

# Study of the Application of Economics Class Using PBL Mongolian University

Natsagdorj Bayarmaa, Keunsoo Lee\*

Dept. of Computer Science and Engineering (Computer System Institute), Hankyong National University

## 몽골 대학에서 PBL을 이용한 경제학 수업의 실제적 적용에 관한 연구

바야르마, 이근수\*

한경대학교 컴퓨터공학과 & 컴퓨터 시스템 연구소

**Abstract** This paper applied to the economics subject using PBL(Problem-Based Learning) for improving students many skills in Mongolian University that 21st century demands. For the first time at Mongolian University, the PBL problem was developed for the use of PBL and applied to the class and confirmed its effectiveness. The study subjects were 60 freshman students in D university who took 'Economics'. We applied 5 problems for 16 weeks. Students wrote and submitted a reflective journal when they finished the every activity. In addition, they completed a class evaluation form after the PBL program ended. The study showed that they experienced various effects such as understanding of learning contents, understanding of cooperative learning, practical experience, creative problem solving ability, presentation skill, communication ability, self- directed learning ability, self - confidence. In the PBL learning activities, the learning environment was not well prepared yet, so some difficulties were encountered. Mongolian students perceived it as a new and effective way to develop their expertise as a future leader in the 21st century. The main goal of Mongolian university is to produce leaders with professional talent with creative problem solving ability and active learning direction.

요 약 본 논문은 몽골 대학에 학생들이 21 세기 요구하는 여러 가지 능력을 기르기 위하여 PBL을 경제학 교과목에 적용하였다. 몽골 대학에서 처음으로 PBL 활용을 위하여 PBL 문제를 개발하여 수업에 적용하고 효과를 확인하였다. 연구대상은 경제학 교과목을 수강한 D 대학 1 학년 학생 60명이었으며, PBL수업은 16주에 5개 PBL문제를 적용하였다. 학생들은 수업을 끝날 때마다 성찰일지 작성하여 제출하였으며 마지막 PBL 문제 활동이 끝난 후에 PBL 수업에 대한 강의 평가를 작성하였다. 연구 결과는 학습내용의 대한 이해, 협동학습의 대한 이해, 실제적 경험, 창의 문제해결력, 프리젠테이션 스킬, 의사소통 능력, 자기주도적 학습능력, 자신감과 같은 다양한 효과를 경험한 것으로 나타났다. PBL학습 활동 과정에서 학습 환경 아직 잘 준비 되어 있지 않기 때문에 어려움이 도출되기도 하였다. 몽골 학생들은 21 세기에 요구하는 미래의 리더로서의 전문성을 기를 수 있는 새롭고 효과적인 방법이라고 인식하고 있었다. 이는 창의적 문제해결력과 능동적인 학습 방향을 갖춘 전문 인재를 육성하고자 하는 몽골 대학 교육의 궁극적인 교육 목표 달성에 큰 시사점을 준다.

**Keywords** : Communication ability, creative problem solving ability, Economics subject, Effective learning, Problem Based Learning, Self-confidence

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\*Corresponding Author : Keunsoo Lee(Hankyong National Univ.&Computer System Institute)

Tel: +82-31-670-5161 email: kslee@hknu.ac.kr

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## 1. Introduction

Change is constant, and the challenges we face today will surely continue to evolve and increase in complexity. Our future requires a cadre of experts interested in and able to solve- problems, both locally and globally.

Problem based learning is a model of curriculum and instruction in which learning starts with an ill-structured, or open- ended, problem that is designed to lead students to specific content in the curriculum. PBL's goal is to take the instructor out of the information dissemination role and facilitate students becoming increasingly self- directed learners[1]. PBL is to help the students develop flexible knowledge, problem identification and problem-solving skills, self-directed learning, and effective collaboration skills (Hmelo-Silver, 2004). Working in groups, students identify what they already know, what they need to know, and how and where to access new information that may lead to the resolution of the problem. The role of the instructor is not to teach a predefined and fixed curriculum, but to facilitate learning by supporting, guiding, and monitoring the learning process[2]. PBL represents a paradigm shift from traditional teaching and learning philosophy (Hung, 2011), which is more often lecture based. This study helps to understand the experiences of students through the Problem-based learning application for Economics Class in Mongolian University. This study contains Research needs and objectives in Chapter 1, Power of Problem- Based Learning, PBL assessment, PBL design model for Mongolian University, Problem for the PBL program, Methodology, Procedures of the class in Chapter 2, Conclusion in Chapter 3.

## 2. The main body

### 2.1 Power of Problem– Based Learning

Problem-based learning is student-centered. PBL

makes a fundamental shift--from a focus on teaching to a focus on learning. The process is aimed at using the power of authentic problem solving to engage students and enhance their learning and motivation. There are several unique

aspects that define the PBL approach[3]:

- Learning takes place within the contexts of authentic tasks, issues, and problems--that are aligned with real-world concerns.
- In a PBL course, students and the instructor become colearners, coplanners, coproducers, and coevaluators as they design, implement, and continually refine their curricula.
- The PBL approach is grounded in solid academic research on learning and on the best practices that promote it. This approach stimulates students to take responsibility for their own learning, since there are few lectures, no structured sequence of assigned readings, and so on.
- PBL is unique in that it fosters collaboration among students, stresses the development of problem solving skills within the context of professional practice, promotes effective reasoning and self-directed learning, and is aimed at increasing motivation for life-long learning.

Of the eleven identified characteristics, the extent to which the problem stimulates critical reasoning, promotes self-directed learning, stimulates elaboration, promotes teamwork, stimulates interest, and leads to the intended learning issues are such functional properties. In a way, these functional characteristics are reflective of the five principles of constructivist learning and the objectives of PBL (Savery & Duffy, 1995, Mayer, 1999).

Benefits of PBL for students, instructors and Institutions following[4]:

For Students

- It's a student-centered approach.
- Typically students find it more enjoyable and

satisfying.

- It encourages greater understanding.
- Students with PBL experience rate their abilities higher.
- PBL develops lifelong learning skills.

For Instructors

- Class attendance increases.
- The method affords more intrinsic reward.
- It encourages students to spend more time studying.
- It promotes interdisciplinarity.

For Institutions

- It makes student learning a priority.
- It may aid student retention.
- It may be taken as evidence that an institution values teaching.

PBL is an approach to learning and instruction that has the following characteristics: (1) the use of problems as the starting point for learning, (2) small-group collaboration, and (3) flexible guidance of a tutor. Since problems steer the learning in such curriculum, (4) number of lectures are limited. The latter is in line with the idea that (5) learning is to be student-initiated and that (6) ample time for self-study should be available (Hmelo-Silver, 2004; Schmidt, 1993).

## 2.2 PBL assessment

As well as ensuring that our assessment is aligned with the learning outcomes and the learning and teaching approach adopted, in this case enquiry or PBL, it is important to adopt a more strategic approach to assessment by asking ourselves a series of questions[5]:

### 1) Why are we assessing the students?

The main purposes are normally, firstly, to support their learning through engaging them in learning activities and providing feedback; secondly, to measure learning against the stated learning outcomes; and, finally, to assure the standards of awards. Whilst the second purpose may dominate students' experience,

particularly if they are focussed on marks and institutions emphasis the need to assure standards, our main focus should be on how well assessment promotes effective student learning.

### 2) What are we assessing?

Traditionally assessment has been about finding out how much students know, usually in terms of knowledge or content. Increasingly skills are seen as being important for students' future employ ability. Attitudes and values have also been added to the list. However, in enquiry and PBL what we are really interested in is the students' ability to perform in a professional context, to recognise their need to acquire new knowledge and skills, and to view learning holistically rather than atomistically.

## 2.3 PBL design model for Mongolian University

PBL instructional design model is made up of demand, analysis, performance objectives determining, assessment tool designing, teaching strategies development, teaching materials preparing, implementation, formative implement assessment, final evaluation and formative evaluation (Fig.1).

## 2.4 Problem for the PBL program

The contents of the problem draft are specified and detailed, and constitute a problem to be presented to learners. At this point, it is necessary to clearly describe the part where the learner is likely to be blurred or confused, but should be a matter of taking advantage of the characteristics of the PBL utilization problem. The following 'Problem' is (Fig.2 ) presented for the students.

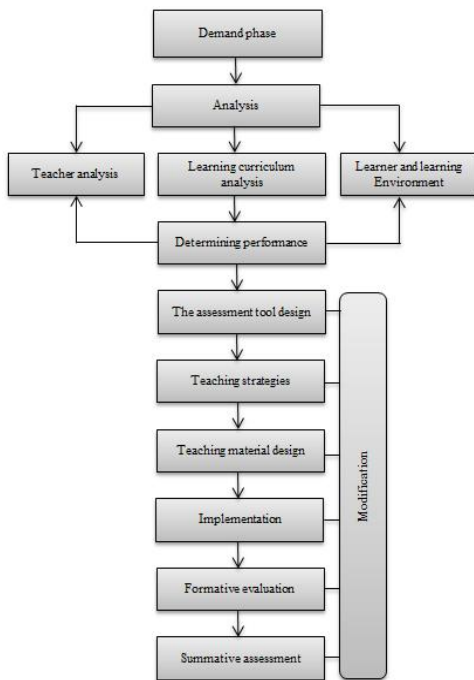


Fig. 1. PBL design model

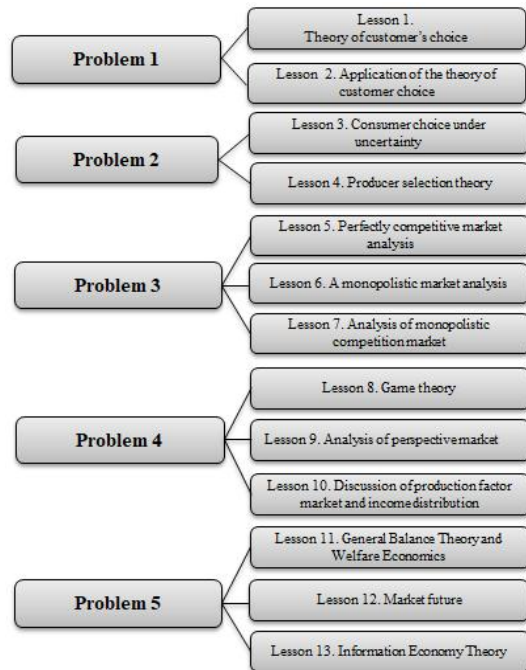


Fig. 2. Presented Problem

**Problem 1.** You are graduated from the Economic University and has been working at the College of Economics for 10 years as a teacher. You do lesson plan and instruction easier to understanding and interesting. You resent it on the dates outlined below. The contents of lesson plan requires The Fundamentals of Economics & Economic Organizations, Utility, Wealth, Production, Capital, Central Problems of an Economy, Production Possibility Curve (Transformation Curve), Theory of Demand (meaning, determinants of demand, law of demand, elasticity of demand- price, income and cross elasticity) and Supply (meaning, determinants, law of supply and elasticity of supply), Equilibrium, Theory of Production (meaning, factors, laws of production- law of variable proportion, laws of returns to scale), Cost of Production (concept of costs, short-run and long-run costs, average and marginal costs, total, fixed and variable costs)[6].

### 2.5 Methodology

Data was gathered from surveys to 4 classes within a bachelor degree program that incorporated PBL into a required course for students who were in their first year. The online surveys administered for each course were part of the program overall curriculum and course procedures used to monitor student learning and engagement in the program. Students were distributed across 10 teams. Measures were created to represent the PBL design components described in the beginning, and learning outcomes were measured using items from the final survey administered to the students at the end of the course. The measures described below for the Problem, Motivation, Collaboration, Facilitation, Evaluation were adopted from metrics and created by facilitator.

### 2.6 Procedures of the class

PBL procedures included exploring issues, writing what they know, defining the problem statement, list out possible solutions, list actions, collect information,

write the solution and review the performance below[7]:

1) Explore the issues:

Instructor introduces an "ill-structured" problem to students. Discuss the problem statement and list its significant parts. Students will have to gather information and learn new concepts, principles, or skills as you engage in the problem-solving process.

2) List "What do we know?"

This includes both what students actually know and what strengths and capabilities each team member has.

3) Write out the problem statement

A problem statement should come from the group's analysis of what they know, and what they will need to know to solve it. They will need:

- a written statement
- the agreement of their group on the statement
- feedback on this statement from their instructor.

4) List out possible solutions

List them all, then order them from strongest to weakest. Choose the best one, or most likely to succeed.

5) List actions to be taken with a timeline

- What do we have to know and do to solve the problem?
- How do we rank these possibilities?
- How do these relate to our list of solutions?

6) List "What do we need to know?"

Research the knowledge and data that will support students' solution.

They will need to information to fill in missing gaps.

- Discuss possible resources  
Experts, books, web sites, etc.
- Assign and schedule research tasks, especially deadlines

7) Write up the solution

Students may need to present their findings and recommendations to a group or classmates.

This should include the problem statement, questions, data gathered, analysis of data, and support for solutions or recommendations based on the data analysis: in short, the process and outcome.

8) Presenting and defending conclusions

They have to prepare

- State clearly both the problem and conclusion
- Summarize the process they used, options considered, and difficulties encountered
- Help others to learn

Sharing findings with teachers and students is an opportunity in demonstrating that students have learned.

9) Review the performance

This debriefing exercise applies both to individuals and the group.

### 3. Conclusion

Students experienced cooperative learning, creative problem solving, presentation, self - directed learning, self - confidence in the PBL class. Even though PBL is new for them it was active program at all. But the learning environment should be well prepared. Mongolian students perceived it as a new and effective way to develop their experience. In the survey of this study PBL was effective in Mongolian University, 90% of the students answered that they were helpful, understanding of learning contents (87.5%), understanding of cooperative learning(81.2%), presentation skill(98.2%), communication skill(96.2%), self - directed learning ability(87.3%) and self - confidence (98.2%). Further study seems to explore strategies more effective for students.

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### Keun soo Lee

[Regular member]



- Feb. 1988 : Soongsil Univ., Dept. of Computer Science, M.S
- Aug. 1993 : Soongsil Univ.,Dept. of Computer Science, Ph.D
- 1989 ~ current : Hankyong National University., Dept. of Computer Science & Engineering (Computer system Institute), Professor

<Research interests>

Computer Vision, Image Processing, Fuzzy Theory, Motion Understanding, Video Retrieval. Ubiquitous computing, PBL, Educational Engineering, Engineering Design, and Convergence Education

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### Natsagdorj Bayarmaa

[Regular member]



- Feb. 2015 : Mongolian Educational Univer., Dept. of Economy, M.A
- Sep. 2012 ~ Jun. 2015 : Dornod Univer., Professor
- 2015 ~ current : Hankyong National Univer., Department of Computer Science & Engineering (Computer system Institute) Studying at Doctor's course

<Research interests>

PBL, Educational Engineering, Engineering Design, Accounting, Economy, and Marketing