical placement in antenatal clinic the student will be able to:

1. Provide a conducive environment for the antenatal woman during antenatal visit.
2. Communicate effectively with the pregnant woman and her family at all times.
3. Obtain relevant elements of subjective data from a pregnant woman during booking and subsequent antenatal visits.

periodically throughout all stages of labour.

4. Conduct a comprehensive psychological and physical assessment for a pregnant woman following the recommended sequence
5. Analyse antenatal and labour records to identify pertinent data for safe management of mother and fetus.
6. Make correct impressions for the client based on assessment during all stages of labour.
7. Develop a care plan for the parturient/her newborn and family based on identified problems and needs.
8. Demonstrate skill in managing a client throughout labour and delivery.
9. Recognize own limitations in provision of client care and make appropriate referrals.
10. Facilitate bonding between the parturient and her newborn
11. Perform newborn assessment immediately and one hour after birth.
12. Record information on the client's record in a thorough and logical manner.
13. Objectively evaluate own performance in managing low risk parturient, newborn and family.
14. Make and implement plans for improving own knowledge, skills and attitudes.
15. Objectively make suggestions for the organization and implementation of activities in the labour ward.
16. Incorporate safe cultural issues and woman friendly care in the management of a client during labour and delivery.
17. Analyze all labour and delivery statistics and recognize implications for midwifery practice.
18. Demonstrate professional conduct at all times
19. Take responsibility for acts of omission and commission during provision of care.

## Document 5: Patient Case Study

### CASE STUDY 2

Two nurses were caring for a patient with a fractured femur. The patient was frequently complaining of severe pain despite being given pain killer and became so demanding for pain medication (pethidine).

Nurse A lost temper due to his frequent demands and told him that he will not attend to him again as he is not the only one in the ward requiring nurses' attention. Nurse B continued attending to the patient and tolerated his complaints and demanding behavior.

Nurse B went off duty and nurse A continued taking care of the patient. The patient kept on complaining frequently and the nurse never went to attend to the patient again. In distress the patient injured himself as he was attempting to come out of bed to report to the nurse about his problem.

Document 6: Classroom time-table showing time slots in 2 hour periods

ETHICS AND LAW (ETH 208)

TIME TABLE

DATE	TIME	TOPICS	RESPONSIBLE LECTURERS
<b>WEEK 1</b>			
Monday 2/07/2012	13:00- 16:00	Orientation to module	
Tuesday 3/07/2012	7:30- 9:30	Unit 1: Introduction to Ethics	
Wednesday 4/07/2012	7:30- 9:30	Unit 1: Introduction to Ethics	
Thursday 5/07/2012	10:00-12:00 13:00- 16:00	Unit 2: Ethical Principles	
Friday 6/07/2012	7:30- 12:00	Unit 2: Ethical Principles	
<b>WEEK 2</b>			
Monday 9/07/2012	13:00- 16:00	Unit 2: Ethical Theories	
Tuesday 10/07/2012	7:30- 9:30	Unit 2: Ethical Theories	
Wednesday 11/07/2012	7:30- 9:30	Unit 3: Legal Issues in Nursing and Midwifery	
Thursday 12/07/2012	10:00-12:00 13:00- 16:00	Unit 3: Legal Issues in Nursing and Midwifery Unit 3: Group Discussions	
Friday 13/07/2012	7:30- 12:00	Unit 3: Legal Issues in Nursing and Midwifery	
<b>WEEK 3</b>			
Monday 16/07/2012	13:00- 16:00	Unit 4: Ethical decision making in Nursing and Midwifery	
Tuesday 17/07/2012	7:30- 9:30	Unit 4: Ethical decision making in Nursing and Midwifery	
Wednesday 18/07/2012	7:30- 9:30	Unit 4: Ethical decision making in Nursing and Midwifery	
Thursday 19/07/2012	10:00-12:00 13:00- 16:00	Quiz (2 hrs) Evaluation of the module	
Friday 20/07/2012	7:30- 12:00	Clinical preparation	

**Appendix J: Checklist for document review**

Type of document	Area reviewed	Comment
1. Curriculum	<ul style="list-style-type: none"> <li>- Structure; content oriented or process oriented</li> <li>- Learning outcomes (content/process)</li> <li>- Characteristics of the graduate clearly indicated</li> </ul>	
2. The problem-based learning modules	<ul style="list-style-type: none"> <li>- Structure; content or process oriented</li> <li>- Are the scenarios put together for students to learn from?</li> <li>- Promotion of self-directed learning for students</li> <li>- Do scenarios arouse motivation for students</li> </ul>	
3. Problem-based learning simulations	<ul style="list-style-type: none"> <li>- reflections of real patient scenarios</li> <li>- set to stimulate motivation in students</li> </ul>	
4. Classroom schedules	<ul style="list-style-type: none"> <li>- Time allocation for PBL sessions</li> <li>- Organisation of PBL sessions among</li> </ul>	
5. Assessment documents	<ul style="list-style-type: none"> <li>- Do they assess students' critical thinking and problem solving skills</li> <li>- Clinical examinations; do they assess critical thinking and self-directed learning?</li> </ul>	
6. Clinical objectives	<ul style="list-style-type: none"> <li>- Do they indicate elements of self-directed learning?</li> <li>- Task oriented</li> <li>- Provide for a learning process</li> </ul>	

7. Case Studies used by students	<ul style="list-style-type: none"><li>- Do they allow students critical thinking, self-directedness and problem-solving activities?</li><li>- Are they representing real patient situations?</li><li>- Do they address the set objectives for the module?</li></ul>	
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**Appendix K: Checklist for participant observation**

Area for participant observation	Comment
- Facilitator engagement of students in group work such as initiating discussions, e.g. by a greeting or a general comment	
- Creation of a climate of freedom and openness	
- Type of problem presented to the students - is it realistic?	
- At the beginning of a session explain the PBL process to students (including assessment of students and tutor)	
- Was he or she observant	
- Able to note activities of students and intervene when necessary	
- Ensured that students held no mini meetings	
- Tactfully controlled any dominant personality	
- Stimulated the quiet student into participating	
- Able to pose thought-provoking questions without giving answers to students	
- Permitted group leader at intervals to summarise the discussions	
- At the end of a session she allowed for feedback or evaluation of self, colleagues, the process and tutor (Barrows, 2000:49-51; Bokonjic <i>et al.</i> 2011:9; Archike & Nain 2005:310)	
<p><b>Preparations for PBL sessions</b></p> <ul style="list-style-type: none"> <li>- development of PBL scenarios</li> </ul>	

- reorganising old scenarios	
- preparation for OSCE	

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