

# Development of Problem-Based Learning Model at The Faculty of Nursing, Ubon Ratchathani University

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**Abstract—** *Thinking is the basis of intelligence; Therefore, the development of learners' critical thinking skill is necessary. Problem-based learning (PBL) is one of the most popular teaching methods in nursing courses. Whether or not PBL is successful depends on many factors. This article describes the application of PBL, its challenges, its barriers, and student reflections and suggestions on its use at the Faculty of Nursing, Ubon Ratchathani University, Thailand. Moreover, it discusses the guideline for the improvement of PBL that is context-sensitive. The article will benefit nursing education management and contribute to the development of learners' skill for the 21<sup>st</sup> century.*

Keywords— development, problem-based learning

## **Introduction**

The technological advancements have made the world into a world of information where continuous learning is deemed important [1]. They have had an impact on health problems that keep changing depending on social, economic and environmental conditions [2]. Consequently, health services have become more complex [3]. Therefore, nursing professionals need to understand the knowledge and concepts in all related fields of nursing sciences, develop a holistic approach to learning and master critical thinking and reasoning skills to provide quality nursing care and improve patient safety [3] [4]. Nursing education should focus on teaching students to develop the critical thinking skills and giving reasons [2]. Because the critical thinking competencies have been required for nursing students to learn theories, practical and fundamental concepts of the nursing processes, to help students solve the problems related to systematic manners in the different contexts [2] [3]. The critical thinking teaching method challenges nursing instructors as they need to teach basic intelligence and logical connection to the students to be able to adapt the knowledge in their real life situations [1]. Critical thinking will make the students ready to work with the nursing knowledge and become autonomous learners [5].

The teaching and learning by using problem-based learning (PBL) is a way to make the students develop the thinking process in learner-centered classes [5]. Instructors can use such technique as dividing students in classes into small groups, give situations similar to the actual or real

stimulus. As a consequence, students can share their analysis and learning procedures to determine the cause of the given problem. Separating students makes them find a solution on their own and have a chance to review the problem to determine rational solutions [4] [7]. The teaching method includes the student-directed learning (self-directed learning) [4] [8] by having teachers who can support learning and create a welcoming atmosphere of learning and the exchange of ideas. Evaluating the information and arguments is not rational [4] [9]. Throughout the course, students have to show their skills, critical thinking rationality and discreet consideration before deciding to solve the problem on their own.

Faculty of Nursing, Ubon Ratchathani University (UBU), Thailand, has realized the importance of equipping the students with survival skills for the 21<sup>st</sup> century. It has developed teaching strategies to encourage the students to improve their critical thinking skills to become a self-directed learner. These skills are particularly important for nursing students. This article presents how to apply teaching strategies, problems, obstacles, suggestions and reflections of students on problem-based learning at Faculty of Nursing, Ubon Ratchathani University, Thailand. The article also discusses the guideline for the implementation of PBL that takes into account the specific context in which PBL is adopted.

## **Development of teaching and learning, using problem-based**

The Faculty of Nursing at Ubon Ratchathani University was established in 2010 and has used PBL with first-year nursing students since the academic year 2013. The data collected from course evaluation by nursing students and other casual observations, reflections, and interviews by the students and teachers have been used to improve the teaching management at the faculty. The challenges and barriers to the implementation of PBL and the suggestions on its further use are summarized as follows:

### **1. Preparation of learners and instructors**

The course coordinator needs to prepare the students and instructors for the application of PBL because PBL requires a changing role for both parties. The coordinator should explain the concepts, objectives,

methods, and practice of PBL to the students and teachers before the course begins. It is a necessary step that allows the students and teachers to be familiar with their roles and their group members. It also reduces stress among both parties, fosters the students' positive mindset and creates effective group processes.

During the first two years of implementation, the course coordinator was underprepared for his/her teaching. It was found that more than half of the students reflected that they did not understand the process of PBL. They found themselves stressed out and bored, did not know what to do, did not have the confidence to speak up in class and were afraid of making mistakes when doing so. In the meanwhile, the teachers were worried about what could be done to encourage the students to think and carry out their group work to meet the desired outcomes.

Previous studies have made the following suggestions on how to prepare the instructors and students for a successful implementation of PBL: 1) the instructors should be prepared following the same guideline to support the students throughout the course [4] [6], 2) the students should be prepared for the process of PBL, develop their reasoning skills along the way and create a study plan; and 3) the instructors should have systemic teaching plans [4] [10]. These suggestions are similar to the findings in the research by Doungjai Plianbumroong and Parichat Utaipan (2016) [11], which showed that prior to the course the instructors should instruct the learners especially the first-year students about the process of PBL in order to create a mutual understanding between them and instill a positive attitude towards PBL into the students. If the teachers prepare the students for PBL well, it will reduce stress among the students [5] [12].

Therefore, before the application of PBL, the learners and instructors should have a mutual understanding regarding PBL concepts, goals, and methods and have an opportunity to practice simulated group processes. If the instructors and students have a mutual understanding, good interaction and positive attitude, the implementation of PBL will be successful.

## **2. Development of PBL problems**

Problems are key to PBL. In the academic year 2013, there were four instructors; while two of them had adopted PBL in their class, the other two had studied in a PBL-integrated class. All the four instructors attended a PBL workshop organized by Ubon Ratchathani University. In this workshop, they selected a course on the basic concepts and theories in nursing with which they were all familiar. Each of the instructors had to create a problem scenario and then presented it to the rest of the group. After discussing all the problem scenarios and gaining feedback from their peers, the instructors collaboratively revised the scenarios. After they applied the problems to their actual classes, their students reflected that "some of the problems are too difficult to understand." In the following year (2014), the instructors reviewed the methods for creating problem scenarios and attended another PBL workshop. They then concluded that the problem scenarios should be based on the real work situations in nursing contexts, in line

with the subject contents and based on the situations with which the students were more familiar. After the revision and application, the students reflected that the problem scenarios stimulated them to think and find the solutions to the problems. They felt challenged and had fun when they found that the information they had gathered helped resolve the problems. The scenarios also facilitated the students' understanding of the role of nurses in providing patient care. In the case where the students were not clear about their answers, the suggestions by the teachers boosted their confidence in using their knowledge to provide care for patients, themselves and their family members. As for the teachers, they gained more confidence and strategies in selecting the questions that would encourage the students to think to achieve the learning goals.

These findings are similar to those in previous studies which suggested that the teachers participate in the process of designing problem scenarios. The scenarios could be based on real patient situations [9] and unpredictable clinical situations which should stimulate the students to search for a solution [5]. Faculty collaborative work on the revision of the problem situations and the relevant information at the end of each academic year contributes to the development of a positive attitude towards and a better understanding of PBL.

Therefore, PBL problem scenarios should be revised every year based on the students. The guideline on how to design problems should stem from faculty collaboration. Moreover, the instructors should understand or have the following: 1) the basic concepts of PBL; 2) experiences in PBL; 3) an overall understanding of the course taught; 4) previous experiences in clinical practice; 5) students' previous experiences; and 6) the ability to work in a team.

## **3. Grouping learners**

Based on their previous experiences, the instructors indicated that grouping the students was as crucial as the other aspects of PBL preparation because PBL aims at enhancing the learners' survival skills required for the 21<sup>st</sup> century. Grouping was carried out using simple random sampling. The students with poor, moderate, and good academic performance were put in the same group to allow the group members to share their experiences and knowledge as much as possible. In each academic year, under the supervision of one teacher each group should consist of no more than 9-12 students. Reflections on their group members, the students found that their team members possessed different levels of knowledge, presentation skills, critical thinking skills, problem-solving skills, and enthusiasm for learning. Working in a small group allowed the students to share their knowledge and develop other skills such as listening to others' opinions, leadership, followership, teamwork, and collaboration. At the end of the course, the students gave a high score for self and peer evaluations.

The findings are similar to those in previous research which indicated that the students in each group should possess similar traits. Academic achievements could be used as a criterion by which to group the students. Under

one teacher's management, one group should consist of no more than 8-12 students to allow all of the group members to share their opinions [13]. Putting the students with low, moderate, and high academic performance in the same group made group processes more complete [5].

So, the grouping may be used for the educational achievement of students who passed the threshold to help students develop the skills to recognize the different and enhance interpersonal skills, including the development of various fields.

#### **4. Support for self-directed learning**

PBL assigns self-study hours to the students. Although the students were instructed on how to perform self-directed learning, it was found from the previous experiences that in the early stages of self-directed learning where the students were assigned a task to search for the information to solve problems 1 and 2, some of them were unable to manage self-directed learning. The course coordinator had to motivate them through online communication channels and encourage them to share their problems at any time. The coordinator also asked the instructors to offer help for the students outside the classroom. However, it was also found that some of the students did not have all the information required to solve each of the assigned problems, thus failing to meet the learning outcomes. To solve the problem, the instructors created 'brief cards' as a tool for the students to summarize the information before they could give a presentation. After they completed their group discussion, the students had to collect the brief cards and gave them to the teachers. This method allowed the students to have a clearer understanding of data collection and improve their self-directed learning strategies.

Self-learning (self-directed learning) is a process in which the learners start learning with or without help from others. It prepares learners to be responsible for their learning. In the initial phase of self-learning where the students may not be able to adapt to a change in learning style, it is important for the instructors to constantly monitor the students [14]. The instructors should also create a climate that facilitates self-directed learning by encouraging and counseling the students [2] [4]. They should also play the roles of an interlocutor and supporter to help the students adapt to self-directed learning and develop the necessary skills it requires [1] [6] [13].

Therefore, notwithstanding the preparations the instructors have made, those who are not accustomed to self-directed learning and unable to adapt to it are unlikely to develop themselves. Therefore, it is essential for instructors to constantly monitor and counsel the students in the early stages of self-directed learning.

#### **5. Factors contributing to PBL success**

As a new faculty, the Faculty of Nursing at Ubon Ratchathani University was faced with a shortage of small classrooms in its building. As a result, the course coordinator assigned the students a duty to reserve the small classrooms at the main university library. In addition, the stationery kit was assigned to the class representative. These

processes resulted in group work and the enhancement of interpersonal communication skills.

After the end of the academic year 2013, the first year PBL was implemented, the instructors reflected that the information the students had brought for small group discussions was not reliable because it was taken from an informal source and the students did not have the systematic search process. Moreover, they commented that the students presented the data in an informal style. Therefore, in the following year, to prepare the students for PBL the instructors invited an expert to run a workshop on systematic search strategy and electronic database and general library search. It is important for the students to engage in self-directed learning required for PBL [13]. Concerning academic presentation, the instructors designed 'brief cards' as a tool on which the students could summarize the information they had collected. This method allowed the students to systemically organize the contents and boosted their confidence in small-group presentation skills.

To sum up, the management of classroom facilities, the exposure to various sources of information and the summary strategy are important factors contributing to a success in implementing PBL.

#### **6. Course management**

For the course coordinator, preparation for PBL is time-consuming. It involves familiarizing the instructors with the concepts and principles of PBL, preparing problem scenarios for group discussion, preparing evaluation documents, preparing the PBL manual for the instructors and students, cooperate with all the stakeholders such as academic staff and computer technicians, and preparing other study materials for small-group discussion such as stationery and nametags. And throughout the course, as there might be problems and obstacles, the course coordinator needs to be patient and resourceful in dealing with them.

From the role of the course coordinator as mentioned above, the past research suggested that the course coordinator should be at least 2 people for continuous monitoring and surveillance that would be effective to teaching and learning for students [14].

Therefore, to achieve maximum efficiency for the students, there should be at least two persons in charge of coordinating the PBL-integrated course. However, if there is a shortage of personnel who could serve as a coordinator, an adjustment needs to be made depending on the specific context in which the issue emerges.

#### **Conclusion**

PBL is a way of developing critical thinking and problem-solving skills in learners in learner-centered classes. Whether or not this implementation will be successful depends on many factors. Course coordinators and instructors are important factors that must be addressed. The course coordinators should focus on familiarizing the instructors with the concepts and principles of PBL. The instructors should be involved in designing PBL problems and facilitating the learning process. In addition, they should

monitor the students' behavior to ensure the effectiveness of PBL. At the end of the course, the course coordinator should sum up the reflections by the instructors and students and use them as a guideline for revising the teaching plans for the next academic year. The suggestions can be summarized in the chart:

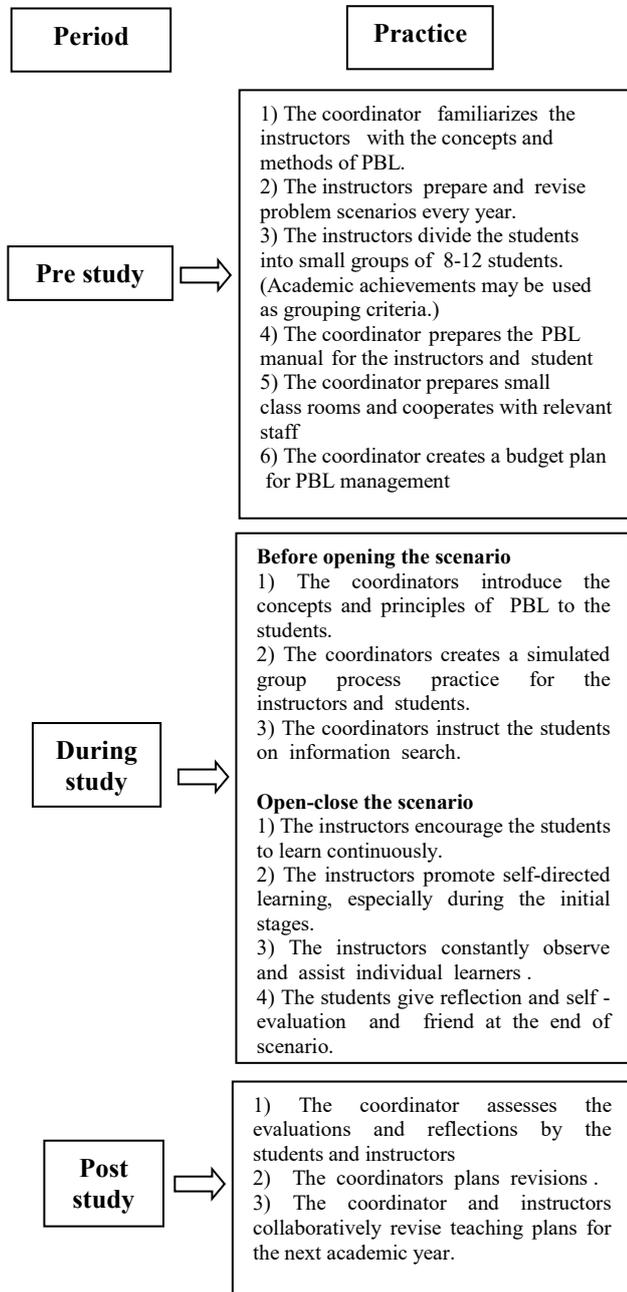


Fig. I UBU PBL model guideline chart

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