

A Descriptive Study on the Feasibility of Introducing Problem -Based Learning as a Teaching Strategy at Kamuzu College of Nursing and Mzuzu University Nursing Department

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Abstract: Nursing education has been accused of producing half baked products mainly due to the use of inappropriate teaching and learning methods. Various studies have shown that Problem Based learning (PBL) increase retention of knowledge, motivation and critical thinking. However, no study was done in Malawi to look into the feasibility of introducing PBL. The purpose of the study aimed at describing the feasibility of introducing PBL at Kamuzu College of Nursing and Mzuzu University Nursing Department.

Methods: Data was collected in December 2013 and January 2014. Descriptive research design was used in this study. Fifty five questionnaires were distributed to nursing lecturers at Kamuzu College of Nursing and Mzuzu University Nursing Department. The response rate was 87%. Data analysis was done by using descriptive statistics and computer soft ware, SPSS version 16.0. Chi square test was applied to test for statistical differences in proportion between Kamuzu College of Nursing and Mzuzu University at the 5% level of significance.

Results: Eighty five percent of lecturers had positive attitude towards introduction of PBL ($p=0.10$). Seventynine percent mentioned about commitment from management. Seventy one percent were ready to change to PBL. Seventy three percent mentioned a barrier of shortage of competent lecturers ($\chi^2 = 14.67$, $df = 1$, p value = < 0.001).

Conclusion: The findings of the study shows that it is feasible to introduce PBL to undergraduate programmes at Kamuzu College of Nursing and Mzuzu University Nursing Department based on the positive attitude and readiness of lecturers on introduction of PBL.

Keywords: Problem based learning, feasibility and critical thinking.

1. INTRODUCTION

The feasibility of introducing new teaching strategies is among the challenging roles of nurse educators in Malawi. This is because nursing educators face a number of challenges in terms of resources and capacity and also the learner is independent of the nurse educator. In Problem Based Learning (PBL), students are put in an active learning situation by giving them clinical problems and training them to identify what they need to learn to solve those problems (Das, Mpofu, Hasan & Stewart, 2002). PBL is one of learner centred teaching strategies that need to be incorporated in Malawian Nursing Colleges to promote learning. PBL as a learner centred teaching strategy puts more responsibility on the learners for their own learning as it involves students in more decision-making processes. Students learn by doing, rather than just by listening and performing meaningless tasks which are often not in context and therefore unreal to them (Rogers, 2002).

Nursing education in Malawi has been accused by stakeholders of producing nursing products that are not well prepared pointing to issues of teaching and learning irregularities. Malawian Nursing Colleges commonly use conventional teaching strategies that are associated with failure to solve problems (Leary, 2012). Some nurse educators are reported to adopt conventional teaching strategies because they are teacher-centred and they come with a strong academic tradition that is undeniable with economic benefits they bring to the tertiary education (Nguyen, 2009). Specifically, conventional teaching strategies can be used with large classes which results in creating a large numbers of tertiary graduates over a period of time.

Despite wide use of conventional teaching strategies, unfortunately it is very difficult to increase a student's critical thinking skills with the conventional teaching strategies (Savich, 2009). Studies have recommended nurse educators to adopt learner centred teaching strategies to increase critical thinking for nurses (Snyder & Snyder, 2008) and to impart lifelong respect for learning (Nandi, Chan, Chan, Chan & Chan, 2000). One of the learner centred teaching strategies which has shown to increase critical thinking is PBL (Burriss & Garton, 2007). In Malawi, many nurse educators were trained in PBL teaching strategy. Despite being trained in PBL, nurse educators still use conventional teaching strategies which limit students to be good problem-solvers and self-directed learners as seen in Kamuzu College of Nursing curriculum of 1996 and Mzuzu University Nursing Department Curriculum of 2005.

There is no study in Malawi which has looked into the feasibility of introducing PBL as a teaching strategy to promote learning. Literature has shown that an institution must first evaluate its resources (Lai & Tang, 2000) and faculty attitude (Block, 1998) before deciding if the implementation of PBL is feasible. The aim of the study was to describe the feasibility of introducing PBL teaching strategy at Kamuzu College of Nursing and Mzuzu University Nursing Department in an effort of enhancing students learning. A feasibility study should be conducted to evaluate PBL supporting factors such as physical resources, personnel resources and attitudes.

Innovative teaching strategies have been introduced globally into tertiary education to support university students in self directed learning and decision making. PBL is a learner-centred strategy which should be advocated for students' knowledge retention, student satisfaction, motivation and critical thinking (Burriss & Garton, 2007). PBL promotes the development of critical thinking skills and are essential for professional nursing practice. The lack of competence in nursing products has been associated with the use of conventional teaching strategies that fail to develop critical thinking in students.

Comparing PBL with the traditional teaching strategies such as lecture-based learning, PBL better prepares learners for their future careers in competitive working environments requiring team work. This study argues that implementing a PBL approach in teaching will support learners to become better problem solvers and acquire a greater range of useful skills. Adoption of learner centred teaching strategies such as PBL might improve nursing competence. However, no feasibility study on introduction of PBL in Malawian Nursing Colleges has been conducted, hence the need to carry out the study.

The main objective of the study was to describe the feasibility of introducing PBL as a teaching strategy at Kamuzu College of Nursing and Mzuzu University Nursing Department. Specifically, the study identified lecturers' perceptions on use of PBL as a teaching strategy.

2. RESEARCH METHODOLOGY

2.1 Research Design:

The study was descriptive cross sectional survey which used quantitative data collection and analysis to determine the lecturers' perceptions on feasibility of introducing PBL as a teaching strategy at Kamuzu College of Nursing and Mzuzu University Nursing Department. A descriptive cross sectional study, either the entire population or a subset thereof is selected, and from these individuals, data are collected to help answer research questions of interest. It uses a fixed design that organises in advance the research questions and a detailed method of data collection and analysis (Polit & Beck, 2008). The method of data collection chosen was a written questionnaire, allowing data collection without major expense, to produce quantitative data that can be analysed by statistical computer programmes.

2.2 Research setting:

The study was conducted at Kamuzu College of Nursing and Mzuzu University. Kamuzu College of Nursing is a constituent college of University of Malawi and is located in Lilongwe while Mzuzu University is located in Mzuzu city. During the study period these were the only Malawian Colleges offering a Bachelors of Science in Nursing and Midwifery. The two colleges were chosen because they are higher learning institutions which are expected to use high order assessment tools and learner centred teaching strategies.

2.3 Study population:

The total population of lecturers available in Medical Surgical Nursing, Community and Mental Health Nursing, and Maternal and Child Health Nursing department at Kamuzu College of Nursing was 40 and the total population of lecturers at Mzuzu University Nursing Department was 15. All the 40 lecturers at Kamuzu College of Nursing and 15 lecturers at Mzuzu University Nursing Department were targeted for the study.

2.4 Inclusion criteria:

All lecturers at Kamuzu College of Nursing who were available in Medical Surgical Nursing, Community and Mental Health Nursing and Maternal and Child Health Nursing department participated in the study. At Mzuzu University, all nursing department lecturers participated in the study.

2.5 Exclusion criteria:

Lecturers who were allocated in Basic Department at Kamuzu College of Nursing were excluded from the study.

2.6 Sampling and sample size:

The population of lecturers at Kamuzu College of Nursing who were available in Medical Surgical Nursing, Community and Mental Health Nursing, and Maternal and Child Health Nursing department as well as all lecturers at Mzuzu University Nursing Faculty was targeted. There were 40 lecturers from Kamuzu College of Nursing in Medical Surgical Nursing, Community and Mental Health Nursing, and Maternal and Child Health Nursing departments and 15 lecturers at Mzuzu University Nursing Department who were targeted to participate in the study. The whole population of 55 lecturers was targeted since the size is small.

2.7 Data collection:

A structured questionnaire was used to collect data. The questionnaires were delivered in respective nursing colleges. Questionnaires were administered with each participant who agreed to participate and signed a consent form. Data were collected using questionnaires. Each questionnaire took approximately 20 minutes to fill. A total of 55 questionnaires were distributed to lecturers at Kamuzu College of Nursing and Mzuzu University Nursing Department. The response rate was 87%. Data was collected over a period of eight weeks.

2.8 Data management:

After data had been collected, the tools were checked for completeness and accuracy to ensure quality data. After data verification, the completed questionnaires were ready for data entry. Then data was kept in lockable cupboard. The data were transferred from the written documents into computer files in SPSS version 16.0. Further cleaning of data was done by running frequencies to check for out of range responses and outliers.

2.9 Data analysis:

The purpose of data analysis is to organise, provide structure to and elicit meaning from the data collected. Data analysis was done by using descriptive statistics and computer soft ware, SPSS version 16.0. Frequencies and percentages were run for ages, sex, qualifications, hours taught and experiences. Chi square test was applied to test for statistical differences in proportion between Kamuzu College of Nursing and Mzuzu University at the 5% level of significance.

2.10 Ethical considerations:

The study was approved by College of Medicine Research and Ethics Committee (COMREC). In addition, the principal of Kamuzu College of Nursng and Vice Chancellor of Mzuzu University approved the study to be conducted in their institutions. The participants signed informed consents before their participation in the study. All other ethical issues such as maintaining confidentiality and avoiding harm were strictly observed during the study.

3. RESULTS

3.1 Demographic characteristics of lecturers:

Seventy five percent (n = 36) of lecturers were from Kamuzu College of Nursing and 25% (n = 12) were from Mzuzu University. Majority (81.2%) of respondents were females. Respondents' ages were from 26 to 70 years with mean of 42.48 years. The lecturers had different highest qualifications with 58.3% (n= 28) having masters degree, 22.9% (n=11) with degree of Doctor of Philosophy, and 18.8% (n= 9) with bachelors degree.

3.2 Opportunities available for introduction of Problem Based Learning:

Lecturers had to give their views on the opportunities available for introduction of PBL and table 1 summarizes the findings.

Table1: opportunities available for introduction of problem based learning

No.	Opportunities	Percentage
1	Lecturers have positive attitudes towards PBL	85%
2	Management commitment	79%
3	PBL promotes quality education	75%
4	Lecturers are ready to change from just lecturing to facilitation	71%

3.3 Barriers that can be encountered when introducing problem based learning:

Lecturers had to give their views on the barriers that can be encountered when introducing PBL and table 2 summarizes the findings.

Table 2: Barriers that can be encountered when introducing problem based learning

No.	Barriers	Percentage
1	Shortage of competent lecturers	73%
2	Cost of implementation of PBL and maintenance	50%
3	Admitting too many students	50%

4. DISCUSSION, CONCLUSION AND RECOMMENDATIONS

4.1 Opportunities available for introduction of Problem Based Learning:

4.1.1 Positive attitude towards Problem Based Learning:

According to study results on opportunities available for introduction of PBL at Kamuzu College of Nursing and Mzuzu University Nursing Department, majority of lecturers mentioned that they have positive attitudes towards PBL. The findings concur with Vahid, Azamia and Valizadeh (2007) which showed that 66.7% of lecturers rated high on PBL being effective in promoting educational quality compared with conventional methods. The findings also concur with Lee (2002) which showed a high level of satisfaction from the faculty and students in terms of their PBL experience. Furthermore these findings support Downing, Ning and Shin (2011), who suggested that PBL offers students the opportunities to develop skills such as problem solving and clinical reasoning, and Reeves et al (2004) who found that PBL equip students with the skill of how to access knowledge.

4.1.2 Committed management on introduction of problem based learning:

Majority of respondents mentioned that management was committed to support introduction of PBL. The results were statistically significant ($\chi^2 = 7.67$, $df = 1$, p value = 0.01). The findings concur with Vahid et al. (2007) whose findings showed that lack of commitment from managers hindered the successful implementation of PBL and manager's support was essential for introducing PBL. Their findings also indicated that 80% of faculty mentioned that lack of commitment of top management was a barrier to introduction of PBL. This means that committed management may support introduction of PBL. Researchers have found that lecturers commitment may be enhanced or diminished by administrative support (Day, Elliot & Kington, 2005). When management does not support introduction of PBL, they may not provide resources required for PBL.

4.1.3 Problem Based Learning promotes quality education:

Majority of respondents mentioned that PBL promote quality of education. This concurs with Yu (2004) whose findings were that PBL approach produces more motivated students with a deeper subject understanding, encourages independent and collaborative learning, develops higher order cognitive skills as well as a range of transferable skills including problem-solving, group working, critical analysis, lifelong learning and communication. Using traditional method to teach, results into students not knowing how to apply the analysis method they have learnt to solve a real problem, they cannot tackle unfamiliar and open-ended problems. A similar study by Lee et al. (2002) showed that PBL is a teaching strategy that encourages self-directed study, group interaction, and application of theory into practice. Further studies have shown that PBL is a teaching strategy that increases critical thinking in students (Sommers, 2014).

4.1.4 Lecturers are ready to change from lecturing to facilitation:

Many respondents mentioned that they were ready to change to facilitation. Since majority of lecturers are ready to change to facilitation, it means introduction of PBL will not face resistance since they will support it. The findings concurs with Vahid et al. (2007) whose findings were that majority of lecturers were interested to play the role of facilitator. The task of the facilitator consists of stimulating the group-discussions, monitoring the group interactions and evaluating the progress (Witte & Rogge, 2012). The findings also concur with Singh, Saxena, Bhambani, Nema, Gaur, and Ambey (2014) whose study results showed that faculty were interested to change their role from teacher to facilitator and more enthusiastic to adopt PBL. In PBL, the lecturer is a facilitator or coach, whose role is to make the learning process visible, instead of making the content visible as in traditional lectures (Yusof, Tasir, Harum & Helmi, 2005). PBL requires teachers to present students with multifaceted, real-life problems and to act as facilitators supporting students in organizing their own learning (MacMath, Wallace & Chi, 2009). The facilitator plays an essential role to the success of PBL as research has shown that there is a causal relationship between facilitator involvement in PBL and group processes, which in turn affects student interest, motivation and achievement (Hmelo-Silver, 2004). In fact, student surveys of a research revealed that 70% of students in a PBL course found facilitators' roles essential to the success of the PBL method (Ling & Jee, 2007).

4.2 Barriers that can be encountered when introducing problem based learning:

4.2.1 Shortage of competent lecturers:

Majority of respondents mentioned about the shortage of competent lecturers as a barrier when introducing PBL. The findings agree with Vahidi et al. (2007) where majority (98%) indicated that shortage of lecturers competent in PBL were barriers that needed to be considered. Similar studies found that shortage of lecturers hindered implementation of PBL (Lai and Tang, 2000; Ates and Eryilmaz, 2010). Furthermore, Carrel, Tellez, and Ottavio (2003) in their study found that lack of suitable number of full-time lecturers uniformly trained as experts or tutors who are committed to PBL curricular model was an obstacle on implementation of PBL. Furthermore, Azer (2007) in his study in Saudi Arabia found out that identification of appropriate tutors hindered implementation of PBL. Clancy (2005) in his study found out that lack of facilitators was a hindrance in implementation of PBL.

On the contrary, a study done by Tavakol, Dennick, and Tavakol (2009) found that 61.6% of respondents disagreed that facilitators of PBL need to be expert in the subject matter which means that even peer teaching can solve the staffing shortage. Peer teaching may not be feasible in Malawian Nursing Education because it has not yet been introduced. PBL introduction does not require an increase in number of lecturers (Hamdy & Agamy, 2011). However, lecturers implementing PBL should have capacity in PBL implementation. Capacity building in PBL for lecturers will be required because study results showed that minority of lecturers have capacity in PBL implementation.

4.2.2 Cost of implementation and maintenance of problem based learning:

Half of respondents mentioned that cost of implementation and maintenance was a barrier when introducing PBL. The findings agree with Vahidi et al. (2007) whose study at nursing faculty of Tabriz University of Medical Sciences found out that majority (98%) mentioned cost of implementation and maintenance as hindrance on PBL implementation. Additionally, a study by Thompson and Williams (2010) showed that administrative strategies for facilitating change could involve the establishment of academic reward for identifiable educational scholarship in staff, financial support for establishment of educational departments to stimulate and coordinate educational innovation.

Although, Vahid et al. (2004) in their study found out that costliness of beginning and maintaining PBL was an obstacle to PBL implementation, a study by Azer (2007) found that enhanced student learning and improved professional education should outweigh the initial costs due to refurbishment.

4.2.3 Admission of many students:

Half of respondents mentioned about admitting many students as a barrier when introducing PBL. Findings agree with what Geer & Rudge (2004) in Western Michigan University found that institutional constraints that hindered successful implementation of PBL were increase in the number of students in the class and fixed seating arrangements. Although respondents mentioned about admitting many students as a barrier when introducing PBL, findings of Shipman and Duch (as cited in Allen, Duch, Groh, Watson & White, 2005) showed that PBL can work in the larger enrolment class – students. Furthermore, introduction of PBL in large group of students increase students' clinical confidence and prepares them for common practice situations than conventional teaching (Pastirik, 2006). Peer teaching and learning situation, where students teach other students can be utilized. In such scenario PBL students will teach each other. According to research on learning this is one of the most effective ways of learning. Peer teaching and learning enhances the quality of learning, while at the same time developing in the students a sense of responsibility for his/her own learning, as well as for the learning and personal growth of team members (Dahms & Stentft, 2009). However, peer teaching is happening informally in methodologies that promote collaborative learning, such as group projects and group discussions, Malawian Nursing Colleges have not formalized peer teaching.

5. CONCLUSION

The results indicate that most lecturers have positive attitudes towards introducing PBL at Kamuzu College of Nursing and Mzuzu University Nursing Department and are ready to change to facilitation to promote quality education. Although introduction of PBL has a barrier of shortage of competent lecturers, studies have shown that PBL can still introduced.

6. STUDY RECOMMENDATIONS

According to the study results, the researcher recommends the current study to be conducted on lower cadre such as nursing and midwifery technician programme offered by Christian Health Association of Malawi (CHAM). The current study was conducted on colleges offering Generic Bachelors of Science in Nursing and Midwifery.

Lecturers should be trained in PBL for those nursing colleges that introduce PBL to build their capacity on PBL implementation.

The current study used quantitative research approach. Other research approaches such as qualitative and mixed methods may be done to highlight other factors that are critical in introduction of PBL

7. STUDY LIMITATIONS

The research had limited time as was done for academic purpose, and used a small sample size. Reliance on measures of self-report was another limitation to this study. The perceptions of lecturers may not reflect the reality of their knowledge base. It is possible that lecturers may express differently between Kamuzu College of Nursing and Mzuzu University. Another limitation was finances since the researcher needed money to travel to the colleges to deliver and collect questionnaires.

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