

A Study on Problem Design for BPBL of Internet marketing subject in Mongolian Engineering College

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몽골공과대학에서 인터넷 마케팅 과목의 BPBL 적용을 위한 문제 개발에 관한 연구

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Abstract The purpose of this study is to specify the procedures in problem design to employ BPBL and to design problems for learning subject content. The design of problems is crucial for the effectiveness of BPBL. Ineffective PBL problems could affect whether students acquire sufficient domain knowledge, activate appropriate prior knowledge, and properly direct their own learning.

The procedures for designing good problems are composed of selection of educational content, figuring out the learner's characteristics, finding problems, setting roles and situations, and writing down problems. Using the procedures, we designed five integration problems covering the content of an Internet marketing subject. We can foster talent needed on a current industrial site with BPBL, not whole-class learning in a Mongolian engineering college. We made a plan for the Internet marketing subject based on BPBL in the Mongolian engineering college, and focused on the process of designing problems.

요 약 BPBL은 종전의 강의법을 지양하고 문제를 해결해 나가는 과정을 통해 학습이 이루어지도록 하는 학습자 중심의 교수법이다. 본 연구에서는 BPBL을 효율적으로 운영하기 위한 핵심인 문제개발의 절차를 구체화하고, 인터넷 마케팅 교과목 교육내용을 토대로 BPBL 학습에 필요한 문제를 개발하는 것을 목적으로 하였다. 효과적이지 못한 문제는 학생들이 충분한 도메인 지식을 얻고, 적절한 전 지식을 활성화하고 적절하게 직접적인 영향을 미칠 수 있다. 좋은 문제를 개발하기 위한 BPBL 문제 개발 절차는 핵심적인 학습목표 및 내용 선택하기, 학습내용과 관련된 실제적 맥락 설계하기, 문제의 초안 작성, 학습자 특성 파악하기, 문제 발견하기, 역할과 상황 설정하기, 문제 작성하기로 요약 할 수 있다. 문제 개발 절차에 따라서 인터넷 마케팅 교과목에서 다루고 있는 내용들을 토대로 BPBL이 적합한 5개의 통합 문제를 개발하였다. 현재의 산업 현장에서 요구 되는 인재를 육성하기 위해서는 일제학습이 아닌 BPBL을 통해서만이 가능하기 때문에 본 연구는 창의적 인터넷 마케팅 수업을 위한 BPBL 문제개발 과정에 초점을 두었다.

Keywords : BPBL, design problem, Internet marketing, Mongolian engineering college, PBL

1. Introduction

The essence of learning is learning how to learn and

learning how to think in order to meet the demands of the 21st century. Recently Mongolia has faced problem about to provide essential requirement of educational

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administration which is prepare specialists and democratic system as well as other countries. Mongolian Engineering colleges should employ a high quality education system that can be applied in this condition. Mongolian government has defined a long-term strategy and the basic principles for solve problems of social groups in local population and to bridge the gap between educational environment and focused on the improving educational environment in the most vulnerable part of society and education services for educational development. Moreover, reconfiguring the current education system and programs should adopt the standards of developed countries. Problem-based learning (PBL) is a student-centered pedagogy in which students learn about a subject through the experience of solving an open-ended problem found in trigger material. The PBL process does not focus on problem solving with a defined solution, but it allows for the development of other desirable skills and attributes. This includes knowledge acquisition, enhanced group collaboration and communication. The purpose of the study design problem of Internet Marketing subject based on Blended problem-based learning (BPBL). Including problem solving procedures and figure out the problem developing procedures for applying BPBL in Mongolian Engineering College effectively. This paper contains Research introduction in Chapter 1, The whole process of BPBL in Chapter 2, Designing problem for process of Internet Marketing in Chapter 3 and the Summary in Chapter 4.

2. The main body

2.1 The whole process of BPBL

Instructional design of BPBL

We designed BPBL problem after examining the typical instructional designs to accomplish this goal of preparing specialists of Mongolia. Designed Instructional model of BPBL (Fig.1) is consisted of

demand phase, analysis, determining performance, the assessment tool design, teaching strategies, teaching material design, implementation, formative evaluation, summative evaluation and program refining.

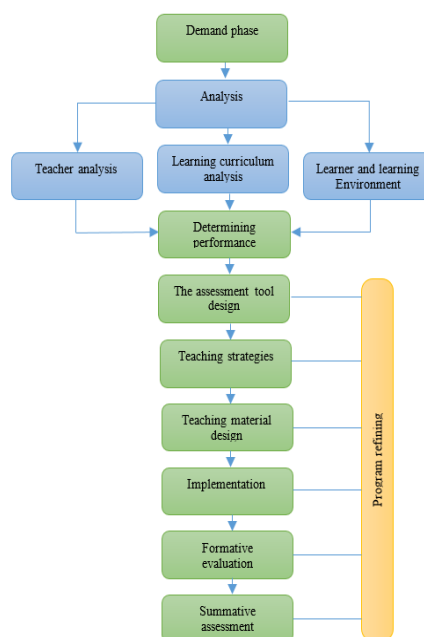


Fig. 1. procedures design for BPBL

(1) Demand phase

Determining disadvantages of changes in teaching method and distance learning conditions in Mongolian engineering college.

(2) Analysis phase

The learner and teacher characteristics, the learning environment and learning process will be analyzed.

(3) Determining performance objectives

Deciding what the learner has mastered after completing the study. Learning objectives should be defined before choosing appropriate courses for BPBL in engineering.

(4) The assessment tool design

Phase to develop assessment tools and items that can determine whether learners achieve learning objectives.

Assessment is done to acquire learning objective and close relation, so BPBL assessment standard and object are based on BPBL objective.

(5) Teaching strategies

Teaching method should be determined and various material that is used during class should be prepared to achieve learning objective[1].

(6) Implementation

Execution of BPBL in engineering. In the implementation phase, learner gains knowledge by self-direct choosing aside from seeing and listening.

(7) Formative evaluations. Program is evaluated by following steps, one to one evaluation, small group evaluation and on-site evaluation. One-to-one evaluation is evaluation of learning progress, advantage of participation, occurring trouble of individual students compared to one individual student to prescribe for individual students.

(8) Summative assessment. Phase determining the result of engineering program's last study. Formative evaluation decides whether study program met the success criteria made at the beginning. This offers study privilege about engineering program execution result.

(9) Program refining. Refining phase with content made from formative evaluation phase. Refined BPBL is improved method version by combining of self and co-learners evaluation of the engineering program.

2.2 Design problem of BPBL

The biggest feature of BPBL is that the learning starts problem. When you start learning, you discover the reason about learning through problem and designed problem tells the reason for learning is therefore expected to lead to motivation of learners. The understanding the characteristics of suitable

problem and it is important to design a great problem for effective BPBL. An important feature to consider when designing your problems can include unstructured, actuality, relevance and complexity.

(1) Unstructured problem

Problem must be unstructured in BPBL Unstructured problems (ill-structured problems) has entirely different characteristics from structured problems that are typically used at school. The biggest feature of unstructured problem solving is a process to looking for alternative solutions, setting up their own hypotheses and making up the debate to support their own beliefs and assumptions[2].

(2) Practical problems

The situation having high possibility is exist. In the situation, practical problem is refers to the problem that includes information that describes a specific, substantial data and the background of the problem[3].

(3) Considering problems of learners

In PBL students actively solve problems and become self-directed learners with the situation and role as a given[4].

BPBL problem designing elements and process

In this study, developing problem phase included selecting core learning objectives and contents, designing the practical context and related learning content, drafting problem, identifying learner characteristics, finding the problem and establishing roles and situations[5]. <Fig.2> shown the PBL problem designing process.

(1) Selecting main learning objectives and content

First step is selecting the key ideas or concepts, principles of teaching in relevant course. Then consider about typical case, homework, and assignments to aid you learning the concepts. Last list the learning objectives that must be achieved through the problem[6].

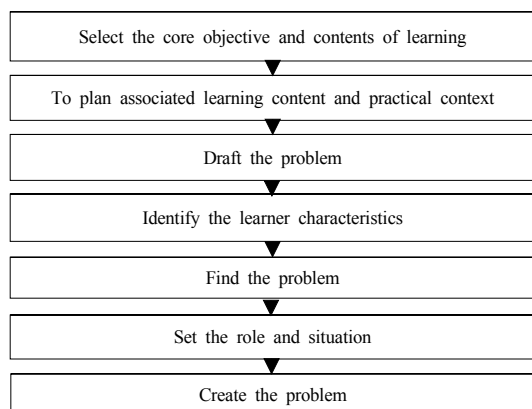


Fig. 2. procedures design problem for BPBL

(2) Designing practical context related to learning content

Consider learning goals and related real-world context to be used [2]. The learner solve the problem through case which is based on narrative or can use real world case. Also need to add motivation elements.

(3) Drafting problem

Define the problem and give introduction. Learning task must be confirmed by learners. To achieve that use the following questions.

- How first step should look like?
- How should ask an opening questions?
- What should I do the first phase?
- What kind of opening question can I ask?
- How do I structure the problem?
- How much longer is the problem?
- How much class time is required to complete it?
- What kind of materials should learners use?
- What results required to complete it?

(4) Identifying the learner characteristics

Learners should find the learning resources and materials themselves. Although, in the beginning professor should helps students by suggesting some good materials. Thus guiding is important to make learners use library. Many students usually use only internet.

(5) Finding problems

Authentic problem developing starts from an idea. Idea can arise form a free imagination and recent issues or interest of students. Then check the idea and possibilities if that can be associated with any learning content conceptually and continue relating curriculum and content in this phase[7].

(6) Establishing the role and situation

By suggesting problems, role and situations, students can have own role and be active in dealing with problems.

(7) Designing problem

Defined problem should include specific conditions that students can solve the problem and review what they need to do. The problem will be ready after modifications as in writing problem and reviewing. A good problem is related to curriculum and learning objectives. Thus we designed problems based on the curriculum.

3. Designing problem for process of Internet Marketing

When we apply the BPBL, ideal BPBL problem should be relevant to the purpose and content. Design problem based on the Mongolian businessmen needs, multiple textbooks and cases. Moreover video, stories, novels, magazine articles and research papers about recent Mongolian marketing environment. It was used to the real world resources (such as newspapers, radio, TV) or specialized books. In addition, we introduced BPBL problem designing process of Internet marketing subject in Mongolian Engineering Collage.

Table 1. Diagnostic Checklist of BPBL problem (JonIm Chue, KyngWon Jang 2010)

Standard	Answer	
	Yes	No
Does it start from the problems?	Yes	No
Does problem relate to the learning goals dealing with the concepts and principles?	Yes	No
Does it enough to be sufficiently comprehensive knowledge and skills necessary for learning?	Yes	No
Does need the analyze problems to solve problems, find information, and process to plan?	Yes	No
Is there are different solutions? Are there different methods for solving problem?	Yes	No
Is there room for debate or discussion?	Yes	No
Is actually possible case?	Yes	No
Do materials realistic for problem solving activities?	Yes	No
Does the expert in the field reflects the thinking process of the practitioners?	Yes	No
Is it suitable for level of the learners?	Yes	No
Is that ill structured problem?	Yes	No
Is it complex issues such as reality?	Yes	No

3.1 Selecting the core learning objectives and content

Firstly, core learning objectives and content of BPBL for Internet Marketing subject in Mongolian Engineering College will be selected. In the process of solving a given problem we have to achieve the learning objectives and learning should be achieved. In this study, we analysed the learning contents and explored the suitable BPBL problem. <Figure 0.3> It has been suggested that the main section of the Internet Marketing subject should be integrated to each section.

3.2 Designing the practical context which is related to learning content

Learner-centered learning is actuated in educational scene all around the world. Nevertheless, teaching method of Mongolian Engineering College is still teacher centered and passive. We are trying to establish a new strategy to achieve the goals of the learner centered BPBL in Mongolian Engineering College. We can see the effectiveness of BPBL through real life problem. The curriculum would be reconstruct to learner-centered.

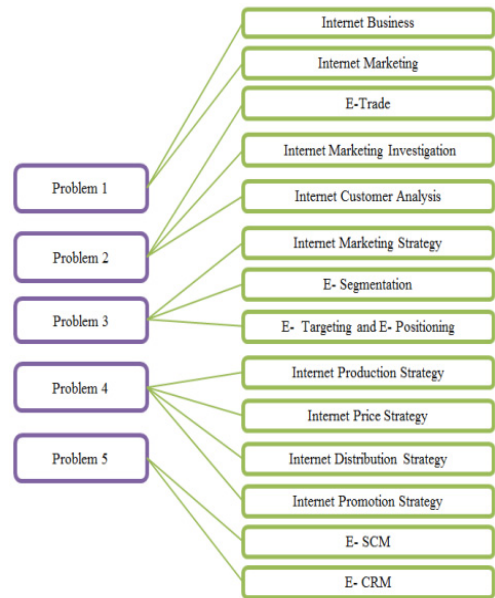


Fig. 3. The Problems of BPBL and Relative Lessons

3.3 Drafting of a problem

We tried to define and introduce the BPBL problem which suited to Mongolian Engineering students. To achieve, we investigated the following questions:

- How should we do the first introduction of BPBL?
- How should we do the first phase of the BPBL?
- What kind of open questions can we use?
- What kind of learning task can we use?
- How will we structure the problem?
- How long it take to solve problem? How much class time required to complete it?
- What kind of materials should learners use?
- How do you complete the problem, what results learners should produce?

3.4 Identifying learner characteristics

In Mongolia there have been the traditional way of thinking that teacher is the best, other than parents and education is very important since long time ago. Teachers are the most idolized person and without seeing their faces students can't learn independently. It is common belief among people that self-learning is impossible in Mongolia and learning should include

passive activities such as explaining, presenting, demonstrate, and remembering. In currently study, we provide an open educational environment that is not limited with time, space and physical condition in Mongolian Engineering Collages for future specialists. Mongolian BPBL teacher should identify the characteristics of students and effort the motivation of learning activity. Firstly teacher help learners using good sources of information related to PBL. The teacher guide the students to using the real world situation data from Internet and library.

3.5 Finding the Problem

In BPBL we provide problems through variety forms such as of video, simulation, role-playing, simulation computer not only by text. We evaluate the students based on their understanding, contents and terminologies. If the problem is difficult to understand and can not gain the attention of learners, it seems not good problem in BPBL.

3.6 Setting the role and situation

The role of instructor and learners of BPBL are unfamiliar in Mongolia. Therefore, we should submit an explanation before starting the BPBL. In the beginning of the lectures, we won't judge student's opinion to make relaxed and friendly atmosphere. We should encourage students based on the real situation of Mongolian students to attend the learning even it they are solving problem poorly and we will use an indirect questions. Since Mongolia have poor online learning situation, we should continue with a flexible mind- set to fit the actual learning environment [8]. It is important to learners have ownership of the learning problem in BPBL.

3.7 Writing the problem

We designed that problem learner can check learning task. We will understandably explain the situation and role. The students have to look for the information and do research for problem solving

because not enough provided information about the problem.

Problem 1: Current information technology, as the company research chairs to monetize the company and emphasizes the leverage Internet marketing as video review. You are an IT manager who have been working in 10 years after graduation of The Department of IT major. It was suggested from mid-sized companies that suggest a way to make a profit to the company through the Internet Marketing strategies. You have to make the company strategy of the Internet Marketing. It should be easy to understand the executives and present the Instruction of the Internet Marketing Strategy. The date will be announced below. Instruction of the Internet Marketing Strategy contained Internet business sense, the needs of the Internet business, strengths and weaknesses of the Internet Marketing, the means of mobile marketing, features of mobile marketing and significance of international marketing, the means of an electronic trade, the management of electronic trade, e-trade, e-trade issues, response measures and significant of trading in Internet Marketing. Your presentation should be carried out within 20 minutes.

Presentation day: 0000 year 00 month 00 day

4. The Summary

The aim of this study is to design the effective problem for BPBL operation through Internet Marketing subject in Mongolian Engineering Collage. Thus planning is problem designing process is based on the contents of the Internet Marketing subject. For the good problem designing we summarized as selecting the core learning objectives and content, designing practical context related to learning content, drafting problem, Identifying the learner characteristics, finding problems, establishing the role and situation and designing problem. Therefore, we designed the

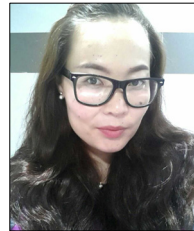
development process of the problem for the Internet marketing course. The learning content that is composed of 14 chapter and 5 designed problems. This is a valuable problem solving method to apply BPBL in Mongolian Engineering Collage as suitable model of modern demand. It will be support human resources which required in Information and Communication Technology-based society through effectively applying many teachers in Mongolian Engineering Collage.

References

- [1] Weiss, R. E Designing problems to promote high-order thinking. In D. Knowlton and D. Sharp(Ed.), Problem-Based Learning in the Information Age pp.25-31 CA: Jossey- Bass Publishers, 2003. DOI: <http://dx.doi.org/10.1002/tl.109>
- [2] Jon Im, Che, Kyong Won, Jang “Study on PBL” pp. 26-57. 2010.
- [3]Trop, L.,& Sage, S., Problems as possibilities: Problem Based learning for k-16 education(second Ed.). Alexandria, Virginia: Association for Supervision and Curriculum Development. pp. 10-11, 2002.
- [4] Jeong- Im, Choi, A Study on the problem design priciple for Problem Based learning through the case analysis, Educational Technology Research, Vol. 20, No.1, pp. 37-61. 2004.
- [5] Sharing center to learn of the Maeng Ja Saem
- [6] Y. S. Cho, H. J. Lee, E.J. Baek and H.H. Lim, A study on the procedure of Problem- Based Learning, The Journal of Curriculum Studies Vol. 21, No. 3, pp. 215-242.2003
- [7] Keunsoo, Lee “A study on Problem Design for PBL in Creative Engineering Design Subject” Vol.8, No.6, pp 5. 2012.
- [8] Oyunsuren Buriad “A study on Learning Environment and Design for Cyber Education in Mongolia” pp 17-22. 2013.

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