

EXPERIENCES OF NURSE EDUCATORS IN MALAYSIA  
REGARDING PROBLEM BASED LEARNING

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FACULTY OF EDUCATION  
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## ABSTRACT

In 2010, declining standards of nursing care in Malaysia triggered immense concern. This erosion was traced to inadequate teacher-centric nurse instruction in nursing schools. The Malaysian government proposed that Problem-based learning, a student-led instruction method, be utilized henceforth. This study aims to investigate the experiences of nurse-educators regarding Problem-based learning presuming that successful implementation of Problem-based learning method hinged heavily on the role, capabilities and attitude of nurse-educators regarding this divergent learning method. A study was conducted among five nurse-educators with long experiences in using this method. They were interviewed using open-ended questions. Interview data obtained was analyzed using N-Vivo-12 analytical software. The findings indicated that the nurse-educators had limited knowledge of Problem-based learning techniques, lacked adequate training in facilitating and exhibited insufficient conviction in utilizing Problem-based learning in its entirety in their teaching functions. The findings revealed that these nurse-educators complemented Problem Based learning with lectures and notes. A related finding was the poor support extended by management to these nurse-educators and the lack of monitoring of implementation of Problem-based learning. The significance of this study lies in the expose on the educators' experiences adding to the limited research and information hitherto available regarding Problem-based learning- educator perceptions. The findings point towards educator preference for mixed-mode instruction rather than sole reliance on Problem-based learning.

## **Key concepts**

**Problem-based learning:** Problem-based learning is student-centred learning approach whereby the student plays an active role in learning process. The student is also asked to take responsibility for their own learning while the teachers role becomes that of a facilitator (Mgbekem, 2008). The setting of Problem-based learning is within real-world problems.

**Experiences:** Experiences refer to the different mental processes that we use to form impressions of other people. This includes not just how we form these impressions, but the different conclusions we make about other people based upon our impressions. (Kendra Cherry 2013)

**Open-ended questions:** Questions that provide unlimited scope for unrestricted answers. **Triangulation:** A technique of comparison and cross-verification of data from three or more sources relating to the same enquiry or statement designed to detect and confirm patterns of similarity.

# **PENGALAMAN PENDIDIK JURURAWAT DI MALAYSIA TENTANG PEMBELAJARAN BERDASARKAN MASALAH**

## **ABSTRAK**

Pada tahun 2010, tahap kejururawatan yang makin merosot di Malaysia mencetuskan kebimbangan besar. Perkara ini telah dikesan berpunca dari latihan berasaskan pengajar jururawat yang tidak mencukupi di Kolej kolej kejururawatan. Kerajaan Malaysia telah mencadangkan supaya kaedah Pembelajaran-Berdasarkan-Masalah, iaitu kaedah yang diterajui pelajar, digunakan seterusnya. Kajian ini bertujuan menyiasat pengalaman pengajar-kejururawatan terhadap kaedah Pembelajaran-Berdasarkan-Masalah dengan anggapan bahawa kejayaan pelaksanaan kaedah Pembelajaran-Berdasarkan-Masalah tergantung kepada peranan, keupayaan dan sikap pendidik-kejururawatan terhadap kaedah pembelajaran yang berbeza ini. Satu kajian telah dijalankan melibatkan lima orang pengajar kejururawatan dengan tempuh pengalaman yang lama dalam menggunakan kaedah ini. Mereka telah ditemuduga dengan menggunakan soalan terbuka. Data temu bual yang diperolehi telah dianalisis menggunakan perisian-analisis N-Vivo-12. Hasil-penemuan dari ini menunjukkan bahawa pendidik-kejururawatan mempunyai pengetahuan terhadap kaedah Pembelajaran-Berdasarkan-Masalah, menunjukkan kepincangan dalam kegiatan “Facilitating”, serta kurang keyakinan dalam menguna kaedah Pembelajaran-Berdasarkan-Masalah sepenuhnya dalam pengajaran mereka. Hasil-penemuan juga membongkarkan bahawa pendidik-kejururawatan yang dikaji kerap memakai-guna kuliah bersama kaedah Pembelajaran-Berdasarkan-Masalah. Satu lagi hasil-penemuan yang berkaitan adalah mengenai sokongan lembab dari pihak pengurusan yang dipanjangkan kepada pendidik-kejururawatan dan pemantauan yang kurang terhadap implementasi kaedah Pembelajaran-Berdasarkan-Masalah. Kepentingan kajian ini terpasang kepada “expose” persepsi pendidik yang

menyumbang kepada pengkajian dan informasi yang terhad mengenai persepsi pendidik yang sedia-ada. Hasil-penemuan menunjukkan penerimaan pendidik kepada kaedah pendidikan bercampuran dan bukan pergantungan utama kepada kaedah Pembelajaran-Berdasarkan-Masalah sahaja.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

In Malaysia, nurses represent the largest workforce in the health care sector. They are the main providers of healthcare, particularly in remote and rural areas. Associate Professor Dr. Hamidah Hassan, President, Malaysian Nursing Task Force, Malaysian Ministry of Higher Education in her report titled “Development of Nursing Education in Malaysia Towards The Year 2020”, p55, ISBN, Ministry of Higher Education Malaysia, 2010, had estimated the nursing workforce as at December 2009, was around 83,302 in the country. The figure as 31<sup>st</sup> December 2013 provided by the Malaysian Ministry of Health Planning Division, Health Informatic Centre showed an increase in the Nursing workforce to 116,379. There were 43 nursing colleges under the Malaysian Ministry of Health (Official Portal Ministry of Health, Malaysia). Traditionally, the doctor- nurse relationship had been akin to that of master servant relationship. Nurses were characterized as staff who are not able to make sound decisions either independently or cooperatively in the medical management of the patient.

Presently the Health Ministry has made moves to forge together doctors and nurses as working partners. There is an extended role of nurses now in planning, implementing and evaluating patient-care. With this new extended role, the question arises as to whether nurses are able to carry out safe nursing management. Many nurses have been affected by litigation related to negligence. The code of Professional Conduct for Nurses (CPCN) developed by the Nursing Board of Malaysia outlined the



values and duties to which nurses were to adhere, in order to make sound ethical decisions and provide high-quality nursing care (Puteri Nermie, 2009). Therefore, it was the responsibility of nursing colleges to develop students' self-efficacy, and confidence in handling patients. This would be achieved when the gap between knowledge and practice is reduced. In the Malaysian curriculum, for the basic nurses, Problem-based learning had been included as a teaching methodology but it was not being fully utilised in teaching.

According to the Nursing Board of Malaysia, the Code of Professional Conduct for nurses outlines the following ways in which nurses are supposed to act regarding the standards of care:

- 1) Conscientiously assesses the physical, psychosocial and spiritual needs of each patient.
- 2) Provide compassionate and competent nursing care to meet each patient's needs.
- 3) Intervene appropriately and promptly to prevent complications.
- 4) Maintains accurate and proper documentation of care given to each patient.
- 5) Give correct information and education to each patient according to their needs.
- 6) Evaluate each patient's response to treatment at regular intervals.

On Nurses Day 2010, celebrated with the theme "Delivering Quality, Serving Communities: Nurses Leading Chronic Care", the declining standards of nursing care was raised as a pertinent cause of immediate concern to be addressed. The main problem identified was that freshly qualified nurses who enter into the service did not have the quality expected of the nurse. Inadequate instruction in nursing schools was

suspected to be a primary cause. Therefore, during the Nurses Day 2010, the Higher Education and Health Ministries and the Malaysian Nurses Association undertook to bear the responsibility of bringing back the glory and respect the nursing profession once commanded. (Hassan H. 2010)

Presently what is considered nursing competency is perceived as when the nurse has developed competent skills, attitudes, knowledge and complex processes to make sound decisions. These decisions should meet the holistic requirement of the patient. In other words, nurses are required to play an active role in the quality care of patient (Giribet & Moya 2014). The development of competent nurses, not only requires conceptual dimensions which implies the knowledge, decision making, analysis and formulation of problems, it also requires interpersonal dimensions such as values and attitudes and acquired technical skills. (Chee, 2014).

In the context of competent care practice the Problem-based learning teaching approach starts with a problem, which needs to be solved. In order to solve the problem, that is a problematical situation of a real-life situation, the nursing students are required to develop explanatory hypotheses and identify learning needs (Miller, 2010). This allows the students to understand the problem better. The principles related to knowledge that the students learn can be transferred to other similar situations (Mulkerrins et al, 2014). In other words, in real life situations students would be able to make decisions and intervene accordingly.

Problem-based learning was not utilized very much in nursing education among the diploma students in nursing colleges under the Ministry of Health Malaysia. Thus, this research is directed to understanding the experiences of nurse educators in Malaysia regarding the implementation of Problem-based learning.

## 1.2 Background of the Study

Problem-based learning methodology has been adopted increasingly in nurse education internationally anticipating this approach will enable nurses to develop professional proficiencies such as enquiry, reasoning, interpersonal and lifelong learning skills. Barrow. Elizabeth., (2002).

Traditional education does not give scope for students to think and solve real-world problems where else problem-based learning involves real-world problems, where students are required to think, analyze and make decisions. (Hwang and Kim, 2006; Borhan and Md Yassin, 2013). In most Malaysian colleges of nursing both public and private, the choice of instruction was teacher-centered or traditional based learning, which was usually lecture based. The nurse educators, as for now, are still having the floor in the classroom. Still nursing nurse educators maintain their authority over students. Teachers teach and students observe. Therefore, students are deprived of solving problems themselves, everything is “given” to them. All they have to do is to digest the information, and transfer to the clinical situation when the same problem as taught arises (Khoshnevisasl. et al. 2014). We require to study why nursing nurse educators are shunning away from Problem-based learning (Problem-based learning) method.

It is essential that feedback from nurse educators on their experiences of implementing Problem-based learning is obtained in order for Curriculum Division to institute curricula changes to enhance the nursing curriculum.

Thus, Problem-based learning gives scope for nursing students to analyze, evaluate, modify according to individual needs and apply their management. The nurse educators are required to go beyond classroom teaching, an examination

orientated learning environment and text book based education (Al-Kloub, Taghreed, and Sivarajan, (2013).

Problem-based learning encompasses self-directed learning. It develops higher order thinking among students and at the same time it can promote life-long learning (Rishel, 2013). Hence, it is the function of the nursing nurse educators to develop critical thinkers and questioning practitioners. Students should be active learners and capable of transferring knowledge to real life situations.

In nursing education, the main objective is for the nurse to analyze the individual needs, then to develop a nursing process to provide these needs in a safe environment (Rodriguez nt –Borrego, 2014). Traditional teaching has been criticized as the students are to give information for the problems that the teacher assigns applicable to this answer (Zabit, 2010).

This teacher centered methodology curtails students from exploring or venturing into vast areas to gather information, to analyze and synthesize for themselves. Traditional methods again give no scope for students to think and handle real-world problems. Therefore, it does not encourage students to develop critical thinking skills. Problem-based learning (Problem-based learning) is a departure from teacher-led learning to share the responsibility of teaching and learning and thus to develop higher order thinking in students (Ahmed, 2014). Yet the nurse educators' preference of teacher centered teaching is still prevalent in nursing colleges. Thus, the scope for students to exercise autonomy and their own critical thinking is narrowed.

### **1.2.1 Critical Care Settings**

In one research in Malaysia the author found that the nurses need to know how to handle patients during their transition period from the Intensive Care Unit (Ludin et al. 2014). The nurses should be aware of the patient's experiences and provide for

patient's individual needs during the transitional period before discharge. Following upon a traumatic event, patients will have both physical and/or emotional needs that the nurses should be aware of and prepared to handle.

Teaching in the traditional method of Teacher centered education would provide total management of each patient's needs, and thus it is difficult for nurses to handle individual patient's requirements. It only allows minimal scope for nurses to think critically, make analytical nursing diagnosis of individual needs and intervene appropriately in critical care units (Ludin et al. 2014). Ludin's viewpoint appears to coincide with this researcher's scope of interest in this study regarding the experiences of nurse educators in Problem-based learning implementation.

### **1.3 Statement of the Problem**

One main issue among nurses is to handle real patient problems, in other words they have to develop knowledge regarding patient's problems, the skill set required to care for the patients and handle the problems and, more importantly, they must be confident and efficient to make the right decisions regarding the care of the patient. Such capabilities are declining in hospitals in Malaysia now. The quality of nurses overall had deteriorated. As noted by Nemie (2009), nurses were not able to make the right decisions.

As far back as the Nurses Day 2010, the Higher Education and Health Ministries and the Malaysian Nurses Association had identified that this decline was due to inadequate instruction. (Hassan H. 2010). Nurse educators had not played their role well enough.

Some years before this, the Malaysian Ministry of Health had advocated employing "Problem-based learning", (Problem-based learning), as one of the preferred methodologies for teaching and learning in the basic curriculum for

Nursing. Yet, cursory observation seems to suggest that nurse educators shun away from this methodology. Not many are using Problem-based learning. The reason was not known though it has been accepted that problem-based learning develops students critical thinking in making good decisions and therefore has been broadly used in medical teaching all over the world. It was not known whether teachers shy away from this methodology because of lack of knowledge in the usage of this Problem-based learning methodology, or, because it is postulated to consume a lot of time, or, the assumption that the students cannot adjust to Problem-based learning methodology.

The researcher wanted to discover the experiences of nurse educators in Malaysia regarding the extent and depth to which Problem-based learning is practiced as a teaching methodology during the three-year training required for new nurses in Malaysia.

The researcher wanted to know why nurse educators apparently rejected this methodology. There was little research pertaining to the experiences of nurse educators in the colleges under the Ministry of Health using Problem-based Learning as a teaching methodology amongst students in basic nursing. The researcher wanted to examine the experiences of nurse educators in order to examine use of the Problem-based learning method. The researcher also wanted to know whether the nurse educator's experiences indicated that the nurse educators were utilising Problem-based learning methodology in its entirety or in the orthodox manner it was intended to be utilised.

One of the reasons for the inadequate usage of Problem-based learning could have been due to fear amongst nurse educators that students would not be learning anything if it was left solely to them. Some nurse educators might have been even

afraid that students could perceive that they had not been taught enough by the nurse educators. Nurse educators hence continued giving traditional lectures and using their instruction time of the lessons focused on simply lecturing. There is lack of interaction between tutor and students, and, student and student (Wells, 2009). There is no collaborative learning and sharing of information. The scope for clarification of information which is not understood and misunderstood is not available (Chiriac, 2007).

According to the Task Force committee in nursing in the Ministry of Higher Education, a nurse with Bachelor of Nursing with a post basic course cannot be a clinical nurse specialist. A nurse educator with a Master's degree in a clinical speciality and sufficient research and managerial techniques can be a clinical nurse specialist. For a nurse to come up with "nursing orders" there must be a nursing diagnosis which requires the nurse to analyse, synthesis and evaluate a problem, to work with doctors who have in-depth knowledge in sciences which helps them to work with critical thinking and problem-solving skills; therefore, the nurse too must achieve this stipulation. This task force belief is that nursing diagnosis and Problem-based learning cannot be implemented because of the weakness in the system. It lacked vision, maturity and intellectuality.

Problem-based learning had been practiced for a number of years in University Kebangsaan Malaysia (Nabishah et al, 2010). In the nursing colleges under the Ministry of Health it had not been well accepted. There could be many contributory factors in the experiences of nurse educators which needed to be investigated.

For instance, it could be the management. From the experiences of nurse educators, does the management give enough encouragement and support? Do the experiences of nurse educators indicate that management provides enough training and other facilities?

In a study conducted in Jordan the author felt that several reasons contributed to ineffective Problem-based learning (Al-Kloub, 2013). The reasons the study accounted for were an inadequate number of instructors to monitor and evaluate the small group process as well as instructors who were not trained adequately enough in the Problem-based learning methodology to use it as a proper teaching method.

The intake of large groups resulted in an unequal contribution of group's member and superficial coverage of scenario. The Nurse educators should take into consideration the required problem situation and the health setting to access. The problem design should have a title which consists of an appropriate trigger, (trigger is a clue to investigate or make a nursing diagnosis of the situation). The facilitator or instructors should be adequately trained to give suitable trigger problems to fuel the interest of the groups. If triggers are not focused to guide and solve the problems it would result in an uninteresting process and the group would lose interest (Nevin et al. 2014).

The nursing students are expected to perform within the recent revision of Blooms taxonomy, a list of six general cognitive processes that vary from simple to complex (Omrod, 2011). The six processes are to recall what is stored in the long-term memory, understand and construct meaning by summarising the accurate information after class, to apply the learned information to similar situations, to analyse and provide quality care in nursing, ability to evaluate for efficacy of medication and complications and finally to be able to create a care program by taking



into account the six stages. Therefore, there is similarity between Blooms taxonomy and Problem-based learning.

A mini survey was done by this researcher which comprised of twenty-one students who were already qualified and working in various hospitals. The survey was aimed to discover the relationship of the students and nurse educators regarding the implementation of Problem-based learning. The survey was structured in an interview format that consisted of seven questions.

Other factors in the clinical areas to look at are to develop team work and communicative skills. It is known that in clinical areas the nurses' work in teams on patient care, as it is quite impossible to work alone. In other words, nursing education had to encompass developing leadership together with teamwork and communication skills among nursing students. Therefore, new foci had to be established for nurse educators away from the traditional lecture methods. However, based on that realization, we must question if nurse educators are ready to take on this new role (Pecka et al., 2014).

However, we must also question if nurse educators from their experiences were aware that Problem-based learning can provide this guidance to nurses, and how did they still perceive Problem-based learning? Do the experiences of nurse educators signify that they were aware of the benefits? Did they have the confidence that Problem-based learning is better option to the traditional method based on an analysis of their experiences? Were they having any limitations and anxieties – could this be discovered from their experiences? Would perusal of the experiences of nurse educators reveal that they perceived that this Problem-based learning methodology was going to help nurses to work intelligently in the clinical areas or did they feel that traditional methodology could still bring out the best in nurses?

#### **1.4 Purpose of the study**

Currently there appears to be little clear study on the aspect of the experiences of nurse educators on Problem-based learning.

The rationale of the study was two-fold:

1. To fill the information gap concerning the experiences of nurse educators regarding Problem-based learning in Malaysia. This information gap refers to the great lack of information regarding first-hand knowledge of the experiences undergone by nurse-educators. We are ignorant of whether their experiences were of positive events and memories of work or whether their experiences indicated some shortages that affected the correct and complete performance of their duties. Little information is available on the types and duration of trainings they underwent to prepare them to discharge their functions efficaciously. We are also unaware of the quality of the trainings and courses these nurse-educators attended; were they satisfactory or conversely inadequate to equip them with additional skills especially in the art of facilitating. We need to know whether these nurse-educators had been trained in Group-Dynamics as this would influence the way they handled inter-personal and intra-personal relationships in the Problem-based learning groups. Have these nurse-educators been provided courses on motivation to mould them into a positive mindset regarding Problem-based learning implementation, and to prepare these nurse-educators to in turn fire the enthusiasm of their charges in the Problem-based learning groups – such information is not available currently. As yet there had been no study undertaken to study and uncover information concerning these kinds of

dimensional experiences of nurse educators relating to the implementation of Problem-based learning as a learning approach.

2. To study the experiences of nurse educators to understand their role in the implementation of Problem-based learning towards furthering the mission and vision of the Ministry of Health Malaysia. The Ministry's mission was tuned towards adapting teaching and learning strategies for producing trained nurses who are able to translate theoretical knowledge into effective nursing care. These trained nurses should be able to understand how their decisions with regard to patient-care impact the real-life results or outcomes for patients. Problem-based learning scenarios were expected to provide realistic portrayal of actual situations. The task of bringing these situations into the training portfolio was hoisted upon the nurse-educators in a new role as facilitators. As this was a break from the traditional approach to educating, the issue of nurse-educator preparedness for this additional role was highly pertinent. The ministry's vision called for critical thinking skills among nurses in order to be competent. The core curriculum of KKM should focus on critical thinking and holistic care. The application of Nursing Process Model and Problem-based learning (Problem-based learning) were recommended (ibid). The onus of delivering these expectations rested heavily on the shoulders of these nurse-educators via their rebranding as facilitators in a student-propelled learning environment. Thus the need arises to comprehend the positive and negative experiences, the challenges and limitations, the levels of organizational support, that these nurse-educators went through in their efforts to complete their task.

### **1.4.1 The Role of Nurse Educators**

In Problem-based learning, the performance of the nurse educator is crucial in creating an environment of learning as this has an impact on motivating factor (Yeo, 2006) They indeed are looking at means of bringing out the best in nursing students through Problem-based learning approach which is a student-centered learning approach. In Problem-based learning, the student plays the more active role and is asked to take responsibility for their own learning while the teachers role becomes that of a facilitator (Mgbekem, 2008). Weakness like time constraints, in completing the task in Problem-based learning, and student's anxiety if not met adequately by facilitators, (nurse educators), during the initial stages of Problem-based learning would cause frustration on both parties that are students and facilitators, (nurse educators), (Borhan & Yassin, 2013). Again, the question incidentally arises whether or not Problem-based learning is a viable means of imparting quality nurse education?

Many researchers have found that the teaching paradigm has changed from teacher centered to student centered teaching and the reasons these nurse educators have preferences for Lecture based teaching (Ahmed, 2014)

Nurse educators have to have a great deal of competency towards producing superior nursing care quality to meet the ever-changing health care expectations. Competency here is referring to the fact that nursing educators should not only have the adequate knowledge to teach the subject matter, the skills and abilities, but be able to impart this to produce nurses who are able to give quality care throughout their career (Ghasemi et al, 2014). Nurse educators with proper attitude towards acquiring competency are aware of the requirement of the nursing students.

This study endeavored to discover the experiences of nurse educators in Malaysia and the views they had developed regarding Problem-based learning methodology, their understanding of their roles in Problem-based learning education, their readiness to discharge their responsibilities efficiently, the challenges they encountered and their responses – both positive and negative - to these challenges. On a broader level, it was envisioned that this study would be able to add to the existing pool of knowledge regarding the experiences of nurse educators regarding application of Problem-based learning in nurse education. It was also envisioned that the results of this study could be considered by the authorities for nurse education in Malaysia to enhance the progress of Problem-based learning in the training of nurses.

The nurse educator's role is to develop nurses who can operate beyond knowledge and comprehension that they have acquired in the classroom. The nurse educators should facilitate and create an environment where students can exercise higher order thinking like critical thinking, analytical thinking, and are able to synthesize and evaluate and apply this in a real-life situation in the clinical area. This is what is called as quality care in nursing. Nurses who are exposed to the traditional method of classroom teaching in which theory and practical are learned in class would find it difficult to process and make sense of the problem in real life setting (Torreda et al., 2014)

Therefore, it is understood that the responsibility of nurse educators is to build an effective climate for effective learning to take place (Venales, 2015). Nurse educators should be able to maintain and improve the teaching methodology from time to time to improve the quality of nursing care management.

The researcher had spoken to many nurse educators under the Ministry of Health on Problem-based learning and these nurse educators based on their personal experiences found it tedious, time consuming and they were reluctant to implement Problem-based learning.

Problem-based learning (Problem-based learning) as a teaching learning method had been implemented by the Department of Nursing Universiti Kebangsaan Malaysia (UKM) since 1996 (Mat et al., 2011). In the year 2005, UKM replaced their Diploma program with Nursing Degree program. The subjects offered in the Diploma program were included along with the addition of modules from the medical and social sciences, the humanities, nursing research, public and community health and management science. Degree program was introduced in view of upgrading nurses's function to achieve a high standard and developing nurses to improve the quality of nursing via research and development. Here 90% of teachings and learning in the subjects were lecture based and only 10% was Problem-based learning. Yet in this research the students found that biochemistry and physiology were the most difficult subjects. When compared with the entry qualification of students, their conclusion was the better the students' performance in schools the better were their results (Hassan, 2011).

In another research in UKM, the researcher Rahmat 2011, had mentioned that policies related to teaching and learning must be in line with the real-world situation. He further elaborated that graduates should be able to solve complex problems, create knowledge, share, synthesize and benefit from new thinking, welcome change and be innovative (Rahmat, 2011).

Having perused the advantages of Problem-based learning and what it can offer in the basis of teaching and learning, it appeared that there was no research from UKM which showed its effectiveness. Problem-based learning was started in 1996 in nursing first where only 10% teaching was Problem-based learning. When it was claimed that Problem-based learning can contribute to the expectations of an educational institution, why was there still resistance among nurse educators in UKM to use it exclusively in learning.

## **1.5 Research Objectives**

For the purpose of this study the following research questions had been identified:

1. To study the nursing educators' experiences with implementing Problem-based learning.
2. To study the nurse educators' experiences of Problem-based learning regarding fostering of higher order thinking in the areas of holistic nursing management and life-long learning.
3. To study the experiences of nurse educators regarding the strengths and limitations of Problem-based learning when implementing within the nursing school setting.

### **1.5.1 Research Questions**

1. What are the experiences of nurse educators with implementing Problem-based learning. (Problem-based learning).
2. Do the experiences of nurse educators suggest that nurse educators believe Problem-based learning fosters higher order thinking in the areas of holistic nursing management and lifelong learning.

3. What are the strengths and limitations of Problem-based learning based on the experiences of nurse educators when implementing Problem-based learning within the nursing school setting.

### **1.6 Significance of the study**

The significance of this study was to describe the experiences of the nurse educators in a nursing college regarding Problem-based learning as a teaching methodology. Does the experience of nursing educators indicate that this method of learning can replace the traditional method of teaching which is mainly lecture-based?

Ghasemi et al., 2014, opines that competency in nursing education is the ability of nurse educators to develop nurses who are able to give high standard quality patient care. This reflects on nursing educators teaching abilities with the query are they able to create an environment for teaching and learning to take place.

According to Mgbekem, 2008, it is understood in many studies that Problem-based learning encourages self-motivation in leaning. It is a good method to bridge the gap between knowledge and practice. It encourages students to become independent learners and lifelong learners. More importantly, it develops to students to operate at high order thinking that is to become critical thinkers and creative thinkers.

Do the experiences of nurse educators in Malaysia in Problem-based learning education suggest that all these benefits of Problem-based learning suggested by Mgbekem can be successfully achieved?

There are various studies which looked at the roles that nurses had to play at this present age where technologies and care plans for nurses are changing at a very fast pace. Nurses have to keep up with this changing trend. Rishel, 2013, states that they are required to be self-motivated and become life-long learners, which is one



core objective of Problem-based learning. Nevin et al., 2014, adds further that other required roles are that they need to be able to think critically, analyze problems, prepare a care plan then intervene and evaluate and determine the progress of the patient. Nevin again in this study had said that students preferred Problem-based learning where in this study the students used High Fidelity Simulators. They found it very safe for them to practice, as the problems were real life problems. As their practice was on a simulator, if there occurred any mistakes they could be rectified, and this does not endanger the patient in their learning process. After they acquired their confidence, they are able to transfer this to real events in the clinical areas and are able to give better quality care.

A comparison should be drawn between lecture-based education and traditional methods to see which is the accepted methodology between these two, (Forsgren et al., 2013).

Again here, the researcher wished to determine whether based on the experiences of nurse educators, Problem-based learning was or was not popular among nurse educators in the college.

In a study done in Chicago in one nursing college, it was found nurses fared better in the Problem-based learning group compared to lecture-based group. They were better motivated and were better in knowledge compared to the lecture-based group. Furthermore, lecture group students who were good academically previously adapted well to lecture-based education but others showed weakness in areas of knowledge (Hwang, 2006). This study was done back in 2006 and even then, the advantages in Problem-based learning were known to nursing nurse educators.

## **1.7 Limitations**

This research deployed the qualitative methodology, (phenomenological study). It only looked at a small number of nurse educators that were from one college in Malaysia. Intrinsically, the findings and conclusions drawn from this study may not be expanded to be applied universally to all nurse educators everywhere. Permission was obtained that enables the researcher to meet with the selected nurse educators for an interview that takes place in between their work. To collect greater in-depth, more accurate information, more time would have been needed to be utilized. It is important for the researcher to be informed of the areas that should be revised or should be improvised, like whether Problem-based learning is necessary, or how necessary is it. That is, how much confidence the nurse educators have in Problem-based learning, reflected in can they still develop students with high quality nursing care without utilizing Problem-based learning.

## **1.8 Definitions of terms**

### **1.8.1 Problem-based learning**

Problem-based learning involves a small tutorial group of 10 to 15 students who are assigned to work on a specific problem. The aim is to solve a specific task or problem. To deal with the problem a seven-step method is used: step one to step five are preliminary steps, step six is self-study and step seven is post discussion (Mgbekem et al., 2008).

### **1.8.2 Critical thinking**

This is conceptualized to include both cognitive skills and affective dispositions by the American Philosophical Association (APA) (Facione, 1990), and is considered to be a professional attribute for nurses in the new millennium to make efficient judgments in fast-changing clinical situations (Chen & Lin, 2003). A review

of published literature by Oja. K. J.(2011), revealed a positive correlation between problem-based learning and improved critical thinking in nursing students. Real life allows students an opportunity to see how their decisions have impact on patient care outcomes. Stilwell., (2012), as the Problem-based learning scenarios present realistic patient situations.

### **1.8.3 Nurse Educator**

The World Health Organization has developed Nurse Educator Core Competencies to enable educators to effectively contribute to the attainment of high quality education, and the production of effective, efficient and skilled nurses who are able to respond to the health needs of the populations they serve. (Campbel J., 2016).

A competent nurse educator should have the knowledge, skills and attitudes to adopt new approaches in planning, organizing, implementing and evaluating nurse education programmes.

The education of health workers, including nurses, is constantly evolving. The appropriate preparation of nurse educators is critical to the development of knowledge, skills and attitudes, of nurses.

In Malaysia, the nurse educators are appointed by the Ministry of Health Malaysia to provide education and training to nursing students in order to produce qualified nurses.

In this research, the nurse educators took on the role of facilitators when implementing Problem-based learning methodology. Facilitators work to guide content (relevant), listen and observe, guide discussions, and note -taking. Facilitators also evaluate the content of the problem. He/she monitors student's progress, challenges student's thinking so as to nurture deep learning and a search for meanings

that will help them develop critical thinking and creative thinking. Mgbekem et al., (2008).

## **1.9 Summary**

This Chapter introduced the background of the problem, the rationale and purpose of carrying out this research, as well as the significance and limitations of the study.

It is hoped that after this study, we are able to better understand the experiences of nurse educators with regard to Problem-based learning implementation; to recognize the advantages and disadvantages of Problem-based learning, and whether the nurse-educators experiences signify that they perceived Problem-based learning as a good methodology to develop quality nurses. This study on the experiences of nurse educators with Problem-based learning implementation may provide valuable insight to the Ministry of Health on the level of support needed and the urgency of initiative.

The next chapter will address the relevant literature in relation to the theoretical framework for this research.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This literature review presents an understanding of the current state of knowledge regarding experiences of nurse-educators regarding implementation of Problem-based learning. It looks at the theoretical background of approaches to nurse educator's experiences of Problem-based learning and examines circumstances and results pertaining to the use of the Problem-based learning method. The role of Problem-based learning facilitation, role of nurse-educators, goals of Higher-order thinking, Holistic management plus Life-long learning including challenges in implementing Problem-based learning are also examined. This approach is in line with the research objectives of this study.

#### **2.2 Theories Impacting Problem-based learning**

Phillips, (1995)., relates constructivism to the view that human knowledge is constructed by individuals and within social communities, and that the disciplines, or bodies of knowledge, are also human constructions. Kemp., (2011), however, asserts that constructivism, "is a theory that describes learning, not a method of teaching".

The learner-centred approach reflects and is rooted in the constructivist philosophy of teaching (Brown, 2008; McCombs & Whistler,1997; Weimer, 2002, and Schuh, 2003). It states that it is an active process where a person makes sense of a new situation and relates it to present understanding. Constructivism relies heavily on the learner for the learning process to occur. Valentine. D. Constructivism, Epistemological Review. Hendry. G.D. et al. (1999), state that the central conjecture of Constructivism is that knowledge cannot exist outside our minds and cannot be

granted from one mind to another, while new knowledge is constructed or created from within individuals through experience, based on his inherent skills and concepts to solve problems in the environment. Ahmed, (2013), in stating his preference says that unlike Behaviourist theory the constructivist believes students bring a wide range of prior understanding and experiences where new knowledge which the students acquired is added onto it Ahmed, (2013).

Problem-based learning takes the constructivist view of human learning; the student is central of the learning process and constructs knowledge based on previous knowledge and from interaction from the environment. Chan. L.C. (2008). (Barrows, (1988), describes Problem-based learning (Problem-based learning) as a constructivist educational approach that organizes curriculum and instruction around carefully crafted “ill-structured” problems.

“Piaget, believed that humans learn through the construction of one logical structure after another. The emphasis of Piaget’s theory is on development and learning. Development focus on the learner’s capabilities and the learning focusses on the realization of such capabilities”, according to Lefa. B. (2014). “They build their knowledge through experience. Experiences enable them to create schemas - mental models of the world. These schemas are changed, enlarged, and made more sophisticated through two complimentary processes: assimilation and accommodation” (Clark, 2004). Assimilation describes the process when one is put in a new situation trying to make sense of it using existing schemas - the basic building block of intelligent behavior - a way of organizing knowledge. Indeed, it is useful to think of schemas as “units” of knowledge. McLeod.S., (2018). Rahmat. Et al (2019), state that the process of Accommodation ensues when existing schema fails, necessitating improvements that permit the learner to handle new learning, whereby,

learners are able to substantiate reasons for disagreement and a basis is established to accept differences. Once they are able to accommodate the new knowledge or experiences, they are in a state of equilibrium.

In problem-based learning when problems are given to students, they may feel the present knowledge and skills are inadequate to solve the problem. This creates some discomfort, because they are unable to use the existing understanding. This situation is called disequilibrium. Equilibration is the dynamic process of moving from disequilibrium to equilibrium, securing “balance between assimilation and accommodation BormanakiH.B., Yasin Khoshhal, (2017).

For this process to take place the environment should be conducive. The researcher wanted to know whether the nursing tutors experience through their reflection and responses showed that they are supportive to learning to take place in Problem-based learning in relation to Piaget theory regarding assimilation, accomodation and equilibrium. Previous knowledge then relates to the problem-situation, that is students are exposed to new situation by giving problems very much like real life problems. This creates a disequilibrium and then students have to achieve the state of equilibration.

### **2.3 Role of Problem-based learning Facilitator**

The construct that is frequently referred to when describing the Problem-based learning teacher's role is Facilitation. Kolmos. A. et al. (2008). Kolmos. A. et al. (2008), see the role of the Problem-based learning facilitator, (nurse-educator), as motivating learning processes, directing, guiding and assisting students in difficult situations, empowering them to make choices, and sometimes answering students' questions. Gregory, 2002, describes a facilitator as a “process guide” mentoring a

group to assist it to achieve “self-defining purpose”. This is because student-centred learning does not occur naturally but needs to be facilitated.

The role of nurse educator appears to be not to provide information but to lead the student in learning by asking the right questions, setting the right learning objectives and the ability to give the right feedback, “not there to disseminate information (that is, to teach)”. Chan.L.C., (2008). The role of the facilitator, (nurse-educator), in Problem-based learning is to direct and guide students, empowering them to make choices how best to improve their learning (Lam. D.O.B., 2009).

There are diverse positions on tutor's role as a content expert or/and a process expert. Barrows, H.S. & Tamblyn, R.M. (1980). Azer. A. Samy. (2005), maintain that ‘the tutor should have expertise in group facilitation (process expertise) rather than in a subject area (content expertise)’.

Wang. Q. et al, (2016), indicate other studies show that most effective tutors are those with both clinical content knowledge and the abilities to facilitate learning process and to empathize with students’ circumstances. They proceed to declare that the Problem-based learning tutor needs to discover the right balance between process facilitation and information delivery. Problem-based learning tutors upgrade competency of students through progressive modeling, scaffolding knowledge construction open-ended and reflective questioning and monitoring students’ progress and group dynamics. Wang. Q. et al, (2016).

The students should be guided to ask questions at a higher level, (Chan L. C. 2008). Do the experiences of nurse-educators reveal that they attempted to make sense of the new situation, namely implementing teaching via Problem-based learning, and related it to their present understanding?



As highlighted by Mgbekem (2008), the aim of the Problem-based learning teaching method is for students to acquire the essential skills and knowledge which can be retained and retrieved whenever it is required in their working environment, ability to utilise appropriately skill and knowledge to evaluate and manage health problems, take action to improve skills and knowledge which they may require to encounter in the future, in Problem-based learning it helps in self-motivation and students take responsibility for their own learning. It prepares them as lifelong learners.

Wells. S. et al., (2014), have suggested conflict in the implementation of Problem-based learning with individual facilitators condensing their Problem-based learning programmes to incorporate a modified Problem-based learning approach with this personalised approach often taking strength away from the original conceptions of Problem-based learning.

There is a challenge within the nurse educators whether they are required to be content experts or not that is just to concentrate on the process. Chan.L.C. (2008), sums up that “a Problem-based learning tutor is a combination of a facilitator of learning, a content expert who skillfully uses his knowledge mindfully within the context of the wider curriculum, a mentor, a team builder, and a person who cares about the welfare of the student and his fellow tutors”.

The problem and triggers have to be well structured the students are to be guided to recognise salient features, otherwise, it could take a long time to solve the problem. The nurse educators should be able to provide honest but helpful feedback to help improve learning. (Chan L. C. 2008). Examining the experiences of the nurse-educators in Malaysia would reveal whether they replicated this kind of behaviour.

Another challenge is the handling of difficult individuals or dysfunctional groups as group dynamics is crucial in effective Problem-based learning.

It was found that Problem-based learning was very challenging as the problems were ill structured and they had to go about to solve problems. The students found this very interesting especially for those who preferred learning in depth as Piaget's Constructivist Theory stated. The deep learners are those who related new understanding to prior knowledge and had some prior knowledge and could add on the new understanding. But those with surface learning approaches hated Problem-based learning and they found that they were not learning. Their preference was rote learning, and they found it was hard to adapt to the Problem-based learning process. The surface learners who used most rote learning and lastly the strategic learners who used both as required upon the task they were to accomplish (Spiers et al 2013; Rochmawati et.al., 2014). Such students just wanted to pass the nursing exams and become nurses, they were not thinking of learning for life or lifelong learning. The strategic learners on the other hand found it was interesting and at times used deep learning and sometimes surface learning as their idea was just to accomplish the task. Lifelong learning is integral to the nursing profession as it renews and rejuvenates them for changing times and circumstances (Paton et al 2013; Rishel, 2013). This research also focussed on whether the experiences of nurse educators reflected this element of life-long learning in their own careers. How much significance did they attach to incorporating life-long learning in their own learning?

As the nursing profession encourages lifelong learning students are to develop themselves to become self-directed and motivated to take responsibility for their own learning in their own work place (Vinales, 2014; Mgbekem et al, 2008).

The expectation of the learning environment should be clear (Nabishah et al, 2010). Then the students should be given a choice if they had the preference or if not, are they willing to transform to accommodate this form of learning. The students are also to be informed that for the purpose of working with competency in the nursing field they have to be deep learners to accommodate the ever-changing patient needs. In their field of work, they need to work in collaboration with others. (Nabishah et al, 2010). Does the experience of nurse-educators in Malaysia suggest that the nurse-educators transformed themselves to accommodate Problem-based learning instruction methodology?

### **2.3.1 Problems in Problem-based learning**

Problems in Problem-based learning should be well structured in order to achieve its objectives, as declared by Chan (2013). Several research studies have shown that nurse-educators as facilitators are not attuned to play their role in the implementation of Problem-based learning. The nurse-educators lack knowledge on giving appropriate guidance for students to improve teamwork, participate in active learning and to guide students to come out with specific learning outcomes. The nurse-educators in playing their role as facilitators should be able to guide students to work on higher-order thinking, such as the ability to relate and organise various concepts. Do the experiences of the nurse-educators in this research indicate that such guidance on developing higher order thinking was encouraged and fuelled?

In Problem-based learning the starting point is a problem (Wells et al., 2009). Here the problem can be an issue, a disease condition or even hindrance to a policy. A problemised real life situation where development of explanatory hypothesis and the identification of learning needs means that students understand the problem better (Salleh, 2007). In another similar situation the same principles can be applied. What

happens if the problems are not appropriate, what happens to the learning process then. A nurse-educator should be trained in order to carry out Problem-based learning. Here again the experiences of the nurse educators are required to ascertain their take on creating triggers.

Students find it challenging and stressful with Problem-based learning in instances when very little information is given, so the responsibilities lie with the nurse-educators to create triggers which have appropriate details and are good - otherwise the students are likely to get frustrated (Felton et al., 2013). Problem-based learning can be difficult if the nurse-educators have lack of theoretical knowledge and students can lose interest as a lot of time is utilised in gathering basic knowledge before proceeding to higher levels of problem solving. The students might be spending too much time acquiring knowledge in relation to the problem that they may end up stressed and frustrated (Al-Kloub et al., 2013). This research studied this aspect in the experiences of nurse-educators.

It is said that Problem-based learning promotes learning faster than traditional methods and bridges the gap between theory and practice. Internet service is paramount in promoting Problem-based learning and it should be available to students in order to have access to information at all times. This view is supported by Mgbekem (2008). To ensure that Problem-based learning is effective in developing a holistic nurse, the internet services in the nursing institutions should be well established (ibid). What initiatives were apparent in the experiences of the nurse-educators in Malaysia with regard to ensuring adequate internet availability for their students. This aspect needed finding out also.

### **2.3.2 Internet services**

Nurse educators in one study felt students did not access the support material comprising relevant websites which was given in their information notes via internet prior to the simulation sessions. Therefore, online monitoring of usage of this support and review of this material is essential to the success of students gaining experiences during the sessions. The same students had to be reminded many times to utilise critical thinking, in transferring theory into care management (Nevin et al., 2013).

### **2.3.3 Working in teams**

Thomkinson and Hutt (2012) found that the requirements of Problem-based learning is not clear amongst students and it is time consuming. It is difficult to work in groups sometimes when they are too big, have lack of interaction within and also with other groups. There is usually too much of conflicts.

I-Chao Lee, 2010, supports the contention that team work has to be developed because it is not a natural process. Problem-based learning is an area where students were trained and developed to work in teams. They learn how to respect each other, take criticisms well, and put forward their ideas in a clear manner (Lee, 2010). Adnan (2009) agrees that they work together to accomplish a project utilising good communication and problem-solving skills. These events that occur in Problem-based learning actually prepares students to cope with conflicts, make collective decisions towards a common goal in achieving success in the organisations. Most organisations would encourage team work in their workplace which contributes to good work performance. Was this emphasis on developing teamwork manifested in the experiences of nurse-educators in Malaysia in implementing Problem-based learning amongst their students. Did these nurse-educators themselves practise teamwork and is this evidenced in their experiences?

Group work or working in a team, as shared by Chiriac (2007), can either facilitate or hamper learning. In other words, group members have an impact on productivity and quality of learning. If the group is able to work together then the results are positive. If the group is unable to collaborate then it deteriorates the quality of learning. The stand of Chiriac alludes to the expansion that the selection of members is important as students with low grades and those with high grades might find it difficult to work together. The ones with high grades might find that the students with lower grades hinder their learning progress. Where else, the students with lower grades find that they cannot keep up with others and they get frustrated and demotivated.

Griibet and Moya (2014) shared the belief that the facilitator has to be observant, take notice of the group dynamics, and rectify quickly. She should disallow unnecessary predominance of certain members over other members of the group. This research wished to study the experiences of nurse-educators in Malaysia to understand how these nurse-educators handled this challenge.

Students too go through role conflict, they may be in conflict in learning and expectation (Zabit, 2010). This researcher concurs with Zabit that Problem-based learning should be introduced early and the students should be made to realise the benefits in Problem-based learning slowly by the nurse-educators. This research wished to study whether the experiences of the Malaysian nurse-educators echoed this concern.

(Nevin et al. 2014), In the study by Nevin, students were encouraged to give their comments regarding the lesson structure. The students feedback included that they found the lesson helpful and realistic, that it was helpful in teaching them to take initiative. Some found it as a safe zone to learn. Many liked learning together with

their peers where they learned from the “More Knowledgeable Other” and the teacher was actually facilitating and giving appropriate guidance (scaffolding). The students then requested that future lessons should be done in the same way. Does the experience of the nurse-educators in this research signal that these nurse-educators became the “More Knowledgeable Other” to their students while implementing Problem-based learning. Was there conflict with the objectives of Problem-based learning where the source of content-knowledge was thought to be derived away from the nurse-educator.

#### **2.3.4 Higher Order Thinking**

Hamdan. A,R. et al agrees with (Heliker, 1994), that Problem based learning aims to speed up the process and efficiency of clinical reasoning by placing learning in a functional context (Heliker, 1994). Gagne (1970) stated that in problem solving the learner combines the rules that he has learned previously to develop new higher-order rules which can be used to solve problems. (Hamdan. A.R. et al).

Their prime role is group facilitation compared to content knowledge. The key is to develop the student’s metacognitive skills and not based on the nurse educators as a content expert in the learning. In the experience in the playing their role in Problem-based learning, nurse educators again are required to develop these skills do as to facilitate the group’s self-directed generation of learning objectives from triggers in successive case scenarios that set the context (Groves et al., 2005; Maudsley, 1999).

Riggs (2014) implies that the content should be challenging enough to motivate students to think. In other words, in Problem-based learning, Chan (2012) shares the view that the students should be given clues/problems which stimulates one’s critical thinking. A lot of thought should be taken to formulate these problems

in order to bring about the process of critical thinking. Developing critical thinking also provides students with tools to respond to changes and new changes. Md Zabit (2010) agrees that critical thinking is very useful in their work places where students can handle large volumes and information, evaluate the information and make necessary judgements.

Critical thinking comprises cognitive components of interpreting information, analysing, and evaluation. Critical thinkers make inferences and can explain the event with evidence, they are also methodological, criteriological, and make sound judgements as explained by Benner (Benner et al., 2008; Chan, 2012). In an academic environment critical thinking is related to the content. In other words, students are able to make inferences, use logical reasoning, investigate assumptions, capable of deduction, then interpret information and finally make judgements (Zabit, 2010). Walton expressed the standpoint that if the students are able to go through all this process, it means students are ready to make good clinical judgements which are essential to nursing and they are mindful nurses who are sensitive to patients needs and able to handle problems with confidence (Walton, 2014). Many researchers say that Problem-based learning develops this process or higher order thinking. Does probing the experiences of nurse-educators in Malaysia reveal the initiatives these nurse-educators attempted to develop critical thinking and creative thinking amongst their students. Did nurse educators from their experiences believe that Problem-based learning can develop critical thinking and creative thinking amongst students?

### **2.3.5 Organisation**

Organisation is another factor that determines the competency of teachers. Is the organisation willing to listen to the nurse educators? In their experience is the organisation able to provide for the nurse educators to upgrade themselves in order to



increase their competency levels? Are they willing to provide facilities if the nurse educators want to use Problem-based learning in their setting? Are peers going to assess and give suggestions and give criticism with respect so that the nurse educators can improve themselves. Peer support again determines the success of the nurse educators. Adnan., (2009)., poses that question as to whether or not nurse educators are willing to collaborate and support those nursing educators who wish to utilize Problem-based learning as a teaching method. Problem-based learning cannot be done by one tutor alone. For example, in Semester One, all the nurse educators should collaborate, persuade and work together in unison to ensure success of the Problem-based learning. Therefore, sociocultural structure of the organisation also plays an important role in the implementation of Problem-based learning.

#### **2.4 The Experience of Problem-Based Learning Usage in Nursing Education**

In one university where Problem-based learning failed once, another attempt some years later was made by nurturing the Key tutors of Problem-based learning teaching. The key tutors attended a four weeks course in another university, then a formed an information program of faculty development was implemented followed by two hour meeting to share their experiences each week for one year to read Problem-based learning related articles or discuss the related issue in order for effective model of Problem-based learning teaching. The key tutors revisited the university where they had the course earlier to observe small groups learning as part of a big class. The key tutors also visited another university to study different kinds of Problem-based learning teaching methods (Chou F H and Chin C. C (2009). E-learning websites was also developed by the university. A lot of details were looked into upgrading of facilitators and facilitation and finally a research was done to see the outcome of Problem-based learning and it was successful.

In one study conducted in a university in Malaysia, they felt that preparing teachers is very essential before implementing Problem-based learning, as she has to play the key role of a facilitator (Nabishah et al, 2010). In comparison with research done (Chou F. H. and Chin C. C., (2009) where a basic course of four weeks was done and many meetings following that were held among tutors here only one week of training was given on the process of facilitating and other training inclusive of preparation of the package and simulation of the Problem-based learning process (Wickham. 2014). Thus, training was to inform nurse educators on how the Problem-based learning process is done, so that she can implement it with success. Therefore, one of the primary goals of this research is to discover whether the experiences of nurse educators in the nursing colleges suggest that they are adequately trained especially with regard to facilitation, and regarding availability of facilities in colleges - is there ample books, electronic material, space for group work and a good library for students to search for the required information.

In another study by Ku T. K. and Ha M. (2016) despite Problem based learning being an effective strategy yet from experiences of nurse-educators challenges it was time consuming in devising scenarios, preparing activities and guiding students until they are confident in their problem- solving skills. It also incurs a lot in cost in training facilitators to be able to carry out the Problem-based learning process. Stress in conducting the Problem-based learning process is also experienced by facilitators in implementing Problem-based learning.

The learning environment is crucial exposure for nursing. (Vinales J.J.2015)  
The learning environment has to be a supportive environment where a lot of learning opportunities are to be allowed for students to handle real life situation in the clinical setting.

In the problem-based learning group the work that is assigned is quite different from traditional lessons and individual work. Teamwork of group work requires interactional dynamics that either is properly facilitated or hampers learning. Here the facilitators will be asked on their experience if the group dynamics works with the students. (Chiriac E.H 2005). The outcome depends on the group dynamics; some groups function very well among the group members, other are very much self-centered, some only choose to work with good students. A lot of trust is needed while preparing learning notes for each other to work and to appreciate work of others and to participate in open discussion. (Debbie O.B. Lam, 2014).

On the context of lifelong learning where again once a nurse qualifies with no more exams, no practical assessments, and so on, and she embarks onto her new job as a nurse. There she finds she has again to embark onto lifelong learning as she has to keep herself updated with new skills and new equipment, new drugs and so on which are fast changing in nursing. There is constant disequilibrium she has to encounter and this is something she has to be able to accept that nursing is lifelong learning. (Rishel CJ 2015). Here Problem-based learning approach is supposed to develop knowledge seekers rather than knowledge receivers. (Adnan N. L. 2009).

The responsibility of student-centered learning must be shared responsibility of facilitators and students on how to employ Problem-based learning effectively. The students once motivated and having developed interest with Problem-based learning they actually learn how to learn. And this is most useful in lifelong learning, students initially should learn how to learn. (Embo M 2015).

Problem-based learning has been there for more than a few decades and said to improve clinical reasoning and nurses are able to come with sound decision making. It is also known to increase students's retention of knowledge and

motivation. (Hwang 2005).

Problem-based learning produces nurses to be autonomous in decision making. Thus, for Problem-based learning to be effective more internet services and a functional library is essential for the efficacious practice of Problem-based learning in an institution. This is to help students to access information and exchange information easily with others. (Mgbekem M.A. 2014). The nurse-educators also need good internet services to enable them to be in contact with their students and with other fellow nurse-educators.

It also requires more staff and it is time consuming. (Mgbekem M.A, 2014). It is essential that enough time should be allocated to solve problems and also enough facilitators to handle small groups effectively.

The nurse educator here must be able to change her role from lecturer to a facilitator. However, in these college we were not sure where the facilitators were able to do this. Are they able to guide the students to discover their potentials and be motivated to learn how to learn. (Yeo R 2005).

Piaget's constructivism states that a person's understanding is often revised and reconstructed as he is exposed to new experiences. Piaget's theory emphasised mostly on the individual but Vygotsky's emphasis was more on learning from a significant other (Ormrod, 2011). Schemas is what is used to relate whereby children make sense of their environment through assimilation, like when the event is consistent with the environment, and when new event takes place the children modify to accommodate the new event to their previous schema or assimilation. Therefore, students learn through assimilation and accommodation (ibid).

Piaget also stressed that one's interaction with physical and social environment are essential for cognitive development (Lee, 2010). To illustrate this, active experimentation with the physical world is required for cognitive growth; similarly, in nursing, the activity is in the clinical labs in simulation environment and so on. Social interaction is another thing that Piaget examined. Through interaction with people students began to understand that their own view is not always logical; when working in groups the other members may point out our inadequacies and correct our view in a logical manner (Felton et al., 2013).

In view of this, it is apparent that Piaget theory has a role in Problem-based learning as in the interaction between peers, cognitive development takes place. Assimilation and accommodation come first. Idea testing is encouraged where it creates critical thinking within students, and this is a crucial component in Problem-based learning (Severiens & Schmidt, 2009).

Lev Vygotsky in his sociocultural theory believed that adult instruction, or more knowledgeable other is important in cognitive development (Ormrod, 2011), unlike Piaget who believed that students are in control of their own cognitive development. Piaget's view of students in their adolescence began with formal reasoning, that is how an outcome occurs, they began to reason logically, (Riggs, 2014).

## **2.5 The function of the Nursing Tutor as a facilitator**

In Problem-based learning nurse educators must be ready to change their roles from didactic to becoming a facilitator. McCaughan (2008) argues that operating as a Problem-based learning facilitator necessitates, "adjustment in the teacher role that is difficult for many to adopt". (McCaughan, 2008, p. 1). Many educators were reluctant because they were afraid that they would be "appraised" for their work (Zabid, 2010). The nurse educators themselves too must be aware again that

tutoring in Problem-based learning is similar to one-to-one tutoring (Budé et al., 2010).

The role of the facilitator is to keep the group focused on their task and to achieve higher goals. Wosinski., et al, argue that “the quality of group interactions is critical to the success of nursing students with Problem-based learning”.

The importance of a facilitator and the required facilitator training facilities have to be made available. Here the correlation of the facilitator and academic output is interrelated. (Yang H.J and Yang B 2013). Kaufman. D.M.et al. (1996), argues for the, “need for further training in group facilitation, questioning, handling ‘difficult’ situations and evaluating students”.

In their study (Yang H.J and Yang B 2013:

they looked at nursing students’ experiences with nurse educators, they found that a facilitator can develop facilitation strategies and are able to regulate the amount of facilitation as Problem-based learning courses progress. In the same study the students themselves went to find out from other students who have exposed to Problem-based learning on how facilitators handle the class and the response of the facilitators during Problem-based learning. In this study, this is how the students responded in order to have a sense of safety to avoid embarrassment or failure. Therefore. The study revealed that orientation and counselling is required before commencing Problem-based learning. This researcher felt that a review of the experiences of nurse-educators could reveal the extent of facilitation and the quality of facilitation they have provided to students practising Problem-based learning. The students’ experiences were that the beginning still required one to one guidance as did the understanding of the given scenario and the required intervention. Their knowledge on

nursing was not developed yet in the first year and they needed direct facilitation. They could not find the relevant cues and were unable to discover learning issues. The experience of the students' was that they felt that some facilitators were very demanding, gave too much of their own opinions, disrupted the class often and some were very quiet. Some of the students preferred lectures to Problem-based learning. They felt they learnt more from lectures and had little confidence in their facilitators. This clearly emphasizes the needs of the nurse educators that they need more, regular and improved courses to become effective facilitators. In this study, Problem-based learning was mainly based on facilitation, and guidance given by facilitators. Hence, the quality of facilitation was of paramount importance.

Kolmos. A. et al., (2008), affirm that:

many teachers are unsure of how to handle the facilitator's function in practice, where teachers are uncertain of the degree of control, whether they must ensure a sufficient common professional level and where to draw the line of personal involvement. Particular focus is on strategies based upon the Problem-based learning approach to teaching and learning. The aim of Problem-based learning is to solve a specific task or problem. Typically, a small tutorial group of 10 to 15 students work collaboratively.

Mgbekem et al., 2008:

Fundamentally, there are seven steps to deal with the problem. The first five are preliminary steps, beginning with clarification of unfamiliar terminology, defining the problem to ascertain what questions need to be answered, analytical non-filtered input utilizing Brainstorming, scrutiny of potential solutions to the questions steering towards concurrent stance on ambiguities

and uncertainties. Step five involves framing learning objectives for yet unresolved issues. Step six is individual self-study and step seven is post discussion (Mgbekem et al., 2008).

Self directed learning approach to teaching and learning was what the problem-based learning was based on. In particular focus on higher order thinking, logical reasoning and Constructivism-theories are applicable with again foremost proponent Piaget. (Brown, (2008) McCombs & Wristler, (1997), Weimer, (2002) and Schuh, (2003), believe students are in control of their own cognitive development. Piaget's view on formal logical reasoning develops as critical thinking.

Piaget's theory emphasizes mostly on the individual, but Vygotsky's emphasis was on learning from a more significant other. Piaget also stressed that one's physical and social environment was essential for cognitive development. Lee (2010). Idea testing is encouraged where it creates critical thinking within students and this is a crucial component in Problem-based learning. Severiens & Schmidt, (2009).

## **2.6 Summary**

In this chapter this researcher has studied the experiences undergone by nurse educators. Greater focus has been given to teacher centred and student-driven learning and teaching approaches, with particular reference to the Problem-Based-Learning approach. The perspectives of teachers with regards to these two broad categories has been outlined to provide a comparison of the advantages and disadvantages as well as other pertinent information. This data provides a framework for this researcher to identify common world-wide and local experiences of nurse-educators with regard to Problem-based learning approach. The challenges to implementation of Problem-based learning have also been exposed. Individual case data of the effects of Problem-based learning on students have been highlighted to second the motion for greater use



of Problem-based learning in education. The impact that nurse-educators will have on student learning through the Problem-based learning methodology has been examined and highlighted. It is apparent that the facilitator-role played by nurse-educators in Problem-based learning implementation is highly significant and worth examining through the experiences of these nurse-educators in Problem-based learning practice.

The next chapter will focus on the approaches to data collection and methods and instruments employed. This researcher has opted for qualitative methodology utilising the Case Study method in order to deal with the subject matter in detail to extract maximum data using unstructured format. The decisions on the target research group are explained. The time framework is also outlined. The methodology in processing of data collected is explained in this next chapter too.

## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 Introduction

In this chapter, the researcher states the research design, research participants, research instruments, research procedure, and data analysis. This chapter provides an account of the qualitative research schedule for data collection and analysis procedures including Ethical considerations.

LP Wong, (2008), affirms:

“Qualitative methods explore the perspective and meaning of experiences, seek insight and identify the social structures or processes that explain people’s behavioural meaning. Most importantly, qualitative research relies on extensive interaction with the people being studied, and often allows researchers to uncover unexpected or unanticipated information, which is not possible in the quantitative methods”.

Qualitative methods “are a powerful choice when you want to understand details of a process or experience” according to Jackson. Kristi and Bazeley. Pat, (2019).

This process of converting unprocessed data by searching, evaluating, recognising, coding, mapping, exploring and describing patterns, trends, themes and categories, in order to explain them and extract their inherent meanings is achieved through logical reasoning and ingenious integration. Patton (2002:41).

The objectives of this research were to understand the experiences of nurse educators implementing Problem-based learning, regarding fostering of higher order thinking in the areas of holistic nursing management and life-long learning and regarding the challenges of problem-based learning when implementing within the nursing school setting.

### 3.2 Research Design

The researcher from the aspect of teaching and learning practice, found that Problem-based learning, based on her experience, “was often poorly practiced”, Ku T. K and Ha M., (2016). The phenomenological research design, “to explicate the meaning, structure and essence of the experiences of this group of nurse educators”, Christensen, Johnson, and Turner (2014), was considered suitable as it could prevent or restrict researcher biases.

Phenomenological Research is an approach to qualitative research that focuses on the commonality of a lived experience within a particular group. Creswell, (2013), regards the fundamental goal of the approach is “to arrive at a description of the nature of the particular phenomenon”. It allows the researcher to “retain holistic outlook and meanings of real-life events in an individual or organisation”, (Yin R.K., 2009) involving “in-depth collection of data via interview documents and audio-visual material”. (Creswell J.W.,2013). The phenomenological design method, with its use of manifold data collection methods and analysis techniques, afforded researchers with opportunities to triangulate data in order to reinforce the research findings and conclusions.

This study focuses on in-depth understanding and analysis of the five interviewees, (nurse-educators), chosen in this research. According to Yin., (2009), the study of the five participants was good enough to converge into phenomena.

The researcher in this context has based the study on the shared experiences that results in core meaning of individuals by comparing and analysing the five participants’ shared experiences. The researcher was conscious of her own experiences with phenomena.

The researcher chose this particular research design because this design was compatible with her commitment to understand in-depth the experiences of nurse educators in relation to experiences of nurse-educators in Problem-based Learning. This method enabled the collection of data that encompassed elaboration of personal views that are unavailable through other structured questionnaire procedures.

The first characteristic of qualitative research rests on the purpose of qualitative research, to understand the “meaning people attribute to their experiences” as it accentuates what occurs during the process and not the outcome. Creswell. (2007) holds that “qualitative research proposes to investigate individual understanding of their experience but not the researcher’s experiences of individuals’ experiences”.

The second feature is that the researchers themselves are the principal instruments to collect and analyse data. The researcher-bias was considered, accounted for and ensured that these biases do not have an impact on the data collection and analysis.

Third, qualitative research is an inductive process and provides highly descriptive data which can be presented in the form of words and pictures rather than numbers (Merriam, 2009). The researcher had to depend on meticulous inquiry in the research. The researcher was cognizant of the voices and mannerisms of the participants in the research. “It is more of a dynamic, intuitive and creative process of inductive reasoning, thinking and theorising. Qualitative research focuses on the exploration of values, meanings, beliefs, thoughts, experiences, and feelings characteristic of the phenomenon under investigation”. LP Wong., (2008).

This study is to determine the experiences of the nurse educators regarding the Problem-based learning approach via the questions in the interview.

Do the experiences of the nurse educators indicate that Problem-based learning fosters Higher Order Learning more than Teacher-Centered Learning in areas of Holistic Nursing Management and Lifelong Learning. Do the experiences of the nurse educators indicate the strengths, weaknesses and limitation in areas of learning environment and collaborative learning in Problem-based learning? The researcher analysed the experiences of the nurse educators regarding these questions. The research questions were derived from literature reviews conducted. From this it proceeded to refined questions leading to the issues.

In order to be open to the experiences of the participants to obtain the essence of experiences of the participants, the researcher had to put aside his view or experiences (Husserl,1931). In seeking to obtain the essence of experience, Husserl believed in the importance of the researcher to be open to all inward experiences as a pure experience through “epoche” or bracketing (Husserl, 1970; Kharijah,2007).

Interviews were used, data was collected, transcribed from the audio recordings and processed partially using the NVIVO 12 analytical package. The researcher used NVIOV 12 to assist with categorizing, sorting, storing, and retrieving data for analysis. This researcher needed to collect and store multiple sources of evidence comprehensively and systematically, in NVIVO 12, that can be located and categorized so that lines of inquiry and patterns that are similar could be discovered.

### **3.2.1 NVivo Computer Aided Qualitative Analysis software**

The process of qualitative data analysis is “labour intensive and time consuming” (Lofland, Snow, Anderson & Lofland, and 2006:196). This is partly due to the fact that qualitative research produces “large amounts of contextually laden,

subjective, and richly detailed data” (Byrne, 2001:904). NVivo imitates manual approaches by appropriating the traditional deployment of coloured pens for data categorization, marking, cutting, and sorting manual tasks performed with scissors, paper and stick-on notes and note cards thereby boosting efficiency and accelerating the process of grouping data according to categories and retrieving coded themes. LP Wong, (2008), describes this as “subdividing the huge amount of raw information or compiled data, and subsequently assigning them into categories”, employing codes or tags or labels to identify topics or themes. Jackson. Kristi and Bazeley. Pat, (2019), endorse the assistance NVivo affords to speedily and efficiently “manage data... manage ideas... query data... visualize data... and report from the data.” Noriah Mohd. Ishak and Abu Yazid Abu Bakar, (2012), compliment this software that it, “manages and organizes the qualitative data, provides a system to answer the research question and develops image of the whole study for better understanding”. The major crucial phase in the qualitative data analysis process is categorising the data or coding. Of particular interest to this researcher is that NVivo is useful in analysing interview data. Wiley & Mischo, (2016). Phillips. Margaret & Jing Lu, (2018), assert that NVivo allows researchers ease in “discovering and building relationships among data, assigning and defining themes and categories for data, visualizing data analysis results, and creating reports”. Nvivo 12 software was use to support data analysis principally due to its “ability to make the analysis transparent to other researchers”. Beekhuyzen. J. et al. (2010).

The researcher starts by generating a Project in NVivo to contain the collected data, source files, together with other coding information. From this single Project File, a Project Pad NVivo window opens and can be viewed. The Project has two main menus: Document Browser, where coding documents is done. The structured

list of nodes, saved documents can be viewed with short descriptions of each document, in a database at the bottom of the document browser.

Saldana, (2015), defines Code as “a word, or a short phrase that symbolically assigns a summative salient essence capturing and/or evocative attribute for a portion of a language based or visual data.” “Coding involves the desegregation of textual data into segments, examining the data similarities and differences, and grouping together conceptually similar data in the respective nodes.” LP Wong, (2008). The purpose of coding is to “break down and understand a text and to attach and develop categories and put them into an order in the course of time” (Flick, 2002:178).in Ngulube. P., (2015). This involves “identifying a passage of text in a document that exemplifies ideas or concepts and connecting it to a node that represents that idea or concept”. LP Wong, (2008). Each research question becomes “a major coding category that is broken down into sub-categories”. Ngulube. P., (2015). Coding plays a key role in category identification in qualitative data analysis (Williamson et al., 2013) in Ngulube. P. (2015).

Second menu is Node Browser, that represents categories throughout the data saved within the NVivo database as nodes. LP Wong, (2008). A "node" in NVivo is the container for the coded segments. A Node denotes a code, theme, or idea about the data in a project. Nodes created in NVivo are equivalent to sticky notes that the researcher places on the document to indicate that a particular passage belongs to a certain theme or topic. Unlike sticky notes, the nodes in NVivo are retrievable, easily organised, and give flexibility to the researcher to either create, delete, alter or merge at any stage. LP Wong, (2008). Some nodes are called "free nodes" and others "tree nodes." Free nodes cannot have any hierarchical order while tree nodes are nodes that can be arranged hierarchically. Saillard. E. K. (2011).

An Attribute feature, provides references to the characteristics of the data such as age, gender, marital status, ethnicity, etc. This feature is present in both document and node browsers. Transcripts of interview data and observation notes are examples of documents that were saved as individual documents in NVivo. Browsing of nodes is enabled when coding process is concluded. NVivo enables the researcher to record ideas about the research as they emerge in the *Memos*, that are add-on documents.

A “See Also Link” in NVivo “links specific ideas to specific passages” and enables the file containing the links to be “exported to an MS Word document”, allowing content together with ideas inserted into the Memo to be viewed and printed. Jackson. Kristi and Bazeley. Pat, (2019).

The Search function in NVivo enables the researcher to “ask about connections among items in the project, usually through Queries or Sets”. Jackson. Kristi and Bazeley. Pat, (2019). NVivo enables three search modes that are available individually. They can also be used jointly in the relational search. Single item search or basic search ensures that every mention of a particular word, such as ‘learning’ has been coded under the ‘Problem-based learning’ tree node. This function looks up a single node or one Attribute value. It enables search for “matches in one test pattern”. Richards. L. (2005). Every paragraph in which this word is used can be viewed. The results of the search can also be compiled into a single document in the node browser. LP Wong, (2008). Boolean search involves cross-referencing and combines codes using the logical terms like ‘and’, ‘or’ and ‘not’. Common Boolean searches are ‘or’ (also referred to as ‘combination’ or ‘union’) and ‘and’ (also called ‘intersection’). LP Wong, (2008). Proximity searches are used to find places where two items, (e.g. text patterns, attribute values, nodes) appear near each other in the text. LP Wong, (2008).



To describe and explain between various nodes and documents, a Modeler in NVivo enables researcher to create, label and connect ideas or concepts with an upgradeable model that permits the researcher to examine the stages in the model-building over time. NVivo models have symbols that stand for items in the project, which are joined by lines or arrows, intended to represent the relationship between key elements in a field of study. LP Wong, (2008). Azeem, (2012) asserts that NVivo aids the researcher “for linking–DataBites, DocLinks, and NodeLinks. DataBites are links made at selected text within a document”. Azeem also indicates that a NodeLink can “take the researcher to text coded at an existing node or nodes or to textual passages.”.

One visual in the Word Frequency Query is the Word Cloud. This researcher used this to “visualizes the top fifty words. The larger the word in the Word Cloud, the more often it appeared within the Query Results”. Bazely, (2013). By double-clicking on a word in the visualization, the researcher viewed all the words in context. It enabled comparison of Word Clouds of two different Folders or Sets. This material was then be saved as a Node. This researcher utilized the Text Search Query that focusses on phrases or subset of the data to identify correlated data. NVivo contains theory-building queries, such as Crosstab Query, Matrix Coding Query, Coding Query, and Compound Query, that aid investigation of the associations among items in the Project. Bazely, (2013). NVivo generates visual displays for many of the Query results.

According to Noriah Mohd. Ishak and Abu Yazid Abu Bakar, “the software cannot replace the wisdom that the researcher brings into the research because at the back of every researcher’s mind lies his or her life history that will influence the way he or she sees and interpret the world.” F.C. Zamawe, (2015), agrees that the

computer does not do the analysis for the researchers, adding that instead acts to “aid the analysis process”. Bazeley (2009, 2007), in support articulated three matters when utilizing qualitative software; quality of qualitative research is not diminished nor is qualitative research process simplified, but it does “ease data management and data analysis processes and make it more manageable as well as rigorous”. Noriah Mohd. Ishak and Abu Yazid Abu Bakar, (2012), maintain that, “the researcher has to dutifully make sense of all the data him or herself, without damaging the context of the phenomenon being studied”. The researcher still has to undertake Categories creation, code, determine what to collate, patterns recognition, and deduce significances from the data. LP Wong, (2008). Qualitative research is identified with the intricacy of its amorphous data, the abundance of the data and the manner in which findings and theories arise from the data. LP Wong, (2008), adds that this limits usage of of computer software in qualitative data analysis.

Nevertheless, NVivo usage improved efficiency, productivity and accelerated the process of grouping data according to categories and retrieving coded themes by appropriating physical tasks of marking, cutting, without diminishing the quality of the study. Ultimately, this researcher still had to synthesise the data and interpret the meanings that were extracted from the data. Organisation, reduction and storage of data was made more efficient and manageable with NVivo. LP Wong, (2008). NVivo software integrated coding with qualitative linking, shaping and modelling.

### **3.3 Research Procedure**

Firstly, the researcher investigated the experiences of nurse-educators upon Problem-based learning in the nursing college, (RQ1).

This researcher studied whether nurse-educators believed that Problem-based learning had more impact on Higher Order Thinking compared to Teacher Centred

Learning in their learning environment (RQ2). This study examined the ways the nurse educators believed that Problem-based learning promoted holistic management (RQ2). Lastly, it studied the experiences of the nurse educators on what they considered to be the strengths and weaknesses as well as the limitations of Problem-based learning within the learning environment. (RQ3).

The sources of data comprised of interviews with participants. All the interviews were recorded as audio data, and then transcribed as transcripts.

Five participants were involved in this study through their participation in the interview, and through them a summary was made. Boyd, (2001), regarded five participants as sufficient for adequate analysis. The five participants were selected, based on the purpose of the study and to fill up the information gap on the individual experiences of the nurse educators in implementing Problem-based learning. Each participant was interviewed individually. During the interview the reaction of the interviewee was recorded. The answers to the questions were recorded precisely and accurately relating to what had been said. Letter of consent was prepared and provided to the interviewees for their completion. Appointments and place of interview was determined before the interview so that the interviewee was comfortable and relaxed. The interviewee was allowed to choose the time and place of interview. The researcher went and met participants in the setting or site as preferred by the participants: fieldwork, one primary characteristic of phenomenological design research. This way, they were interviewed in their comfort-zone and they could remain focused. For this study, the researcher spent four weeks in the research setting interviewing participants and collecting other required documents at their working environment.

The salient features of this information gap are outlined here.

What was the duration and content of the training of the nurse educators in implementing Problem-based learning?

Was this training considered positive and beneficial?

Were the participants carrying out implementing Problem-based learning correctly?

What was the outcome of implementing Problem-based learning?

What role did the organisation play in implementing Problem-based learning?

Then study analysis was conducted based on the answers from the interview of each participant on a case-by-case basis. Their individual experiences were examined in depth pertaining to each participant's response. A preliminary analysis was conducted to remove redundant questions and measure the relevance of questions in order to get in-depth information. Good questions are key to collecting relevant data. Keeping the relationship between the issue and the evidence was compulsory. The researcher recorded some data into a database and physically stored other data, but the researcher recorded, cataloged, and noted all evidence so that it could be systematically recalled for categorization and examination over the course of the study. When changes were made, they were documented systematically. Throughout the evaluation and analysis process, the researcher was receptive to new possibilities and comprehensions. The techniques used in analysis compelled this researcher to move beyond first impressions to improve the prospect of accurate and reliable findings. This researcher purposefully sorted the data in many different ways to expose or create new discernments and deliberately looked for contradictory data to refute the analysis. This researcher categorized, tabulated, and recombined data to tackle the initial intentions or purpose of the study, and conducted verification of facts and inconsistencies. Focused, short, repeat interviews were warranted to obtain additional data to substantiate fundamental observations or check a fact. When the

multiple observations were in agreement, confidence in the findings increased. Contradictory perceptions, on the other hand, caused the researcher to inquire more deeply. The researcher generally considered the evidence without bias to generate analytical deduction answering the original research questions. This researcher paid special attention to displaying adequate evidence to gain the audience's confidence that all possibilities had been studied, clearly conveying the limits of the case, and giving special attention to opposing proposals.

### **3.4 Conducting qualitative research**

The core of this research project revolved around the questions the researcher was seeking to answer. This researcher wanted to know how nurse-educators viewed their experiences. Therefore, this researcher employed many techniques to obtain answers. The goal of this research was to understand the experiences of nurse instructors in Malaysia regarding the use of Problem-based learning as a teaching methodology.

Specifically, the sample pertinent to this study was nurse educators who are, or were, involved in conducting Problem-based learning, or in developing curriculum where Problem-based learning was utilised for a period of ten years or more.

The purpose was to find out from the nurse educators whether it was necessary to accommodate the Problem-based learning in the curriculum for nurses, and whether they were going to benefit. The researcher was interested in the participants views based on their experiences regarding whether there are better methods of teaching that they felt could be used in order to accomplish a better standard for nurse education in Malaysia.

### **3.4.1 Self-derived Interview questions**

This researcher postulated three integral questions to be posed to the interviewees. The questions were all self-derived, based upon journal sources. This researcher read through journal articles relating to the central broad areas of interest. From the reading this researcher gleaned issues that appeared pertinent to the topic of this thesis. This researcher then constructed questions that sought to study these areas of interest. The interview questions, the areas of interest, and the journal articles reviewed have been assembled as attached in **appendix H**.

### **3.5 Data Collection**

For the purpose of this qualitative study, the participants were interviewed. Interviews were in the form of conversations revolving around some core issues presented as questions with open-ended answers. The researcher selected the various methods of gathering information, other documents and reports because the information in context to this title cannot be obtained based on observation alone.

As noted by Creswell (2016), interviews that are conducted one-on-one allow the participants the freedom to express themselves on each issue without restraints on time and length or depth or extensiveness of replies. Because the sample size in this research was limited to only five number of participants, the interview sessions allowed for the researcher to conduct more in-depth probing to extricate detailed data and personal experiences surrounding core issues raised during interviews.

The one-on-one interviews consisted of open-ended questions that allowed the participant to provide as much detail on her thoughts as possible. While all participants were asked the same questions derived from a list drawn up by the researcher, the fact that they are open ended meant that the interview sessions may

veer in different directions. Therefore, there was a high chance that the interviews would vary in the level of detail and information they contain.

The researcher asked questions regarding the nurse-educators views on their personal preferred teaching methodology, their views on Problem-based learning and the challenges faced in implementation of Problem-based learning. During the interviews themselves, the researcher took notes of answers, carried out observations, example, of body language of the participants. Apart from note taking, all interviews were recorded with a digital audio recorder so that the researcher could re-listen to the interview sessions and ensure accuracy during the data analysis part of the research.

### **3.6 Informed Consent**

In light of the importance of protecting the anonymity of the participants and ensuring they understand their rights regarding their voluntary participation in the research, the researcher had drawn up an informed consent form, (Appendix 8), that was provided to each participant before they participated in this research. Within the informed consent form the participants were assured that their identity would remain anonymous, that the research being carried out received proper permission and approval from the organization heads and staff of the respective establishments, an overview of the study itself and what their role would be, and a guarantee that their participation was truly voluntary and that they had the right to withdraw at any time. The informed consent form also contained a contact number for the participants should they care to follow up on the results of the study.

### **3.7 Sample of the Study**

The five samples were all drawn from one Nursing College in the Klang Valley, Selangor, Malaysia. The rationale for drawing from this particular institution was ease of accessibility. This researcher selected the college in Klang valley for the above

reasons as she currently works here as a senior Management staff with additional teaching duties. The nurse educators selected were those with basic degree only. They were nurse educators who are teaching different subjects in the nursing colleges. Before collecting data, they were formally informed via an informed consent form handed out to each participant who was willing to participate. Hence, the researcher believed that they would provide sound information required for the research. The information which was contributed composed a big picture of the effectiveness of Problem-based learning based on the perspective and experiences of the nursing nurse educators.

### **3.8 Information on Nurse-educator profile**

The years of service of the nurse-educators were taken into account, such as how many years of service as a nurse and then as nurse-educators. Their clinical experiences together with teaching experience would influence the experiences of nurse-educators. The nurse-educators were required to have a considerable number of years of experience in using Problem-based learning as methodology. These nurse-educators therefore were able to ascertain according to their experiences on how much Problem-based learning had contributed to their students' learning. Their experiences had determined how effective Problem-based learning was in students learning, the strong areas for Problem-based learning and they were able to provide first-hand information regarding areas where improvements had to be made.

All the participants were nurse-educators between the ages of 37 to 50. They had been involved in teaching various topics in Diploma of Nursing Programs, and the Advance Diploma Program. In order to protect the privacy of the nurse-educators, their names were coded. The researcher was also interested to find out the different perspective of nurse-educators who were exposed to the same situation and who had



been utilising Problem-based learning as a component in their teaching and learning for a substantial duration of ten years and more.

Participant A is a nurse educator at an urban college in the Klang Valley in her mid-fifties. She has acquired Bachelor of Nursing with Honors, served as a nurse for over thirty years and has fourteen years of teaching experience. Participant A has attended two training courses in Problem-based learning as a nurse educator. The duration of the first training in Problem-based learning course was two days while the second training course was for one and a half days.

Participant B is 50 years old and has served 30 years in the nursing field, 13 out of which as a nurse educator. She has Bachelor of nursing with honors. She possessed considerable clinical based experience as a staff nurse before adopting the role of Nurse Educator. Based on her experiences of 30 years she was able to assess the requirement of the individual service to patients in the clinical areas. Participant B has attended three training courses in Problem-based learning with a duration of two days each for the first two courses and one and a half days for the last course.

Participant C holds a Bachelor of Nursing with Honours degree. She is about 53 years old. Her experience as a nurse is over 30 years, and for the last fourteen years she has served as a nurse educator. She has attended only one training course in Problem-based learning spanning two days.

Participant D was a Nurse Educator with a Bachelor of Nursing with Honours degree. She has 30 years work experience in nursing and has been a Nurse Educator for 15 years. She has attended only one training course in Problem-based learning spanning two days.

Participant E is at present a nurse educator in her late forties possessing Bachelor of Nursing with Honors. She has served as a nurse for over thirty years. She has fourteen years of teaching experience. Participant E has attended one training course in Problem-based learning as a nurse educator. The duration of the courses was two days.

### **3.8.1 Location of the study**

The particular college was selected because nurse educators here had incorporated components of Problem-based learning in their teaching methodology for more than ten years. This college was located in the state of Selangor, in West Malaysia.

### **3.9 Preliminary Study**

A preliminary study was conducted to determine and root out for correctional improvement questions which provide incomplete and ambiguous answers and would make the analysis difficult. (Basavanthappa, 2014).

The term 'preliminary studies' refers to testing the research instrument, (Questionnaire). Conducting a preliminary study does not guarantee success in the main study, but it does increase the likelihood (Edwin et al., 2001). As noted by Edwin, open-ended questions may lack a range of factors which may be crucial in making clear cut analysis or the important factors may not be considered in the respondent's recall. The answer has to be carefully scrutinised as it cannot be subjected to mechanized processing. The researcher had to take a lot of time to go through the answers to read and read again before the researcher could identify the categories. Therefore, preliminary studies study is required to test the adequacy of the research questions (Edwin et al., 2001).

The preliminary studies study in other words is required to ascertain the ambiguities and difficult questions. Certain question would make the respondents stressful as it takes them time to think before their response and to compose the meaning. Other supplementary open-ended questions were required frequently to ensure complete coverage.

The preliminary studies study revealed that some questions produced repetitive answers. These questions needed to be replaced with amalgamated questions where the answer would relate to the totality of the particular questions hence eliminating redundant questions.

### **3.10 Data Collection Procedure**

The interviews were conducted by a single interviewer who was this researcher. This was to ensure uniformity in response from the participants for consistency. Prior to the interview the interviewer conversed with the participants to put them at ease and create a positive comfortable ambience for the interview. The interviewer took note of responses in body language, other documents and reports. The advantage of face-to-face interview was that this researcher captured emotions and behaviours – verbal and non-verbal cues, example, response length, voice tone and volume, speed of speech, facial gestures, hand gestures and body language. Face to face interviews can no doubt capture an interviewee's emotions and behaviours. (Wise, 2014).

### **3.11 Data Collection Duration**

The researcher planned a minimum of three weeks to two months to complete the data collection for this research. The length of time actually required was dependent on the availability of the nurse educators concerned. This depended on the saturation of the data which could be achieved.

Some interviews progressed for one hour while some were for forty (40) minutes in duration.

### **3.12 Interview Data**

Interview is a common approach of collecting qualitative data (Grove S.K. et al.2013) which is an interaction in which two or more people are brought into direct contact for a nominal time period. The period the researcher allocated for each interview was not standard or time-limited. This enabled each interviewee time to digest the question, recall information, ponder and frame suitable response and present it to the interviewer in their own inimitable style sans anxiety over time limits. The researcher was interested to allow the interviewee to expand on core question answers as much as the interviewee wished without truncating the continued responses.

The researcher was prepared to mire through digressions in order to maintain the smooth flow of thought and response as the interview progressed. Stemming the flow could stymie the momentum and potentially put the interviewee at dis-ease, provoking less meaningful responses.

### **3.13 Data Analysis**

The researcher collected the data, then prepared them for analysis. The data was processed using NVivo 12 software. An NVivo Project file was created to house all embedded Project items like source documents or Nodes. Edhlund. B. & McDougall. A. (2019). Interview transcripts made up the bulk of source documents. The researcher analysed simultaneously while collecting the data as required in a qualitative research (Creswell, 2012). The data was required by the researcher to be read several times as each time she read she obtained a deeper understanding from the information that the participation gave. It had to be done until it reached saturation on

the theme whereby no new information arose during the reading and rereading of the transcripts.

NVivo 12 software codes were used to construct matrix displays based on the co-occurrence of codes within the transcript text and related attributes. The resulting matrix displays provided both the frequency of responses and the detailed content of responses, allowing to assess both patterns of association, and the nature of the associations. Bazeley. Pat., (2009). Matrices are primarily useful for facilitating comparative analysis of data. Theme is sometimes used to describe an integrating, relational idea from the data (Richards, 2005) (Richards, L. (2005). Handling qualitative data. London: Sage)

This researcher also examined dependent variables that were a quantity or quality that could be influenced by independent variables that are stable and unaffected. This would indicate to some extent the veracity of the responses.

One dependent variable was regarding the length of the response. This indicated in detail the discussion of the issue. Another variable was the passion exhibited during the course of the response. This was derived from the tone of voice, the loudness, the speed of speaking, and accompanying facial and hand gestures as well as body language. This indicated enthusiasm that could be interpreted as supportive.

This researcher endeavoured to allow evaluation based strictly on observation of all criteria stated above. This researcher was convinced that this method feasibly permitted subjective feedback to be objectively categorised. The total collective responses from the participants were analysed in this manner for every interview question. This delivered a composite analysis that formed the big picture of experiences of the participants.

### **3.14 Transcribing data**

The initial step in qualitative analysis needs to be “reading the interview transcripts, observational notes” and any other pertinent study documents. Maxwell (2005).

Transcription of data was done by the researcher herself. It involved classifying and sorting, it helped to examine relationships between the data, organise storage system making easier for retrieval and it helped visualise the project.

Maxwell (2005) argues that the transcription process itself “can be used for initial analysis, with the analyst recording notes or memos while transcribing. These initial notes can be used to formulate categories and themes, and help to begin to think about relationships between them.”

### **3.15 Coding the Data**

Maxwell, (2005), states that coding is the primary categorizing strategy in qualitative research. This researcher scrutinized raw data with the aid of NVivo 12 software in order to find connections between the research object and the outcomes with reference to the original research questions. “Coding is the act of assigning a portion of your source material to one of your Nodes.” Edhlund. B. & McDougall. A. (2019).

“Coding makes resilient links between data and ideas, links that you can trace back to find where particular ideas came from and what data are coded there, to justify and account for the interpretation of the ideas” (Morse and Richards, 2002).

“Nodes are the primary tool for organizing and classifying source data.”

“Relationships are Nodes that indicate that two Project items (Source items or Nodes), are related.” Edhlund. B. & McDougall. A. (2019). Maxwell, (2005), maintains that

“the goal of coding in qualitative research is to “fracture” (Strauss, 1987), the data, rearrange it into categories that facilitate comparison between things in the same

category, and aid in the development of theoretical concepts. Gunby, J.T. DeCuir et al, (2011).

Transcripts were thoroughly read and nodes were created in the process to house relevant excerpts or text from the transcripts using NVivo 12 software. From these nodes, tree nodes were created.

The researcher's intent in the process of analysing was to code the data acquired into segments and further derive broad descriptions and themes in the data. Therefore, this was an inductive process through reduction whereby the data was narrowed down to themes. In the process of coding, bracketing was involved where identifying text segments, placing a bracket around them. These segments were coded. After coding the researcher looked for similar codes and dropped redundant codes. These codes were further aggregated to derive themes. Description and developing themes from the data answered the research questions.

### **3.16 Validate Accuracy of the Findings**

During the process of data collection and analysis the researcher had to ascertain that it was accurate. The validation was done by getting another participant to check for accuracy or credibility of the findings. This was known as member checking to ensure that the description was complete and realistic. The researcher procured an external auditor to identify the strengths and weaknesses of the project. The auditor looked into the study to determine if the findings were grounded in the data such as were the inferences logical and the themes appropriate. The external auditor also ascertained whether there was any degree of researcher bias and suggested strategies to be used to increase credibility.

### **3.17 Summary**

The researcher used phenomenological design qualitative research in this study. She managed collecting data via interview being the primary data collector. The researcher used the guidelines to facilitate transcription as recommended by Creswall (2012). Then the data was managed by transcribing interviews and organising the data. The researcher conducted a preview of the data by reading through it to obtain a general sense of data. The major processing consisted of coding the data. The researcher's own view would be also excluded in the interpretation of findings because she could remove herself from interpretation and personal experiences. To check the accuracy member checking and auditing was utilised.

In the next chapter a report of the findings would be presented that point to responses to the research questions in this phenomenological design.



## CHAPTER 4

### FINDINGS

#### 4.1 Introduction

This chapter presents the study's findings of experiences of Nurse Educators regarding Problem-based Learning from a Nursing College in Klang Valley.

Chapter sections present emergent themes, findings, and a chapter summary.

#### 4.2 Emergent Themes

NVivo 12 software was utilised to organise the data. The process of coding in this study was done to reduce the text into description and derive themes about the central phenomena. To make sense of data collected from the five participants, this researcher utilised thematic analysis. Of particular interest were the main points they made, their common and different points and ideas, and the perspectives they espoused. NVivo 12 generated Word Cloud that housed the words that were used more frequently by the participants during the interviews when a word frequency query was instituted.



Figure 4.1 Word Cloud

This word cloud containing the words that the five participants used most frequently signifies that the words that emerge in the word cloud are more pertinent for the participants. The largest word in the WORD Cloud is “THINKING”; the inference is that thinking is highly significant for the participants, and as extension, the participants think of Problem-based learning, students, facilitating, teaching, higher-order thinking, challenges and clinical areas a lot. Other words that have high frequency are ‘HIGHER, HOLISTIC, DISCUSSION, TEACHING, CLINICAL, FACILITATORS, LIFELONG, TEACHING, LECTURES and LIMITATIONS”.

Perusing this word cloud provided an insight into emerging themes that paved the way into deeper analysis. The nodes were grouped into categories and themes became known from these categories. (Lyberg. Et al, 2014). Related themes were grouped or clustered. This researcher viewed the references to the significant words in the Word Cloud by opening the Nodes to read through the relevant specific parts of the interviews. This permitted a deeper understanding of information pertaining to the research questions. NVivo 12 was used to perform comparative analysis of the five participants’ responses to a selection of themes using a Matrix. Items in the nodes were queried to see the connection or links between themes. As the themes do not “speak for themselves” this researcher engaged in some interpretation to enable deeper understanding. Babatunde Femi Akinyode, Tareef Hayat Khan, (2018). This researcher explored the links that exist between the explicit statements, (what is clearly apparent), and the implicit meanings, (untold stories that emerged through the immersion process), in the participant’s responses. This researcher considered whether at least fifty percent, (participant saturation point), were repeating similar support on a particular issue. Babatunde Femi Akinyode, Tareef Hayat Khan, (2018). From Nodes, significant categories or themes were discovered, depicted in Table 4.1.

	Creative thinking	Critical thinking	Facilitators	Holistic	Learning	Nurse Educators	Teaching	Thinking	Time
1 : Nodes\\clinical area	0	0	3	1	4	3	2	0	2
2 : Nodes\\Difficulty	0	0	0	0	0	0	2	0	0
3 : Nodes\\facilitators	3	3	8	0	4	1	3	6	3
4 : Nodes\\Higher order thinking	10	12	0	0	4	1	0	34	1
5 : Nodes\\Holistic management	0	0	0	9	1	4	1	0	0
6 : Nodes\\lifelong	0	0	0	0	5	1	0	0	0
7 : Nodes\\pedagogy	1	1	0	0	2	2	7	2	2
8 : Nodes\\real life	0	0	0	0	0	0	0	0	1
9 : Nodes\\think	0	0	0	0	3	0	0	0	
10 : Nodes\\time	0	0							
11 : Nodes\\Triggers	0	0							

Figure 4.2 Nodes and Themes

### 4.3 Relationship between Themes and Nodes

Through examination and linking of the nodes and categories, some emergent themes were merged in the findings. “Thinking” and “Critical thinking and creative thinking” were merged as “Critical thinking and Creative thinking theme”, while “Learning” and “Nurse-educator” were merged under “Nurse-educator theme”. Five dominant themes were discovered.

#### 4.3.1 Critical thinking and creative thinking theme

The theme on Thinking drew very high responses related to Higher-order thinking node. Participants’ related that their experiences revealed that students performed actions often without knowing the underlying reasons for them. Participants’ experiences were that real-life conditions in clinical areas sometimes

differed markedly from what students learnt theoretically. The participants revealed that when faced with such disparities, students had sometimes employed critical evaluation of actual situations, updated their schemas, remodeled the scenario, and utilized creative departures to manage cases and challenges. Participants asserted that such incidences exemplified student practice of Higher-order thinking. However, one participant experienced that sometimes student motivation to solve challenges arose internally from within the student, and not necessarily attributable to Problem-based learning learning.

Critical thinking and Creative thinking, based on frequency of responses, was a popular theme in the discussion on Higher order thinking among all the participants. Responses were confidently given. Although all participants expressed positive explicit responses, some did not provide adequate experiences where students used critical thinking in groups to solve given scenarios. Some statements from the participants related more to theoretical discussions post-lectures relating to hypothetical questions. Little mention was made linking critical and creative thinking with Problem-based learning sessions. In relating critical and creative thinking to facilitators, fewer responses were noted. Some participants lamented that students were passive at times and needed facilitator encouragement to think critically, break down given triggers into components, and express their ideas. It was noted that participants experienced brainstorming sessions during the Problem-based learning group discussions where creativity in suggestions occurred adequately. Feedback regarding critical thinking relating to pedagogy was minimal. Problem-based learning approach was applied largely in clinical areas as the facilitator held Problem-based learning type discussions during practical sessions, (in the wards).

### **4.3.2 Facilitators theme**

Theme on Facilitators appears linked to clinical areas. Most facilitation occurred in clinical areas, less in Problem-based learning group discussions. This was due to time constraints imposed by tight Time-table schedules solely decided by management. Facilitators had more time and flexibility for Problem-based learning approaches away from the classroom. Participants' experiences indicated that good facilitations skills and nursing knowledge enabled better trigger-formulation. However, their experiences showed up the lack of structured regular facilitation training that could have enhanced skills in constructing appropriate triggers and clues. The experiences of participants showed that triggers that were not well designed and accurately described took longer time duration to be solved due to ambiguity.

### **4.3.3 Holistic management theme**

Responses to Holistic (management) theme were related to clinical areas. Experiences shared included patient management incidences. One reported incident related to cancer-care, where multiple aspects of treatment were factored in. Here, differences in social problems from one patient to another, individual needs, financial, nutrition and other needs were looked into holistically. Participants shared that their students were able to analyse and decide on the need of each patient and make decisions on what care was needed at particular points of time. Participants reported that student handling of overall needs-based care-giving was in accordance to holistic patient management.

### **4.3.4 Nurse-educators theme**

The Nurse-educators theme is closely linked to Holistic management node and Clinical areas node. It is also linked to Pedagogy node, while the connections to Lifelong learning, Higher-order thinking and Facilitators nodes are less strong. Some

nurse educators emphasized holistic management in their advice to students in their lectures, and while supervising students in clinical areas. The experiences of nurse-educators were that students consider about employing Higher-order thinking after teacher-centered learning exposure. The nurse-educators experiences highlighted their conviction that some nursing topics were better handled through lectures rather than using Problem-based learning methods, while some other subjects were amenable to Problem-based learning strategies. Some nurse-educators gave Problem-based learning students scenarios and triggers in the wards; an instance related concerned evaluating condition of a baby in the Labour Room. Participants practiced a mix of teacher-centered and student-centered learning methods. Student-centered activity was in having discussions, especially in clinical areas. Teacher-centered activity was when the nurse-educator presented lectures on selected subjects, (teaching). Nurse-educators contended that teaching was necessitated at some point in nurse education to prepare students to handle practical sessions. The participants had experienced sometimes the transfer of knowledge to operative nursing skills in clinical areas.

Learning theme had active participant responses in several node categories. Chief among these was Life-long (learning), followed by Clinical area, Facilitators, Higher-order thinking, then Thinking, lastly, Holistic management. Many participants had experiences of students becoming interested continuous learners, (Life-long learners), when the students achieved success in problem-solving in clinical areas. These ill-structured problems within real-life scenarios and triggers had been devised by the nurse-educators, acting as facilitators, to push Problem-based learning group members to think deeply and out-of-the-box. Participants also concurred that learning occurred in diverse environments not limited to clinical areas. Participants' facilitator experiences included encouraging and motivating "slow learners" to keep pace with

the group efforts, in tandem with cooperation from the group members. Participants evaluated student learning capabilities, and when this was found to be weak, reinforced with teacher-centered learning methods, (lectures and notes). Participants shared their experiences that Problem-based learning fostered Life-long learning in their students when their students began understanding that learning does not end, but is useful throughout their career in the wake of knowledge, treatment and process unending newer developments in nursing.

#### **4.3.5 Time theme**

The Time theme was a challenge related mainly to facilitators node and to lesser extent pedagogy, real-life and Higher-order thinking nodes. Participants experienced that Problem-based learning implementation was always time-consuming leading to the nurse-educators working invariably till after normal work hours. The time allocation in their allotted time-schedules did not allow many Problem-based learning groups to utilize Problem-based learning process fully as some Problem-based learning groups could not complete solving their given ill-structured problems within fixed time durations. This limitation was experienced in the areas of data collection, and sometimes in exercising creativity in decision formulation. The nurse-educators themselves experienced this time constraint limitation in operating Problem-based learning within the fixed Work Time-table issued by management over which they had no control. Facilitator monitoring of Problem-based learning groups and motivation functions were hindered by time constraints. The participants experienced that shorter duration of Problem-based learning discussion time hindered progress in Higher-order thinking in most groups.

#### **4.4 Individual Experiences of Participants**

Participants shared their experiences on issues that they found impacted upon Problem-based learning learning.

##### **4.4.1 Participant A experiences**

Participant A related that her students are senior students who have been working for many years now, and as they have acquired nursing working experiences, Problem-based learning is appropriate for her students. She acknowledged that she did not use Problem-based learning totally. Participant A disclosed that in areas where she finds her students have little knowledge, then, she feeds them with information through lectures first. She has experience in formulating Problem-based learning scenarios and real-life problems. Her Problem-based learning experiences include instances when her students analysed whether disease condition is going up or down, that is if it is increasing in frequency of occurrence, connections between keeping data and Problem-based learning analysis, and using Blooms Taxonomy. These reinforced her conviction that students had developed critical thinking. From her experiences, Participant A felt that teacher centered learning is at the level of memorizing and regurgitating what the teacher gave, with less opportunity for students to think. She experienced students learning to make sound decisions that helped in the total management of the patient, (Holistic management). Participant A had observed that when her students found solutions to problems, they were motivated towards learning and do not stop learning, (Lifelong Learning). She had clear practical experiences of the chain of events in Problem-based learning process that leads on to the development of an on-going search for knowledge. She had encountered different learning environments that fostered or discouraged learning. She had some



experiences dealing with slow learners and students with negative behavioural attitudes.

#### **4.4.2 Participant B experiences**

Participant B lamented the inadequacy of Problem-based learning training for facilitation where she witnessed that many of the facilitators are not able to handle students asking questions and in the provision of appropriate clues. Participant B had experienced different impact of Problem-based learning with regard to individual learning style of both student and teacher. In her experience, both teacher-centered learning and Problem-based learning will have favourable effect on student learning. She utilized Problem-based learning in the practical areas or clinical posting areas and lectures for theory. She disclosed she used 80% teacher centered learning and 20% student centered learning. Dates of group discussion meetings are controlled by her. Participant B had experienced Problem-based learning fostering more scope for students to develop higher order thinking compared to teacher centered learning. Her experiences with her Problem-based learning where in oncology wards or with cancer patients, students had assuaged acute anxiety during diagnostic examinations, assessed patients on the basis of financial needs, social needs and psychological needs, and subsequently, formulated appropriate intervention, reinforced her conviction that Problem-based learning can foster not only higher order thinking but also holistic management. She had experienced her Problem-based learning students becoming self-motivated to learn and utilize new equipment, current procedures, new drugs and the current practices in medical management. However, she credits teacher centered learning as equally important in equipping students with knowledge and skills to handle the changes. Participant B indicated that learning is not restricted particularly to the classroom setting and should take place in the clinical area too. She

had encountered weak students who had problems accommodating into the Problem-based learning system. She had recognized the need for the facilitator to create equilibrium of weak students and higher achievers in Problem-based learning through her experiences. She had also discerned the dearth of IT facilities, library books in order for students to participate positively in Problem-based learning. Participant B disclosed that in assessment, teacher-centered is still practiced during written examination, and student-centered during discussion or case study, with normal checklist and clinical assessment for practical evaluation.

#### **4.4.3 Participant C experiences**

Participant C was disappointed that management had not made arrangements for regular facilitator courses as she felt many like herself are not informed on how to carry out facilitation in Problem-based learning. Participant C based on her experience as a nurse educator, said her preference is for Problem-based learning, (used largely in clinical areas), though she is currently using more teacher centered learning. She regards herself as a facilitator where she sometimes pushed the students to utilize higher order thinking to make good decisions. She was firm that the facilitator decides when to meet for group discussions. Based on her experience, Participant C asserted that both Problem-based learning and teacher centered learning can achieve similar results. She had experienced that even though Problem-based learning is good, it took a lot of time and could not be done within management allotted time frame; so, it had its setbacks compared to teacher centered learning. She had to instill basic knowledge, (theory), via lectures in order for Problem-based learning to be successful. Participant C had spent a lot of time with students motivating them through discussions and advice, and facilitating them on how to manage patients. Participant C found that her students utilized skills that had been

taught or learnt to solve problems, based on her experience. Although Participant C contends life-long can be achieved through both teacher-centered learning and Problem-based learning, her experience weighed in that, eventually, it is based on the attitude of the student whether she wants to be a lifelong learner. Participant C expressed frustration regarding non availability of internet within the college campus and inadequate library reference material that based on her experience rendered the learning environment non-conducive. Participant C was not able to cope with the perennial great challenge to divide large groups to smaller Problem-based learning groups posed by large number of students that increased annually. She found that Problem-based learning process takes a lot of time, and working within a given timeframe, her students usually could not achieve their goal. Participant C usually experienced tight roster during theory weeks inhibiting time spent with her students implementing Problem-based learning, but could practice Problem-based learning in the clinical area where she had ample of time. She reflected that handling large numbers of students learning through Problem-based learning required enough trained facilitators and greater number of discussion rooms and, in her experience, she was hampered in these respects. When students failed to follow-up on Problem-based learning clues, she gave them tutorials. She evaluated theory input, (via lectures), using teacher-centered instruments.

#### **4.4.4 Participant D experiences**

Participant D contends, based on her experiences, that the best learning style was Problem-based learning. She emphasized that students were hands on and they could study things deeper; as they were doing their own learning, they remembered but when learning was teacher-centered, they just listened and they displayed forgetfulness. Despite stating this, Participant D experienced that formulas and

statistics had to be taught using lectures. Participant D regularly discussed with the students on their progress and provided honest feedback. Participant D called her students often to get feedbacks, to assess on the discussions and looked at their written assignments to determine if progress was on the right track. When she found that they were not on the right track she gave them clues which were more of suggestion on where to look for right information, for example, the titles of journals, the website and so on. Setting of goals was done with the influence of the facilitator. Participant D reminded them what the goal was that they had to achieve at each stage. She noticed that higher order thinking skills developed students to become high achievers. Participant D remarked that students thought in depth about the disease conditions, the indications, investigation to confirm diagnosis, and the intervention was discussed within the Problem-based learning group. These incidences demonstrated the utilization of critical thinking. She mentioned, based on her experiences, that students often obtained vast information from the internet compared to basic information from lectures. She added that there had been times students were not listening and wandered off mentally when they lost interest or did not understand the lectures. She emphasized that it took a lot of time to solve Problem-based learning problems. Participant D based on her experience found lifelong learning was supported as through Problem-based learning students learnt how to learn. She exhibited strong support that Problem-based learning can foster Lifelong learning. Participant D experienced that Problem-based learning was time consuming, where weak students and weak groups needed more time to solve problems.

#### **4.4.5 Participant E experiences**

Participant E declared that she sometimes used teacher-centered and sometimes student-centered methodologies, especially Problem-based learning.

Participant E further explained that with factual subjects she had employed teacher centered learning as it was organized and less time consuming whereas Problem-based learning takes a lot of time. The students also took a lot of time to solve Problem-based learning problems. Participant E gave lectures in the morning, and in the afternoon, when the students were restless, she used Problem-based learning. She acknowledged that she had no confidence in Problem-based learning because she often could not complete Problem-based learning within a given time frame and thus could not finish her syllabus. Participant E carried out assessment using multiple choice question, modified essay question which is more pen and pencil type of assessment. She had used questions based on teacher centered learning. She observed that her students were more interactive in class. When using Problem-based learning, she formulated questions by giving a scenario-based problem and the students were required to find solution to the problem. Participant E always had maintained two-way communication as some students tended to be passive. Participant E contended teacher centered learning achieved the same results as Problem-based learning based on the attitude of the students. From her experiences Participant E identified challenges that she had faced, such as there were insufficient trained facilitators in Problem-based learning to handle many small groups, many facilitators could not accommodate into Problem-based learning programs, time was a constraint, and she observed that some students themselves needed to be motivated and committed to do self-learning. Participant E was concerned that relevant materials were not sufficient and IT services were not accessible easily to all students. She had noted something every interesting that the nurse educator herself should have interest in Problem-based learning. Participant E from her experiences in Problem-based learning, felt she had no confidence, she was not equipped to handle because Problem-based learning took a

longer time to prepare and she needed the knowledge of carrying out the facilitation in the proper way.

#### 4.5 Summary

Five themes emerged from the perusal of collected data with the aid of NVivo 12 software. The summarized findings regarding experiences of the five participants related to the five themes have been recorded in the table below. (Fig 3)

Table 4.1

*Summary of Findings*

<b>Theme</b>	<b>Sub-Themes</b>	<b>Findings</b>
Critical thinking and Creative thinking theme	Thinking	Some incidences provided: in clinical areas, after theory lessons, on individual student basis. Little reference linking to Problem-based learning group sessions – Brainstorming. Minimal feedback regarding critical thinking relating to pedagogy.
Facilitators		Most facilitation in clinical areas, less in Problem-based learning group discussions. Triggers not well designed and accurately described. Lack of structured regular facilitation training.
Holistic management		Experiences shared related to clinical areas, included patient management incidences. Student handling of overall needs-based care-giving followed holistic patient management
Nurse-educators	Learning	Liked Problem-based learning. Practiced blend of teacher-centered and student-centered learning methods. Selected topics content transferred through lectures. Students used Higher-order thinking often after teacher-centered learning exposure. Direct theory input given to handle practical sessions. Success in problem-solving spurred Life-long learning. Transfer of knowledge to operative nursing skills in clinical areas.
Time		Weak students were given notes. Problem-based learning implementation was always time-consuming. Tight Work Time-table controlled by management. Limited Facilitator operations, monitoring and motivation. Problem-based learning groups sometimes could not complete problem solving.

In Chapter Five, the findings shall be discussed with regard to the study research questions, and the explicit and implicit understanding of participants' responses about their experiences to draw conclusions.

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## CHAPTER 5

### CONCLUSION

#### 5.1 Introduction

This chapter discusses in depth the research findings that were analysed in Chapter IV. Discussion of the research findings were based on the objectives and research questions that were stated in Chapter 1, in conjunction with the themes that emerged from analysis. The literature reviews stated in Chapter 2 had also been taken into account in the discussion. This chapter concludes with this researcher's position on the implications of the research study, recommendations and suggestions for future research and the overall conclusion for this research study.

#### 5.2 Discussion of the Findings on Research Questions

The findings revealed five themes from the experiences of nurse educators implementing Problem-based learning. The themes derived were Critical thinking and Creative thinking, Facilitators, Holistic management, Nurse-educators, and Time. Discussion of findings regarding each research question included thematic analysis and pertinent literature review references.

##### 5.2.1 The first research question

*“What are the experiences of nurse educators with implementing Problem based Learning?”*

The main backbone of the Problem-based learning approach are the facilitators (Yang J.H. 2013). All participants expressed favour for Problem-based learning. However, from the findings and data analysis in Chapter 4, it can be recognized that the participants' experiences indicated that they implemented a blend of teacher-centered and Problem-based pedagogy. The findings indicated that most participants



conducted lectures and supplied notes for selected topics. Direct theory input was often given by the participants that enabled students to deal with practical sessions in clinical areas. Weaker students were provided notes to supplement learning. One Participant mentioned that she supplied “missing links” through giving tutorials. It was unclear whether nurse-educators thought that PBL “was meant for deep learners and not for shallow learners”. (Spier’s J.A. et al 2013). Providing notes, lectures circumvented the discussion stage in the Problem-based learning group sessions where groups sought to understand the ill-structured problem in order to chart the direction for data collection. At this initial stage itself, participants appear to have abandoned the principle of Problem-based learning to allow self-determination by the Problem-based learning group members. The Participants seemed to have been unaware that Problem-based learning promotes such group self-determination.

The ratio of lecture theory input to Problem-based learning methods varied among the participants ranging from (20:80) to (80:20). Certainly, this is not the approved approach in Problem-based learning as this modification according to Wells. S. et al., (2014), takes strength away from the “original conceptions of Problem-based learning”. The participants seemed comfortable with mixed-mode learning approaches, despite the organization’s objective to practice Problem-based learning fully. Cherry. K., (2018). in Azer. A. Samy. (2005), argues that, “Problem-based learning tutors usually feel that it is not that easy to change their teaching style to the Problem-based learning format”, and according to Abrandt Dahlgren, Castensson, & Dahlgren, (1998), (as quoted in Lyberg. V.A. et al, (2014), “for some it may be difficult to leave the traditional teacher role. Rideout. E. (2001) states that “several researchers have identified a lack of knowledge about group process as an issue for both tutors and learners (Tipping, Freeman, and Rachlis; 1995; Davis and

Harden, 1999; Miller, Trimbur, and Wilkes, 1994; Wilkerson, 1996).”. Wosinski et al (2018), emphasized the importance of the facilitator in maintaining the effectiveness of Problem-based learning group discussions. Preference for the Problem-based tutor to monitor, direct the group process and to assist students in their learning process rather than provide content has the support of Irby, 1996; Jung, Tryssenaar, & Wilkins, 2005; Kaufman & Holmes, 1996. Have the nurse-educators shown that they understand the Problem-based learning process, or, are implementing the process incorrectly. It appears that they have not comprehended.

In reporting that students used Higher-order thinking often after teacher-centered learning exposure, the participants established a link between provided content knowledge and thinking skills outcomes. The connection between Problem-based learning and Higher-order thinking skills manifestation via the Problem-based learning approach process was not visible. Other than Brainstorming technique, little reference was made linking facilitation to Problem-based learning group sessions. Other steps in the “seven-jumps” model, (Gijsselaers, 1995), of Problem-based protocol were not emphasized in the narration of participants experiences. This researcher is puzzled as to the manner in which the entire group discussion process had been implemented since not much information was provided regarding the sequence of steps. Have the participants understood the Problem-based learning model? It appears that they had not implemented Problem-based learning techniques in the orthodox manner.

The study feedback of nurse-educators experiences suggested that most facilitation occurred in clinical areas, less in Problem-based learning group discussions. There is not adequate feedback regarding how the nurse-educators deployed Problem-based learning facilitation in a clinical setting to the Problem-based

learning groups. Was that even possible, given that nurses have other duties when working in clinical areas? For better facilitation, the facilitators also needed to go to the clinical areas more often, only then they would have better content-knowledge and practice and be able to guide students. Triggers seemed to have been not well designed and were not accurately described when given to the students. One Participant considered questions and answers that she puts out in the clinical area, and, interpreting statistics to obtain data of prevalence of disease in particular location, as part of the Problem-based learning process. However, there was no mention of ill structured problem statement to begin the Problem-based learning process with. In Problem-based learning the starting point is a problem. (Wells et al.,2009). Problems in Problem-based learning should be well structured in order to achieve its objectives, as declared by Chan (2013). A problemised real life situation where development of explanatory hypothesis and the identification of learning needs means that students understand the problem better (Salleh, 2007). It is questionable if the Participants themselves understood this part of the process of Problem-based learning. It was clear that Participant A did not follow the required steps of the Problem-based learning process. As scuh question and answer methods are also part of teacher-centered approaches, the fine line separating teacher-cenetered learning and student-directed learning is hazy.

Participants provided little feedback regarding critical thinking relating to pedagogy too. One Participant felt both teacher-centered learning and Problem-based learning can achieve the same results without providing supporting evidences. Many other participants agreed that Problem-based learning fostered more scope for students to develop higher order thinking compared to teacher-centered learning but

did they provide strong comparative evidences from their experiences? This researcher based on the evidences is not inclined to accept this contention.

Some incidences of use of Higher-order thinking skills were provided occurring in clinical areas, after theory lessons, on individual student basis. Participants contended that there had been transfer of knowledge to operative nursing skills in clinical areas. The link between Problem-based learning implementation and development of Higher-order thinking skills was not clear. Bearing in mind that the students were senior practicing nurses with some years of clinical experience, an alternative explanation for higher thinking and case management may be found in the accumulated clinical experiences over many years that could have enhanced decision-making abilities. Another possible explanation could be nurse obtaining advice and guidance from the “more knowledgeable other”, who could be the more experienced clinical Ward Sister, other more senior nurses, and not the nurse-educator/facilitator. Problem-based learning is a group-based learning approach, hence could citing experiences of individual nurse behaviour be representative of outcome of Problem-based learning?

In summing up, only two out of the five participants appeared to have experienced analysis as in Problem-based learning. Their groups employed independent data collection followed by utilization of Critical and Creative thinking skills as a group, paving the way for development of these two Higher Order Thinking skills. Their students thought in depth about the disease conditions, the indication, investigation to confirm diagnosis, and intervention which they discussed **within the group discussions**. They gave rational for why they carried out the process while working as a group. (Nevin et al. 2014). Their students learnt from the “**More**

**Knowledgeable Other**” and the teacher was actually facilitating and giving appropriate guidance (**scaffolding**). (Nevin et al. 2014).

The other three participants appeared to have diluted the progress of Higher Order Thinking development via Problem-based learning group data-collection efforts when they limited data collection to teacher-provided Lecture handout materials. This is deviation from proper Problem-based learning methodology.

### **5.2.2 The second research question**

*“Do the experiences of nurse educators suggest that nurse educators believe Problem-based learning fosters higher order thinking in the areas of holistic nursing management and lifelong learning”.*

The experiences shared by some participants related to clinical areas and included patient management incidences. These participants asserted that student handling of overall needs-based care-giving followed holistic patient management. In the context of lifelong learning, the nurse realizes that she has again to embark onto lifelong learning as they have to keep themselves updated with new skills and new equipment, new drugs and so on which are fast changing in nursing. They were also “required to collaborate with staff from other disciplines, specialities and departments”. “I-Chao Lee, 2010”. There is constant disequilibrium they have to encounter and this is something that they have to be able to accept that nursing is lifelong learning. (Rishel CJ 2015). Here Problem-based learning approach is supposed to develop knowledge seekers rather than knowledge receivers. (Adnan N. L. 2009). The participants unanimously agreed that PBL encompassed problems or situations from multiple perspectives which was critical to successful patient management in their clinical situations. (Dunfee, 2008).

All participants based on their experiences agreed that *students must be ready to* learn how to learn (Embo.M. et al. 2014) as a stepping stone to life-long learning. All participants stressed that from their experiences, adopting self-directed learning was dependent on student's attitude. Past experiences reinforced their conviction that the lifelong learning attitude "increased student's retention of knowledge and motivation", making nurses to be autonomous in decision making. (Hwang 2005).

The experiences of two out of the five participants in this research indicated fostering Lifelong Learning was strongly encouraged and stimulated through the Problem-based approach, with the other three participants inactive in their support. They seemed to not have endeavoured to instil the readiness for continuous learning with their motivation, rather leaving it to the students to develop the yearning on their own. Their adherence to teacher-directed learning approach possibly did not impact substantially on the development of lifelong learning tendencies in their groups as their students strove to achieve short-term objectives. The two participants indicated their experiences were consistent that Problem-based learning actually fostered lifelong learning and made the nurse competent in decision making, able to give quality comprehensive care, that is, holistic nursing management.

Yet the two participants had not provided adequate experiences to bolster the view that the pursuit of Problem-based learning developed the holistic approach. Participants appeared not to understand that Holistic approach as applied in Problem-based learning engendered a solution that drew from a multi-faceted multi-disciplinary standpoint. Student group solutions to assignments should have proved that these groups have conducted data-collection, analysis and practical application solutions drawing from a larger perspective and sources. Did the related experiences show that facilitation provided and Problem-based learning group discussions

provided the impetus for the development and exercise of holistic management and continuous learning? The experiences uncovered here seemed not to fully support this contention.

### **5.2.3 The third research question**

*“What are the strengths and limitations of Problem-based learning based on the experiences of nurse educators when implementing Problem based learning within the nursing college setting?”*

Based on the experiences of nurse educators when implementing Problem based learning within the nursing college setting, the most frequent and common limitation identified regarded time. All participants reported that Problem-based learning implementation was always time-consuming. Participants experienced tight Work Time-table schedules that were controlled by management. They complained that this limited available time for group discussion and limited Facilitator operations, monitoring and motivation initiatives. However, it appeared from their feedback that most participants were not ready to work irregular working hours. They could have been proactive and designed their workflow to accommodate the Problem-based learning process. Had they approached management to inform about such time constraints and seek solutions? Participants had not provided feedback regarding individual independent efforts to engage with management to resolve the highlighted issues. Participants also did not regularly initiate their own creative solutions for the absence of management support with regard to fixed time allocations via the Time-table. The Participants seemed to have accepted the status quo and allowed the Problem-based learning groups to operate in a less than adequate arrangement. They seem not to have mediated with management and also discussed with Problem-based learning groups on alternative options.

The participants reported that Problem-based learning groups sometimes could not complete problem solving. Sometimes this was related to time limitations and sometimes due to unavailability of discussion rooms. At data collection stage, students might have taken extra time. (Al-Kloun et al. 2013). Could these obstacles have been surmounted by these Facilitators innovatively, “to utilize the PBL process fruitfully”, (Chan l.c. 2008); had solutions been sought within the group discussions? Piaget had stressed that one’s interaction with physical and social environment are essential for cognitive development (Lee, 2010). Group discussions could have been held at different times when rooms were available; or in the facilitator’s room that could surely accommodate 6-8 persons, or in the canteen or even in the garden. Experiences of the participants point towards apathy regarding management role when it could have been proactive.

The correlation of the facilitator and academic output is interrelated. (Yang H.J and Yang B 2013). In their study (Yang H.J and Yang B 2013), looked at nursing students’ experiences with nurse educators, and found that a facilitator can develop facilitation strategies and are able to regulate the amount of facilitation as Problem-based learning courses progress.

Were the Participants proactive enough to monitor assignment progress in their groups and advise group members to adopt creative strategies that make targets achievable in shorter time periods? Timely intervention from facilitators could have steered groups away from the wrong directions during data collection and inappropriate analysis that fritter time. The quality of facilitation by the participants appeared to have exacerbated time management. Did the student groups brainstorm to find solutions to these problems? Did the participants devise alternative arrangements to solve these issues? There seems to be gaps in effective communication with team



members too. The participants were asked on their experiences if the group dynamics worked with the students. (Chiriac E.H 2005). Evidently, what is important is trust, appreciation of work of others and to participate in open discussion. (Debbie O.B. Lam 2014). The Participants reported little regarding experiences in giving appropriate guidance for students to improve teamwork, participate in active learning and to guide students to come out with specific learning outcomes, to analyse and relate and organise various concepts. All the participants provided insufficient experiences on how they created “well-structured problems”, (Chan (2013), as “starting point”, (Wells et al., 2009), to begin the Problem-based learning process, where the “identification of learning needs means that students understand the problem better”. (Salleh, 2007).

On training, all participants agreed that facilitator’s numbers should be increased and they should be trained in Problem-based learning to be able to formulate problems, with regular upgraded retraining. However, the participants had not forwarded formal requests to management. Would management construe such request as admissions of failure; could this be an underlying reason for not appraising management regarding this need? This researcher is unable to verify reasons.

On a positive note, participants reported that the students largely enjoyed the discussion sessions and gradually warmed up to them after initial apprehension. The participants too discovered that students were able to make positive contributions to their own learning through engagement with Problem-based learning activities, especially in collecting data, (good browsing skills), and positive interaction with other group members. Their experiences reflected growing independence of students in taking charge of their learning progress.

### 5.3 Discussion of Findings

The five participants agreed that Problem-based learning aided students in “grasping information easily and retaining information longer, as this predisposed to better achievement of better academic goals and enabled to utilise information appropriately. (Abdollahimohammad & Jaffar, 2014).

**One important finding** in this study was that some facilitators were unable to change their roles from teacher-centered to student-centered. (Ahmed K.A.,2014). This was in disparity with a study conducted in a Middle East Nursing college where it was found that nurse educators with commitment and who were motivated, were prepared to change towards student-centred learning and were willing to play the role of facilitator. (Ghasemi et al., 2013).

The participants used teacher-centred learning in some selected areas, such as such as Anatomy and Physiology, in order to avoid spending too much time in discussion.. They contended students might fritter time in data collection, leading to stress and frustration. (Al-Kloun et al. 2013), and subsequently, to lose interest in Problem-based learning. Most participants found that Problem-based learning was much more successful when the lecture preceded Problem-based learning implementations. Problem-based learning could be difficult if its members had lack of theoretical knowledge and students could lose interest as a lot of time was utilised in gathering basic knowledge before proceeding to higher levels of problem solving. (Hoidn, S et al 2014). Since, data collection process is an integral component of Problem-based learning, the participants seemed to have neglected the protocol of this student-driven approach. This is not in conformity with Problem based learning process.

According to our findings, some participants applied and practised Problem-based learning approach only during clinical placement and not during theory hours. (Al-Kloub et al., 2013). They found that time was a constraint during theory and they could allocate more hours in the clinical settings. They were more partial to mixed mode of both teacher-centred and student-centred learning, but still believed that lectures were best suited to their time in classes or theory weeks (Ahmed K.A.,2014).

Problems in Problem-based learning should be well structured in order to achieve its objectives, as declared by Chan (2013), but this did not happen sometimes. What happened to the learning process if the problems were not well structured was that it might not achieve the learning objectives as declared. Chan (2013). It signalled that facilitators were not attuned to play their role in the implementation of Problem-based learning.

The participants were unanimous in supporting the contention that Problem-based learning fostered higher level of learning in the areas of holistic nursing management and lifelong learning. Participants had witnessed that students using Problem-based learning gained confidence, were able to transfer what they learned into real life situation, (Vinales, 2014), improved knowledge and developed motivation. (Dunfee et al.; 2008; Hwang & Kim, 2005).

With regard to Holistic nursing management the participants experienced that slow learners take more time, bolstered by additional tutorials, compared to other learners. This contention neglected team effort. The students should have collaborated with staff from other disciplines, specialities and departments as stated by I-Chao Lee (2010), and learnt from each other or the more knowledgeable other before every Problem-based learning discussion. Group work or working in a team, as shared by Chiriac (2007), could either facilitate or hamper learning. In other words, group

members had an impact on productivity and quality of learning; if the group was unable to collaborate than it deteriorated the quality of learning. (Lin YC 2013). As these problem-solving skills are integral components in courses on Problem-based learning. (Chan L.C, 2008), we surmise that these nurse-educators have not applied facilitator skills well.

For lifelong learning to be propagated, the affinity for in-depth learning needed to be first implanted. There were not sufficient shared experiences from these participants that learning was a continuous process. After every assignment was completed, the learning process appeared to have shifted to the next assignment. The Participants appeared to have not monitored adequately to confirm that learning along particular threads of knowledge did not cease.

In reference to “better facilitation” it was found that the learning environment was a determinant factor in both these two ideals. (Debbie O.B. Lam 2014).

The third research question was - What are the strengths and limitations of Problem based learning based on the experiences of nurse educators when implementing Problem based learning within the nursing college setting? The participants have not elaborated about their awareness on the process of how they have handled the Problem-based learning process and how they began their discussion and what were their experiences in this regard. For example, have they started by asking questions of previous discussion to measure prior knowledge before they proceeded on to the day's current discussion. Were they sensitive to the students' needs, and did they create an environment for students to ask relevant questions, and seek clarification? These queries have not been adequately answered from Participants' sharing of their experiences.

According to the findings, the participants agreed that the optimal number of students in each group that the students should operate in for a conducive environment was four to six students. This was considered good in Problem-based learning (Nevin et al; 2013).

In reference to “Management Support”, participants agreed that support was inadequate. They lamented that in some area’s students were far off physically from the college and here facilitators used video conferencing at times at their own cost. The participants also felt that there were too many students assigned to them and it was sometimes difficult to divide them into smaller groups. Management failed to give sufficient attention for areas where tutorials could be conducted conducive and the needs of the students were not taken care off. Participants shared that in such conditions for the learning to take place was indeed a challenge. (Nevin et al; 2013). It was observed that the participants concluded that the number of students influenced the quality of learning. According to the participants, the triggers based on the problem might take more time to solve compared to other issues bearing in mind that in Problem-based learning the starting point is a problem. (Wells et al.,2009). The problem could be an issue related to disease condition or any medical policies.

Another point observed was that the facilitators might not be available when a discussion required it, as the need could arise sooner than the scheduled discussion. The discussion should be created to cater for adverse learning styles. (Severiens Schmidt, 2008). In the process of Problem-based learning the participant is required to be a team member and mentor to the student and group, it is highly important that she makes herself to be available for discussions (Chan L.C, 2008). Sometimes students took a longer time to get relevant information and the discussion date had to be postponed to a later date. (Salleh, 2007).

In reference to “Facilitator training”, all the Participants were unanimous in lamenting the inadequacy of the training in facilitation skills. They had expressed the vital need for longer training and greater instruction in latest methods, but had not pursued committed follow-up with management.

It had been stated in the experiences of these Participants that the students were sometimes counseled. Therefore, training in facilitation is important to ensure in-depth learning by the students (Lam; 2009). The facilitators should even counsel students to expect what would be the outcome of Problem-based learning (Nabishah et al, 2010). It had been stated that to accommodate slow learners, these students had to be counselled in Problem-based learning (Nabishah et al, 2010). Then the students should be given a choice if they had the preference or if not, are they willing to transform to accommodate this form of learning, (Problem-based learning). The students were also to be informed that for the purpose of working with competency in the nursing field they had to become deep learners to accommodate the ever-changing patient needs. In their field of work, they needed to work in collaboration with others.

In the findings, the participants stated that were able to motivate students. They mentioned that weak students were handled initially with teacher centered learning until they gained confidence, but such action contravenes Problem based learning approach. Therefore, it is questionable how far Problem-based learning facilitators were aware of the right manner in implementing Problem-based learning. There was still preference among the facilitators for teacher-centered learning.

From the findings from student-survey, it seemed that facilitators were not very sure of themselves on how to implement Problem-based learning so they still utilized teacher-centered learning where they had full control of teaching and learning. Also, the facilitator was not able to give proper clues or triggers. The

facilitator found that proper solutions were not achieved and were time consuming. She also found that students sometimes found it stressful and challenging in instances where very little information was given, and therefore, it was the responsibility of the facilitators to create triggers which had appropriate details and were good, otherwise the students were likely to get frustrated (Felton et al., 2013). As has been stated by Thomkinson and Hutt (2012), this study found that the requirements of Problem-based learning were not clear amongst students and it was time consuming. Facilitator training in design of triggers was a need that had not been realised.

It was difficult to work in groups sometimes when they were too big, had lack of interaction within, and also with other groups. There was usually too much of conflicts. So, more Facilitator courses on group dynamics and conflict management and updates should have been organised by the management, but this did not happen.

This researcher found through the literature review that in one university with proven evidence it was shown the facilitators were given a four weeks course, the management had organised weekly meetings to review and discuss on the success of Problem-based learning. An assessment of student's performance and experiences of tutors were done. (Chou F.H and Chin C.C 2009). The key was to develop the student's metacognitive skills and not based on the nurse educators as a content expert in the learning. In order to develop these skills, the tutor must facilitate the group's self-directed generation of learning objectives from triggers in successive case scenarios that set the context (Groves et al., 2005; Maudsley, 1999). The participants had indicated that they were ill-prepared to take on fully the role of facilitators within the context of Problem-based learning. They have been unwilling to discard the ingrained mentality to "Teach" rather than to facilitate. Even in their attempts to

facilitate they had been hampered by inadequate training and retraining in the art of facilitating for Problem-based learning.

Another finding was that all the participants concurred that in order to carry out effective Problem-based learning, the students should be monitored constantly and there should be more facilitators to motivate students (Zabit, 2010). From the findings, it was evidence, there were not enough facilitators and there were many facilitators who were not well-trained and found it hard to fit into this program. They were reluctant to be more committed and willing to spend time with the students. Problem-based learning also required more staff and it was time consuming as argued by Mgbekem M.A, (2014). It was essential that enough time should be allocated to solve problems and also enough facilitators to handle small groups effectively. Facilitators need to be committed, a lot of patience was required to encourage collaboration of both weak and good students so they worked together. (Severiens & Schmidt, 2008; Salleh, 2007).

Participants mentioned the care plan for the patient should be tailor-made for individualistic care and definitely these could only be done during clinical placement. It took time to analyze and to be creative in the individualistic care, so that the patient would benefit holistically.

The participants felt that a lot of time was required because there was not enough manpower as they had to spend a large amount of time with students, as had also been highlighted by Al-Kloub et al., (2013). With greater numbers of students, lack of trained Problem-based learning facilitators was critical. Thus, each facilitator had to spend a lot of time with the students. It was quite impossible to work within a limited time frame allocation thus it was difficult to keep within tutorial hours, and so



the facilitators had to stay longer to work with them. (Brownel et al.,2004). Many of the participants were reluctant to commit to work longer hours.

The implicit understanding here is that study participants offered excuses for returning to providing lectures on content knowledge. This defeated the thrust of Problem-based learning to empower students to manage information sourcing and acquisition on their own, through student-centered cooperation and collaboration. The link with teacher-centered learning was continued, not severed. Problem-based learning as practiced here diluted the principle of independent student action.

In the findings, with reference to the “facilitator training” it was found that relevant triggers and clues had to be given for students to source for relevant information. Discussion to put together information to solve the real-life problem and source again for material when the information appeared inadequate again consumed time. Constant monitoring was required to see if the students were on track, whereby discussion had to be done in a conducive environment. (Groves et al., 2005; Maudsley, 1999). In general, the study participants appeared ill-equipped to provide suitable triggers and clues. This revealed their lack of adequate skills in this area. The importance of constant monitoring was also lost on them. This skill void was not addressed through proper and regular Problem-based learning facilitator training. Problem-based learning facilitator training may have impressed upon the study participants the pertinence of adequate monitoring factor in the Problem-based learning process.

Again, in reference to “facilitator training”, another finding, this time through the student-survey, was that when the students fall into the wrong track, (as many times students have experienced), it entailed additional time to guide them back to the right information and the right line of enquiry. Much depended on the triggers and

clues and it had to be altered and given many times for students to get back on track. (Felton et al., 2013). There was time wastage. Students found it challenging and stressful when to conduct Problem-based learning in instances when very little information was given or triggers were unclear. So “the responsibilities lay with the nurse educators to create triggers which had appropriate details and were good - otherwise the students were likely to get frustrated”. (Felton et al., 2013). This was because the process was consuming a lot of time but it was not fruitful.

Discussion to put together information to solve the real-life problem and source again for material when the information appeared inadequate again consumed time. Here the problem could be an issue, a disease condition or even hindrance to a policy. A problemised real life situation where development of explanatory hypothesis and the identification of learning needs meant that students understood the problem better. (Salleh, 2007). In another similar situation, the same principles could be applied. What happened if the problems were not well structured, what happened to the learning process then? A nursing tutor should be trained in order to carry out Problem-based learning.

It was apparent from the findings that rigid Timetable could not be utilized in Problem-based learning.

With reference to the theme “Management support”, management appeared to be unresponsive in the provision of conducive classrooms for Problem-based learning discussions due to availability issues in a multi-disiplinary college with greater demand for such spaces in the face of space scarcity. Perhaps repeated formal requests with adequate justifications may have elicited positive management response, rather than oral statements.

#### **5.4 Significances**

Nurse-educators concurred that Problem-based learning approach had much advantage compared with Teacher Based Learning approaches. Management obviously rooted for Problem-based learning approach as the instruction to introduce Problem-based learning approach in nursing education emanated from them.

This *triangulated finding* established the strength of Problem-based learning approach as a viable method in education.

Facilitators had to go for regular refresher courses as these added skills relevant for the best implementation of the Problem-based learning approach.

For better facilitation, the facilitators also needed to go to the clinical areas more often, only then they would have better content-knowledge and practice and be able to guide students for critical thinking, creative thinking and lifelong learning. (Hwang and Kim (2006))

Facilities like the library resources and internet resources were inadequate and needed upgradation.

The experiences of the five nurse-educators implies that the organization should allow nurse educators to attach to other centers to learn up the latest practice in Problem-based learning by centers who have implemented Problem-based learning effectively.

#### **5.5 Research contribution**

This study has unearthed strong indications that the nurse-educators had solid perceptions that Problem-based learning approach has value and a place in the education of nurses. The researcher found that Problem-based learning approach was applied with a mixed-mode learning approach. This indicated nurse-educators did not

have sufficient confidence in the success of Problem-based learning as a stand-alone learning process.

The experiences of these nurse-educators signalled that they had a dire need for training and subsequent multiple refresher training on the latest techniques of facilitation. Nurse-educators should view their role holistically in nurse-education and be prepared to play an enlarged role that included positive motivation. The feedback from the nurse-educators indicated that management should provide stronger support to make the Problem Based approach a success. This would involve management flexibility in designing workable time-schedules for both the nurse-educators and the students to afford more free time for greater contact hours with the facilitator. Management initiatives to increase adequate projection facilities would enhance group discussions and presentations. It became apparent that the Problem-based learning approach relied heavily on the effective contribution of the facilitators on the one hand and overall management support on the other.

### **5.6 Curriculum implications**

The findings suggested provision of regular increased courses conducting Problem based learning as it is agreed upon by the participants that it offers Higher Order Thinking for the Facilitators as well as students, as Problem-based learning is about provoking creativity and critical thinking. **facilitators need regular upgradation courses** to become efficient facilitators but it was the experiences with Problem-based learning that makes good facilitators. After all the competency of the nurses were related to the quality of teaching and learning. (Nevin et al; 2013).

Collaborations among students make the team work together efficiently so Problem-based learning group dynamics does not single out students who are weak or good. Critical thinkers make inferences and can explain the event with evidence, they

are also methodological, criteriological, and make sound judgements as explained by Benner (Benner et al., 2008; Chan, 2012). In an academic environment, critical thinking is related to the content. Riggs (2014) implies that the content should be challenging enough to motivate students to think.

Both Problem-based learning and Piaget postulate moving incrementally from the known to the unknown; organized analysis creating new schemata to accommodate the new knowledge. There was congruence in the way that Piaget's and Problem-based learning approach looked at a situation and made sense of it. Of course, in Problem-based learning the facilitator was a sturdy guide, to monitor and encourage their progress. Piaget's constructivism postulated that a person's comprehension is often revised and reconstructed as he was subjected to new experiences. Piaget's theory accentuated largely on the individual but Vygotsky's focus was more on learning from a significant other. This other was the Facilitator in Problem-based learning discussions and in this survey particular setting, the senior ward staff in the clinical setting.

In this research, the experiences of the nurse-educators seemed to suggest that management appeared to have not played a significant role in making relevant adjustments to time-schedules and resources availability to make Problem-based learning a success. The management should play a bigger role in fostering Problem-based learning. The experiences related by the nurse-educators seems to imply that the operational mode by the organization was still focused on teacher-centered learning and it will take some time before they switch to fully student-centered learning as in Problem-based learning. Budget should be set aside for proper logistics, example, more tutorial rooms for discussions. Better library services and facilitator

courses for the new facilitators and updates for the current facilitators should be made available from time to time.

The preference for Problem-based learning to be effective was that it should create an advanced learning environment to cater for various learning style. (Severiens & Schmidt, 2008).

Problem-based learning also provides students with gain in confidence to approach real life situation in clinical areas. (Vinales, 2014). Problem-based learning produces nurses to be autonomous in decision making.

As from the findings, it accentuates that facilitators should structure problems in Problem-based learning well in order to achieve its objectives, as declared by Chan. (2013). This survey as with several research studies showed that facilitators were not attuned to play their role in the implementation of Problem-based learning. They lacked knowledge on giving appropriate guidance for students to improve teamwork, participate in active learning and to guide students to come out with specific learning outcomes. The facilitators should be able to guide students to work on higher-order thinking, such as the ability to relate and organise various concepts.

### **5.7 Limitations**

Generalization of findings and conclusions to the field of Nursing and Problem-based learning centers is limited as data encompassed the experiences of only five nurse-educators, too small to make a generalization. It is not known what the experiences of other nurse educators in other similar institutions are like. The awareness of what transpired out of the experiences were what was preferences and what was not feasible and how much of confidence there was in this learning approach.

Literature review via browsing the internet revealed a **paucity of supportive journal research articles on experiences of nurse educators**. Very few journals have reflected on the **challenges of educators** in implementing Problem-based learning.

During the data collection, this researcher felt that at some points, the participants provided verbal responses that they considered would be the “**Correct**” responses irrespective of whether or not in accordance with personal past experiences. **Some body language responses from the participants may be construed as exaggerations and simplifications**. The veracity of some responses was difficult to establish. In some instances, their physical appearance, **postures and behavior suggested some level of contradiction with their oral responses**.

Some participants conducted teaching via Problem-based learning approach because this was required by management and not out of personal choice. Their commitment to Problem-based learning approach as gleaned from the narration of their past experiences remains unanswered.

## **5.8 Recommendations for future research**

Further research is warranted to study the level of management commitment needed to propel Problem-based learning towards greater self-directed learning.

Study’s on group dynamics within Problem-based learning is an area that have to be further looked into.

The content and frequency of Facilitator Courses to train and retrain Problem-based learning facilitators, incorporating Group Dynamics and Conflict Resolution, creation of appropriate “real-life scenarios” with accurate triggers and clues, Strategies for motivation, Strategies to invoke Higher Order Thinking skills, Mind-

mapping, Prioritizing, and Decision-Making techniques, and Dealing with the difficult student and dysfunctional group are components that needs exploration and action.

Further study may be undertaken to create a time-flexible study program/Roster exclusively for Problem-based learning that frees teaching staff from fixed teaching duties for lecture-based education and constant switching from self-directed learning style to teacher-centric style.

Future studies could examine the mechanics of mixed-mode learning focusing on the ideal ratio of student-directed learning to teacher-centric learning. Future studies could also delve into the stages in the Problem-based learning process when teacher-centric approaches may be incorporated efficaciously.

Finally, future studies could examine creation of support group of peers to assist and counsel Problem-based learning educators in implementing this student-driven pedagogy.

## **5.9 Conclusions**

Mixed-mode learning applied by participants made analysis difficult. With regard to the first research question, the experiences of nurse-educators indicated that the nurse-educators were not at a ready stage to implement the Problem-based learning approach in-toto or in its original complete form. Shifting small group learning into mainstream teaching-learning environments will require a transition not only by students but also by faculty. (Rideout. E. 2001). In principle, there was agreement on viability of this learning approach.

The second research question revealed the achievement of holistic management and lifelong learning was not adequately promoted by the nurse-educators. The students, being senior nurses, managed nursing interventions based on their own experience and that of their peers.



The third research question focussed on time as a prime limitation to success in Problem-based learning implementation. The inherent advantages of this pedagogy of basically producing self-directed learning, Higher-order thinking skills, with its corollary of enhanced decision-making leading on to holistic management supported by continuous learning were acknowledged.

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