

The Development of Problem Solving Skills through Problem-Based Learning in Economics in School Course

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Abstract

Problem-solving was necessary skill during the 21st century. According to the advanced social change, the traditional knowledge management focusing on the lecture which did not facilitate the problem thinking skill. The problem-based knowledge management was the instructional model, which could enhance the students' problem-solving skill. The objectives of this research were: 1) to develop students' problem-solving skill by using the Problem-Based Learning in Economics in School Course so that not less than 70% of students would have scores passing the specified criterion 70% of full score, and 2) to study the students' satisfaction on Problem-Based Learning in Economics in School Course. The target group of this study was 32 second-year students who enrolled in Learning in Economics in School Course during the first semester of the 2017 academic year. There were 3 kinds of research instrument: 1) the instrument using for action including 9 problem-based plans, 27 hours, 2) the instrument using for reflecting research findings including the teachers' teaching behavioral observation, the students' learning behavioral observation, and 3) the instrument used for evaluating the action performance including 5 multiple choice items of problem-solving skill, and 15 items of 5 level of rating scales for evaluating the students' satisfaction. Data were 2 it is analyzed by using the statistics including percentage, mean, and standard deviation. The research findings found that: For the students' problem-solving skill through problem-based learning in Economics in School Course, there were 25 students or 78% passing the specified criterion out of 32 students who were higher than the specified standard 70%. Also, the mean score was 42.7 9 points or 71.33% out of 60 points, passing the specified criterion 70%. For the students' satisfaction in problem-based learning in Economics in School Course, in overall, it was in "High" level (Very Satisfied). This research was classroom action research. It is beneficial for improving social studies teachers to develop future students. The students can continuously learn by themselves; it allows them the opportunity to achieve the goal of life-long learning and to become a person of quality for the 21st century.

Keywords

Problem Solving Skills; Problem-Based Learning; Satisfaction



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INTRODUCTION

Problem-solving is an essential skill for the 21st century because, in today's society, there are many problems to

encounter, such as work problems, life problems, and personal problems. Thus, problem-solving is a vital skill for carrying on one's life. Therefore, in teaching,

teachers should help and support students to acquire the necessary problem-solving skills and to be able to apply them in real life situations.

The Social Studies branch at the Faculty of Education of Khon Kaen University is responsible for producing teachers in the fields of Social Studies, Religion, and Culture. It is necessary to produce competent and proficient teachers. Moreover, the learning program can be managed in such a manner that students can efficiently acquire the necessary knowledge to strike a balance in three areas knowledge, morality, and values. Economics is a compulsory school course in the Bachelor of Education curriculum. The Social Studies branch focuses on basic knowledge of Economics for solving economic problems at both the household and the community levels. However, interviews with students who had enrolled in the course showed that most of the teachers had given lectures which had resulted in the following: 1) less participation by the students and 2) fewer learning opportunities, and 3) fewer learning alternatives. It was found that some content had been too difficult to understand and to be applied to daily life when having to solve economic problems.

These factors had caused the students to have a lack of enthusiasm for the lessons and activities that could potentially help them practice their problem-solving skills.

From the conditions of the problems, the researchers found that improvements needed to be made in learning management, especially in those areas that can assist students in developing their problem-solving skills by applying problem-based learning. The reasoning is that students can learn how to deal with problems from situations and environmental settings, which are similar to real life. The problems that the students have to encounter in their lives can stimulate and develop their problem-solving skills in order to assist them to logically solve their problems. As a result, the students must act and make decisions about what they are seeking by themselves and must learn to work as a team with other people, this is what the students can gain from their learning (Silanoi et al., 2017; Office of Education Council, 2007; Barrows and Tamblyn, 1980; Delisel, 1997; Trop and Sage, 2002). Blumberg (2000) found that problem-based learning can help students acquire skills by themselves; to improve their learning strategies until they become successful, which is

considered high-level process; and to improve their learning by themselves.

Hence, the researchers were interested in problem-based learning in Economics school courses with the aim of developing problem-solving skills by using problem-based learning for students. Furthermore, they sought to help no less than 70 percent of the students to pass with 70 percent of total scores. Moreover, regarding problem-based learning, this study also aimed to examine the students' degrees of satisfaction. Furthermore, it sought to examine the requirements that they become able to develop and to apply problem-solving skills and in the process, become fonder of the learning process. Finally, they should become people of quality who are able to accomplish the following: 1) to solve economic problems within their families, 2) to apply the knowledge in the public arena, 3) to start thinking for themselves, 4) to be self-determined, 5) to become more responsible and competent in planning, 6) to become fond of learning, and 7) to be able to control themselves. Furthermore, they should become individuals who undertake life-long learning and who should be able to adjust to social and economic changes quickly.

LITERATURE REVIEW

Based on a study of the documents and related research about problem-solving skills, satisfaction, and problem-based learning, it was found that problem-solving skills represent a high level of competency (Quellmalz, 1985). There are 4 phases of Problem Management procedures which are as follows: 1) problem identification, 2) the causes of the problem identification, 3) finding the solution, and 4) verifying the solution (Weir, 1974; Polya, 1973). The students need to practice systematic thinking. Therefore, the researchers will develop a teaching innovation to develop the students' problem-solving skills. Problem-based learning is likely to help develop problem-solving skills in the school course of Economics.

Moreover, from studying the related theories, it was found that problem-based learning focuses on the students. By utilizing problems as a stimulus for learning, the students can acquire new knowledge by themselves by developing their thought processes until the solutions are decided. There are six steps to solving problems: 1) Connecting with the problem,

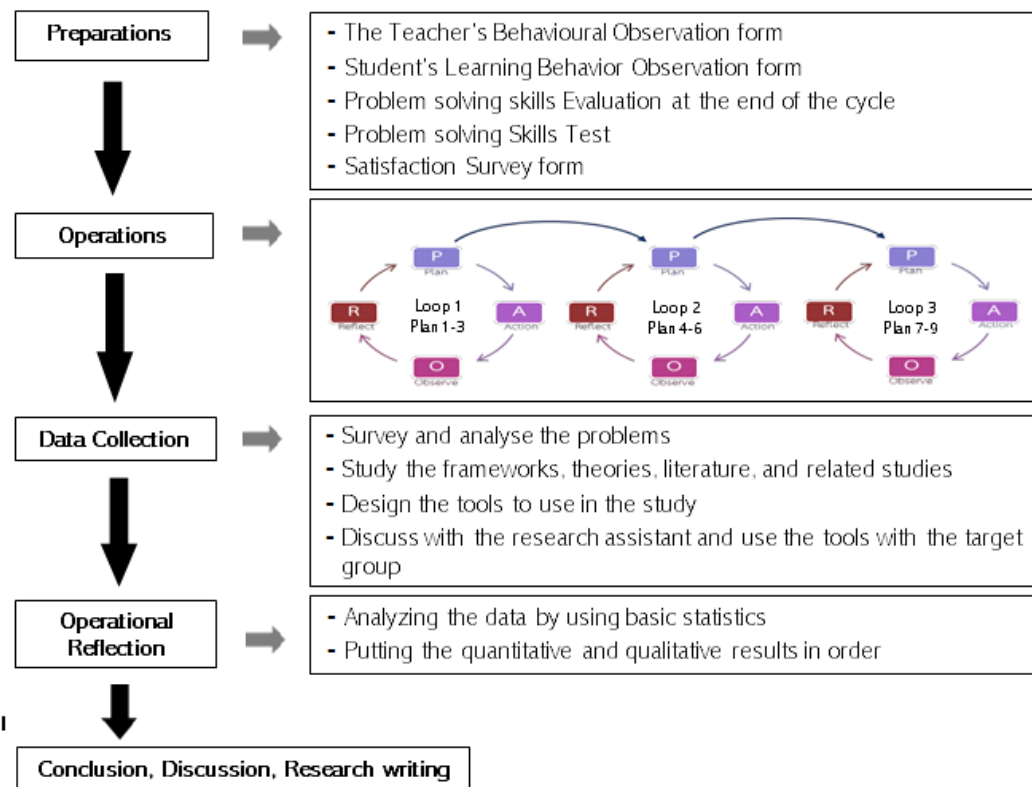


Figure 1. The Procedures of Operational Research.

2) Setting up the Structure, 3) Visiting the Problem, 4) Reversing the Problem, 5) Producing a Product or Performance, and 6) Evaluating Performance and the Problem (Delisle, 1997; Trop 5 and Sage, 2002; Office of Education Council, 2007). Also, if the students were able to express positive feelings about what they are doing (Feldman and Arnold, 1983, they would start to think for themselves, to become more determined, to become fonder of learning, and would be better able to control themselves when they are learning.

METHODOLOGY

This study is classroom action research, carried out in the classroom (Kemmis, McTaggart, and Skeritt, 1998), and follows the action cycles called PAOR, standing for Planning, Action, Observation, and Reflection. The target group was 32 second-year students majoring in Social Studies who enrolled in Economics in school course in the First Semester of the 2017 academic year. The procedure was as follows:

The tools used in the study consisted of the six steps of problem-based learning plans (Delisle, 1997; Trop and Sage, 2002; Office of Education Council, 2007). The six

steps are as follows: 1) Connecting with the problem, 2) Setting up the Structure, 3) Visiting the Problem, 4) Reversing the Problem, 5) Producing a Product or Performance, and 6) Evaluating the Performance and the Problem. The 9 plans (27 hours with 3 plans for each cycle) included the following: (1) Teachers Behavior Observation form; (2) Student's Learning Behavior Observation form; (3) The 3-item Subjective Test to evaluate the problem solving skills at the end of the cycle; and (4) Evaluation tools which was comprised of a 5-item subjective test to evaluate problem solving with 60 total points. The evaluation consisted of a Rubric, which was used to evaluate four skills: 1) identifying the problem, 2) identifying the causes of the problem, 3) finding the solution, and 4) verifying the solutions (Weir, 1974; Polya, 1973). Finally, there was a 5 level satisfactory survey with three parts (15 items) as follows: 1) learning management, 2) learning environment, and 3) the benefits derived from problem-based learning.

The researchers collected the data in the following manner:

1. An orientation was held to inform the students about the following: a) problem-based learning, b) the roles of the teachers and students in the learning activities, c) the economic content of the school course, and d) the system for evaluations.
2. There were nine plans, (27 total hours for problem-based learning activities), which covered knowledge about action research and PAOR cycles according to Kemmis and McTaggart (1990). There were three cycles in the operation of the learning management plan (1-3), (4-6), and (7-9). While teaching, the researchers and assistants collected the data from the management of the learning activities by the learning management plan by using the research tools. The data from operation reflection was used to improve the learning plans for the next cycle. After finishing learning management for each cycle, the researchers evaluated the students' problem-solving skills and examined the students' learning behavior observation forms.
3. When all learning activity plans and cycles had been finished, the researchers had the students complete the problem-solving skills evaluation and the satisfaction survey. The scores

were coded and then were later analyzed.

The analyses of the scores from the test compared to the criteria showed that more than 70% of the students had passed with 70% of the total score. It shows that the results of the satisfaction survey of the students toward problem-based learning in terms of mean and standard deviation are valid.

RESULTS AND DISCUSSION

This study can lead to the development and improvement of the students' problem-solving skills. From examining the development of the students' problem-solving skills using problem-based learning in an Economics in a school course, it was found that 25 of 32 students (78%) had met the required scores, which is higher than the set criteria of 70%. The average score was 42.79 out of a total of 60, which was 71.33% and which exceeded the set score of 70%.

Furthermore, there had been nine problem-based learning plans, and the students had practiced their problem-solving skills through the 6 steps of the problem-based learning process. Each activity had encouraged them to think systematically and had presented

situations that could engage them in participating in problem-solving (Trop and Sage, 1998). This was their opportunity to further enhance their knowledge and to develop the target skills, such as gaining knowledge that is consistent with real-life content and can be applied in real life situations; developing the skills of critical thinking, analytical thinking, rational thinking, synthetic thinking, and creative thinking; and finally, gaining practice in 8 they are thinking to effectively solve problems.

Moreover, the students were able to continuously learn by themselves, which can lead to life-long learning, an important quality for people in the 21st century (Suwanno, 2016). This corresponds to findings from Blumberg (2000) who stated that problem-based learning encourages students to make efforts, to develop ways of learning until they reach higher level processes, and to be able to improve their learning by themselves. The results of the study are related to Reynold & Hancock (2010) who studied Learning Management in an Environmental Technology curriculum. They found that problem-based learning is one means to practice problem-solving skills in real life because students were able to gain more

knowledge via problem-solving skills. Also, problem-based learning study was conducted by Krongthong Kairiree (2010), at the International College of Suan Sunandha Rajabhat University, and the results indicated that problem-based learning had improved the students' English skills.

Based on the data from the students' level of satisfaction in problem-based learning in an Economics in a school course, the findings showed that overall, most of them had been Very Satisfied (average 3.98, SD = 0.36). Because problem-based learning offers interested problem situations for the students (Trop and Sage, 1998), they had tended to accomplish the following: 1) to participate more in the learning activities that are student-focused, 2) to seek knowledge and find the answers by themselves, and 3) to interact with other people. The teachers had acted only as facilitators in these activities. Reynold & Hancock (2010) also studied Learning Management in the curriculum for Environmental Technology and found that the students had shown better attitudes after participating in problem-based learning class.

CONCLUSION

Problem-based learning offers an alternative means to help students to accordingly develop their levels of competency and proficiency. Given that with problem-based learning, the students can continuously learn by themselves, it allows them the opportunity to achieve the goal of life-long learning and to become a person of quality for the 21st century. From this study, it was found that when students are in the process of learning via problem-based learning, they will learn to think in different ways (ranging from basic levels to high levels), will be more confident in expressing and will express qualities of leadership. Therefore, it is possible to apply problem-based learning to the development of social skills and leadership skills for the students, which are important skills in today's society.

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