

**Problem - Based Learning on Achievement in Local Curriculum
Development of Students in Faculty of Education
Nakhon Si Thammarat Rajabhat University**

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ABSTRACT

The purpose of this research is to compare the learning satisfaction and learning achievement before and after using activities designed on problem-based learning of the students in the Faculty of Education Nakhon Si Thammarat Rajabhat University. The sample of this research was consisted of 33 graduate students in Science program in the first semester of academic year 2016; they were selected by purposive sampling. They were instructed by using Problem-based learning for 12 hours. The research instruments consisted of a lesson plan for the problem-based learning under the topic of local curriculum development, achievement test, and instructional satisfaction test. The experimental research was conducted using one group pretest-posttest design. The data was analyzed by mean, standard deviation, t-test dependent group.

The findings are as follows:

1. The Learning achievement of students by Problem- based learning is higher than the pre-test mean score of at the significant level of .05 The learning achievement in Local Curriculum Development of Students level are good.

2. Instructional satisfaction was high and students are able to recognize, analyze and solve problems on their own under working together. Assertive comment, enthusiasm, responsibility, able to find information themselves and a summary of what was learned. As a result, students learn deeply and happily, build good relationships and develop communication skills from learning experience. They are impressed and proud of their successful work.

**Keywords: Problem - Based Learning, Learning achievement, Local Curriculum
Development**

1. Introduction

Education is a very important process in developing people. Quality management of education in a way that is appropriate to the economic, social, political and cultural needs of the country will improve the quality of life of Thai people as a desirable approach with time and the context of Thai society. The main aim of education reform is to create a person of learning, the learning organization, and the learning society to provide the learners with basic skills necessary for good health, body and mind, ability to think and seek knowledge, responsible, honest, generous, tolerant, democratic, patriotic, religious, monarch based Thai culture. (Nuttapak Sripiboon. 2007: 1)

Problem-Based Learning is a teaching technique that encourages learners to practice self-efficacy, with the essential aspect of problem-based learning management, that is, learners are at the center of learning. Learning takes place in a small group of students, with instructors as facilitators using the problem as an incentive for students to seek self-knowledge. This will help students solve problem solving skills and to deepen the learning to promote teamwork provides opportunities for communication skills, problem solving, and critical thinking. Finding conclusions when conflicts occur, the learner understands how long it takes to memorize, to learn and to support self-learning. It will develop learners into lifelong learners. As a result, it can be practiced happily and effectively. (Wongdeun Wongpan. 2008: 4).

Problem-based learning in this study found that: 1) the learner-centered learning management was 2) the learning came from collaborative learning in a small group. 3) The instructor is the facilitator and the learner is the one who sees the problem and solve problems manually. 4) Real-based problem which helps frame the concept 5) Problem is what will lead to learning and developing thinking skills and problem solving. 6) New knowledge will arise by self-learning the results of the past. The problem was solved by using the problem-based teaching method. Achievement the mean score of problem solving ability of the students after the experiment was significantly higher than before the experiment ($p < .05$). (Songtham Plabpla, 2010, Suwannawong Vichien. 2010)

Problem-based learning is consistent with educational reform in accordance with the National Education Act BE 2542 (1999). Section 4: Educational guidelines in Section 22 and 24 discuss the educational management approach. All students have the ability to learn and develop themselves and most importantly, the students are considered. The educational process must encourage students to develop naturally and to maximize their potential. The process of learning in educational institutions and related organizations, organize the content and activities in accordance with the interests and aptitudes of the learners taking into account the differences between individuals. Practice of thinking process, management, coping and the application of knowledge to prevent and solve the problems of activities to learn from the experience. Practice is to love reading and continuous pursuit of knowledge. (Office of the Secretary of the Council for Education. 2007: 18). We focus on the learner. Focus on skill development and problem solving by teaching and learning in accordance with real life. Consider the difference between individuals and focus on organizing. Teaching activities in the form of group processes.

From the current state of learning management and concepts, researchers are interested in studying the problem-based learning management model as a guideline for teaching and learning in curriculum development. This is a compulsory course. In the teacher profession of the Faculty of Education in order for the learners to develop their problem-solving skills, the learners can apply their knowledge to solve the problem effectively. The results of this research will be an alternative for the instructors in other courses to be used in the diversified learning management. The students are expected to develop their desirable qualities according to the standard framework of higher education. This is to improve the quality of education and to further the development of the country.

2. Research Objectives

1. To compare the learning satisfaction and learning achievement before and after using activities designed on problem-based learning of the students in the Faculty of Education Nakhon Si Thammarat Rajabhat University

2. To study students' satisfaction toward learning problem-based learning activities of students in Faculty of Education, Nakhon Si Thammarat Rajabhat University.

3. Research questions

Bachelor of Education Program Science The problem solving process is based on the problem-based learning and satisfaction in problem-based learning management.

4. Terminology

1. Problem-based learning management refers to allow students to create new knowledge from the problematic situation as a stimulus for students to seek knowledge to solve problems and students learn to work together as a group.

2. Student refers to second year students in science enrolled in Curriculum development. There are 33 students in the second semester of academic year 2013.

3. Achievement test means a tool to measure student's learning ability. This is measured by the achievement test after learning Curriculum development. There are 60 multiple choice tests.

4. Student Satisfaction Scale is a tool to measure students' perceptions about the problem-based learning activities. There are 45 items.

5. Research scope

5.1 Population used in research

The populations used in this research are undergraduate students of the Faculty of Education, Nakhon Si Thammarat Rajabhat University. 320 students enrolled in the first semester of academic year 2013

5.2 Research samples

The sample used in this study. This is an undergraduate student at the Faculty of Education, Nakhon Si Thammarat Rajabhat University. The 33 students enrolled in the first semester of the academic year 2013 were randomly selected from the group.

5.3 Variables studied

5.3.1. Independent variables are problem-based learning management.

5.3.2. Variables based on learning achievement.

5.4 Duration of Research

Experimental work in the first semester of the academic year 2016 for a period of 12 hours.

6. Research Tools

6.1 Learning Management Plan that organizes learning activities using problem-based learning activities.

6.2 Achievement Test for Curriculum Development for Local Curriculum Development. The researcher constructed a set of 60 multiple choice tests.

6.2. Student Satisfaction Model for Learning Activities Based on the Problem of Students in Science. This is a 45-point scale.

7. Collection of data

7.1 Experimental plans

This study is Experimental Research. The experiment was carried out using one group pretest-posttest design.

7.2 Procedures for conducting the experiment and collecting data

7.2.1 Prepare students for teaching. Introduce learning methods using problem-based learning activities.

7.2.2. Pre-test.

7.2.3 Conduct experiments on teaching activities and development of curriculum using problem-based learning.

7.2.4 Posttest testing after the experiment was completed using the Academic Achievement Test. The same study was conducted before the experiment with 2 hours of research.

7.2.5 Apply the Student Satisfaction Model to the Problem-Based Learning Activity of students in science in the course of curriculum development inspected by experts. Apply to the sample students.

8. Data Analysis

8.1 Basic statistics: percentage, mean, and standard deviation.

8.2 Statistics hypothesis test Dependent Sample t-test was used with statistical computer program for behavioral and social data analysis. To compare learning achievement before and after class.

9. Summary of research results

The results of the research are divided into 3 sections.

Part 1 Comparison of learning achievement before and after learning by organizing problem-based activities of students in science, Faculty of Education, Nakhon Si Thammarat Rajabhat University. The results are shown in Table 1.

Table 1. Comparison of pre-and post-study achievement scores by organizing learning activities using problem-based learning of students in science, Faculty of Education, Nakhon Si Thammarat Rajabhat University

Test	n	\bar{X}	SD	t
Pre - test	33	71.79	22.30	4.57
Post – test	33	89.2.	16.45	

* There were statistically significant at .05 level.

From Table 1, it was found that students who received learning activities using problem-based learning of students in science, Faculty of Education, Nakhon Si Thammarat Rajabhat University has average grade point average after class. Statistically significant at the .05 level.

Part 2 Results of the problem-based learning activities. Students of the Faculty of Education in Curriculum Development. The results are shown in Table 2.

Table 2 Student Satisfaction by Problem-Based Learning Activities Classified by Subject The learning activities. Atmosphere in learning. The benefits of learning.

Side	\bar{X}	SD	translate
The learning activities.	4.64	.319	The most

Atmosphere in learning.	4.66	.368	The most
The benefits of learning.	4.78	.308	The most
Include	4.69	.265	The most

Table 2 shows that by student overview on the other hand, it was found that students ranked first in terms of learning benefit (\bar{X} = 4.78). Second ranked was learning atmosphere (\bar{X} = 4.66) and rank Third, the learning activities (\bar{X} = 4.64)

Part 3: Student Satisfaction Based on Problem-Based Learning in the course of curriculum development. The results are shown in Table 3.

Topics	Satisfaction level					\bar{X}	SD	translate
	The most	Much	moderate	little	least			
The learning activities.								
1. Students have the opportunity. Follow the map.	24	9	-	-	-	4.73	.452	The most
2. Students enjoy learning activities.	21	12	-	-	-	4.64	.489	The most
3. Students are free to study. Share comments	26	7	-	-	-	4.79	.364	The most
4. Encourage students to think. Performing in problem solving and creativity.	21	11	1	-	-	4.61	.556	The most
5. Encourage students to identify problems, analyze causes, find solutions to problems, plan and actually solve problems.	28	5	-	-	-	4.85	.364	The most
6. Encourage students Learn from actual problems in the community.	19	13	1	-	-	4.55	.564	The most
7. Help students to study. Get knowledge from various sources and communicate better with others.	21	12	-	-	-	4.64	.489	The most
8. Problem-based learning management helps students work in a systematic manner.	18	15	-	-	-	4.55	.506	The most

9.	Help students have the ability to solve problems, understand problems and identify problems. Cause of the problem. More clearly	23	10	-	-	-	4.70	.467	The most
10.	Can lead the thought process to train. Applied in Daily life as well as learning in other learning groups.	28	5	-	-	-	4.85	.364	The most
Included							4.69	.265	The most

From Table 3, it was found that the satisfaction of students who had been using problem-based learning activities in the course of curriculum development. Overall, the students agreed with the highest level (\bar{X} = 4.69). Most on all topics when considering each item, it was found that the topic with the highest average score was the promotion of students. Think of acting for solutions and creativity. It can be used to apply the thinking process. Daily life (\bar{X} = 4.85), followed by independent study exchange of ideas (\bar{X} = 4.79) and students have the opportunity. Follow the map (\bar{X} = 4.73).

10. Result

The research results are as follows:

1. Academic Achievement of Science Students, Faculty of Education, Nakhon Si Thammarat Rajabhat University by using problem-based learning with average grade point after class at the .05 level, it was consistent with the research conducted by Pornporn Namnorin (2011) that students had higher learning achievement than before and consistent with the research of Narinthorn Ratanata (2011) on the understanding of the concept of science and the ability to apply the learning process using the problem of radioactivity found that learners have higher learning achievement after learning than before statistically significant at the .05 level.

2. The results of the problem-based learning activities of science students in the course of curriculum development, was found that encouraging students to express their ideas for problem solving. And creativity students' s will be able to solve problems. Understand the problem and identify the cause of the problem more clearly. In this study, it was found that self-centered learning activities were taught by Narinthorn Ratanata (2011). You can find the knowledge by yourself. Plan to solve the problem is a step. They can present their findings to others.

In addition, the results of the problem-based learning activities also found that the students exchanged ideas with their teachers. This results in better relationships between teachers and students. In addition, the students are enthusiastic in learning, fun, not tired, practice; participate in solving problems, enthusiasm in learning rather than lecture. In this study, it was found that learning by using problem-based learning the learner has a very high self-development in the field want to learn something new. It is fun to find answers about

problems and have fun with problem-based learning in which teachers do not use lectures, but encourage students to find answers themselves.

11. Suggestions

11.1 Suggestions for the use of research results-

1. In the management of problem-based teaching and learning, the instructor should use the problem-based situations that will be used in the learning process should be an open end problem for students to answer freely. It is an important problem that covers the content that the instructor wants to learn and directly related to the daily life of the learner. In order to encourage students to learn and be motivated to solve the problem. In addition, the instructor must be motivated by the use of questions or problems that help learners to think to solve problems.

2. In the management of problem-based teaching and learning, there is a need to investigate and research to be used in the solution. Therefore, the instructor will have to prepare and provide sufficient and appropriate resources for the students. In order to provide the learners with the information they need to solve the problem accurately and correctly.

11.2 Suggestions for future research

1. The problem-based learning model should be applied to research on learning management in other subjects and other learners to help students learn more effectively.

2. In addition to measuring learning achievement using a set of problem-based learning management sets. It should be measured in other areas, such as search skills and problem solving skills analytical thinking skills and synthesis skills.

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