



## The Implementatyion Off Problem Based Learning Model (PBL) on Teachers and Students Grade Five Elementary Schools in Surakarta City

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### Abstract

The role of teachers is crucial in the learning process to create a quality learning atmosphere to make the quality of output well. The fact shows that there are still many obstacles in the field related to the role of competent and professional teachers. There are still many students who have not been able to optimally apply the results of education in school into real life. This is what needs to get attention. Teachers as the spearhead of the success of national education goals should take the responsibility. This study aims to find out how the form of planning and implementation of learning in elementary schools is in applying the model of PBL, and how students' achievements are in solving problems. The research employed a descriptive method, and the data collection is done through questionnaire, test, and interview. Data analysis is statistically descriptive with the calculation of percentage and graph. The results showed that the planning and implementation of learning with Problem-Based Learning (PBL) are still low on average. The lowest score of teacher questionnaire results is on implementing scientific learning with score 29.7% and understanding of new scientific steps with score 30%. Student learning outcomes are measured through tests with three categories which indicate the percentage of students in completing the lowest test in the problem-solving

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## INTRODUCTION

Primary School Education in Indonesia is currently in the process of implementing the 2013 curriculum. According to data from Kemendikbud (2017), primary schools have implemented Curriculum 2013 on a regular basis of 51,660 schools and 783 schools independently from approximately 147,000 Primary Schools in Indonesia. There are still many schools that have not implemented the 2013 curriculum. The implementation of the 2013 curriculum requires a lot of preliminary processes, including the provision of teachers, school readiness, and the readiness of teaching materials.

The essential change in the 2013 curriculum is the paradigm shift of the teacher-centered learning process towards student-centered learning. One of the implementations of student-centered learning is through learning with a scientific approach. Daryanto (2014) states that the learning of a scientific approach is a process of learning designed so that students actively construct concepts, laws or principles through observing stages, formulating problems, proposing or formulating hypotheses, collecting data with various techniques, analyzing data, drawing conclusion, and communicating the concepts, laws or principles found.

To support teachers' readiness to teach with a scientific approach, teachers should understand some active learning models such as project-based learning, problem-based learning, discovery, inquiry, and the like. Teachers must have the strong competence and commitment to succeed the implementation of the 2013 curriculum. Teacher competence and teacher professional commitment are interrelated (Akram, Malik, Sarwar, Anwer, & Ahmad, 2015). Teachers should always maintain the sustainable profession development.

Teachers play the crucial role to organize learning and coordinate all the components that affect students in the learning process to support the success of student achievement (Simon, 2016). Professional learning provides an important framework for the conceptualization and formation of applying professional development for teachers (Luft, & Hewson, 2014). Teachers should be able to prepare, implement, and assess learning outcomes, choose and use appropriate learning interaction models, manage classes, and guide students appropriately (Sukmadinata, 2003).

Understanding the ability and personality of students, it cannot be said that the quality of learning in Indonesia is still considered not well measured by the learning process or student learning outcomes. Various studies reveal that the learning process in the classroom generally does not run interactively to foster creativity, critical power, and the ability of student analysis (Kemendikbud, 2015). Achievements of the quality of education in Indonesia which is still far below the achievements of developed countries or even under the neighboring countries of Indonesia is a record in improving the quality of education in Indonesia. The value of PISA Mathematics in 2012 shows the average achievement of Indonesian students' competence which is below the international average score (Ina, at all, 2012). This condition puts Indonesia under Singapore, Malaysia, Thailand or even Vietnam (Kemendikbud, 2015).

Some teachers as trainers from various countries, after analyzing data from the TIMSS results, concluded that teacher development is excellent for both students and teachers. Therefore it is necessary to conduct research on the importance of professional development programs (Luth & Hewson, 2014). Professional development in general aims to improve the quality of education services in schools / madrasah in order to improve the quality of education. Professional development benefits teachers and students. For teachers, it gives assurance to teachers to master science and technology and strong personality in accordance with the profession of dignified, attractive, and competitive choices in order to be able to deal with internal and external changes in 21st-century life during his career (Kemendiknas 2010).

The problems of this research are 1) How is the form of lesson planning conducted by the teacher in involving the students' active learning, 2) what is the portrait of applying learning PBL model in Surakarta Elementary Schools? 2) how is the student ability in solving the problem in science lesson in class V of elementary school? Considering the problem, this research is aimed to know: 1) the form of lesson

planning done by the teacher in involving student's activity, 2) the extent to which teachers apply scientific study with PBL model to face the application of the 2-13 curriculum. 2) How is the students' ability in solving the problem in science lesson in class V of elementary school?

Lessons learned through PBL are expected to help teachers to teach actively and make students into learning centers. In PBL learning, the emphasis is on promoting student-centered learning (Mubuukea, Louwb, Schalkwykb, 2016). Additionally, the student-centered learning with PBL is dominated by conditions that facilitate learning such as learning with small groups, more active learning and independent learning (Alrahlah, A. 2016). The teacher acts as a facilitator by directing, guiding, and assisting students in the learning process.

Learning essentially aims to produce students who have extensive knowledge, good attitude, strong skills and can apply it in life to solve the problems they encountered. That is the importance of teachers to do learning strategies that engage students to solve real-life problems. Ward & Lee (2002) PBL is a learning model that involves students to solve a problem through stages of scientific method so that students can learn knowledge related to the problem and also have the skills to solve the problem. The learning with PBLs started with problem analysis, self-study, and reporting is essential to predict student ability (Yew & Gohb, 2016).

Problem-based learning focuses on the problems faced by students so that there is a common problem-solving process by working together in small groups to find solutions (Wurdinger, S & Rudolph, J. 2009). Problem-solving in PBL with scientific method includes defining the problem, brainstorming process, preparing hypothesis, doing simple research, discussion about phenomenon obtained from observation, and compiling conclusion as a solution of problem-solving (Yaqinuddin, 2013). While teaching with the scientific method, the teacher should encourage students to develop a deeper understanding of the research; even the teacher should present the scientific methodology as best as possible (Keyes, 2010).

Principles in PBL are student-centered learning, problems as starting points, working in groups with peers, solving problems sought from various sources, students collecting information and knowledge independently of real life (Tilman, 2017). Hung (2013) highlights the practical dynamics of PBL as a learning method that prepares students to solve real-world context problems that are easy to find by students. The process of solving problems by gathering information and processing it so that the information really be the solution to the problem to be discussed. The process of gathering information should be organized through a process of planning, thinking, discussion, reviewing information and re-communicating (Baysal, 2017).

PBL provides the widest opportunity for students to practice finding something new. PBL as a learning strategy based on constructivism is the concept that learners build their own understanding by connecting concrete experiences to existing knowledge in which the processes of collaboration and reflection are involved (Ajai, Benjamin, Imoko, Emmanuel. O'kwu. 2013). Alrahlah research results (2016) explained that PBL is very effectively applied in dental education. She believes that PBL train students to learn to become associates, enhance their sense of responsibility, work as a team, cope with changing circumstances, gain lifelong skills, improve critical thinking, train analysts, and solve real problems. The results of the study of (Sungur et al., 2006) revealed that PBL had been shown to improve interpersonal skills, critical thinking, seeking information, mutual respect, teamwork, improving students' abilities in collaboration, self-regulation, metacognitive thinking, and striving to obey the rules.

PBLs are often adapted to earlier program designs where learning outcomes typically include the ability to synthesize prior knowledge, master new concepts, and improve technical and professional skills (Pembridge & Parette, 2010). Subjects and programs use the problem as a motive and center on student activity. These issues are based on specific matters of the existing theme.

According to Roopashree, B.J. (2014), learning cycle with PBL model has several characteristics, among others: starting with problems given to students, conducting experiments or data collection activities, identifying concepts that must be mastered to solve problems, reassembling to discuss and share

experiences that have been learned, determining collaborative solutions with peers in their group. The problem-solving and learning process, PBL students collaborate to solve the problem and learn in small groups. This collaboration component is to help students develop social, interpersonal, collaborative. In this learning environment, students are acculturated to practice these skills and ultimately internalize them into their fundamental dispositions toward learning (Hung, 2015).

## METHOD

The research used a descriptive method which will explain the real condition that exists in the field of the learning activity in elementary school. The time of the study was at the beginning of the academic year 2016/2017 January - March 2016. The place of research for data collection from students was obtained specifically from Elementary School in Serengan subdistrict, but the data from teachers were obtained from the samples of elementary school teachers who teach class V in the city Surakarta.

The data source in this research is a group of students consisting of 80 students from three classes of grade V in Serengan Surakarta Subdistrict and 50 elementary school teachers in all cities of Surakarta who were chosen randomly as sampling. The technique of collecting data is done through three ways, namely: interview, test result document, questionnaire.

## RESULTS AND DISCUSSION

80 students from 5 schools were chosen as sample. Learners were given test questions in the form of problem-solving. A total of 80 students given the test, as many as 43.33% of the total number achieved minimal completeness with essay problems, with the standard of completeness 75. The percentage of students who can do the problem of multiple choice with the category of understanding is 60%, while the percentage of students who answered true with the short answer model is 51.66%. Among the results of three categories, the lowest percentage value is the type of essay problem .

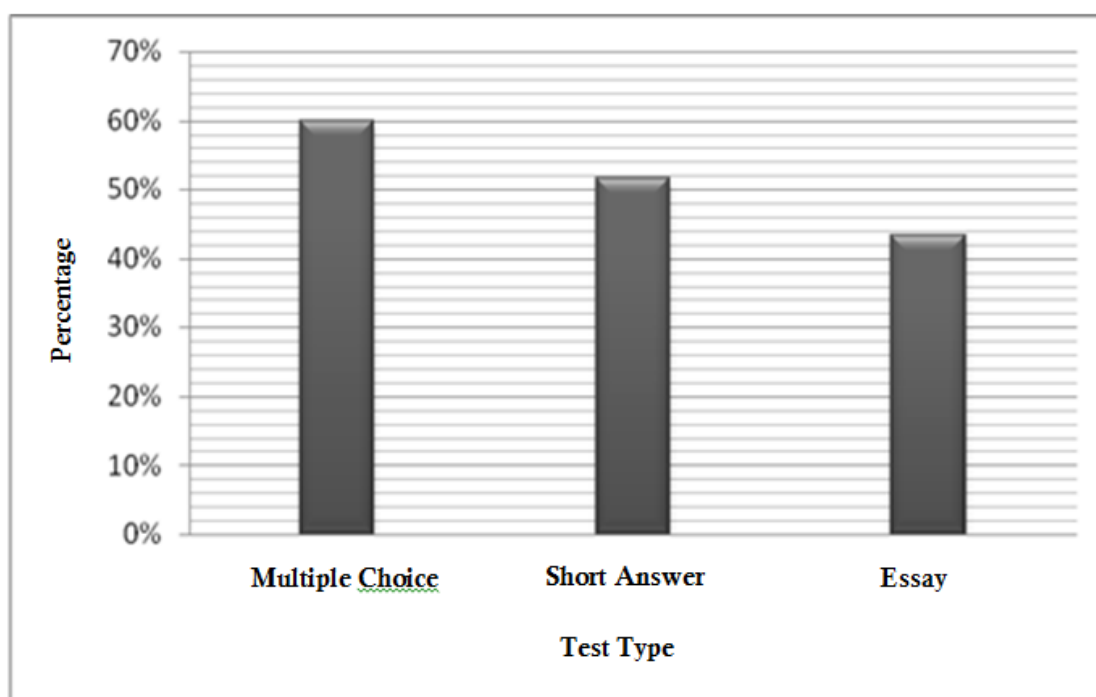
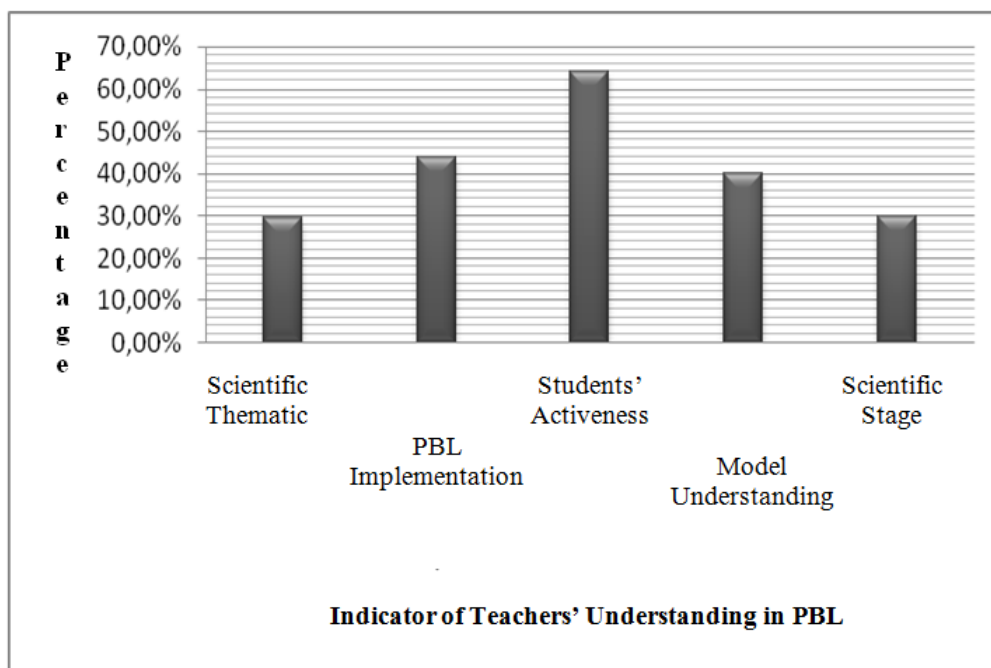


Figure 1. The Learning Results Measured through Test

Furthermore, the presented results of the questionnaire data were given to the teacher as a sample in the city of Surakarta. The number of samples in this study questionnaire is 50 teachers from several schools that teach in class IV, V, and VI. The results are analyzed, and the data are presented in Figure 2.



**Figure 2.** Teachers' Understanding of PBL

The research was completed with an interview to get more accurate data. Some teachers recognize that the learning provided is limited to the cognitive domain of the level of understanding. Do not make learners apply the knowledge they get to solve problems in everyday life, except on certain subjects and topics such as Mathematics and Civics.

The result of an interview with Diyah, teacher of class V, revealed that she did not understand PBL learning model and its application in learning. She thought that learning has happened as long as learners understand the subject matter and can do a good test questions. The results of interviews with teacher B, revealed that actually, she wants to provide learning with a variety of methods, but due to the time constraints and the preparation of props so that teachers prefer lectures and frequently give the task of doing the exercises. Jumali, the SDN SIm teacher, stated that sometimes he had done a simple experiment, but only limited to prove the existing concept in the book of subject matter. It is unthinkable to apply in life and to test problem-solving ability in real life. Teachers argue the same. They stated that the problem-solving ability demands a longer correction time. Teachers at SDN Kms complain that teaching and learning activities have been pursued with the maximum, but the achievement of children does not have progress. The teacher feels that his effort is in vain, even the willingness of children is very low in learning and the concern of parents to motivate children in learning is also very low.

The results of interviews with learners show that the lessons are easy to forget. If the materials are explained by the teacher, within a few hours the children are no longer familiar with the concepts given by the teacher. If they are given a matter of competency test by the teacher, many of them will forget the lessons. Learners are happier if they are given a simple, multiple-choice question and a short answer. They find it difficult if they are given a problem in the form of problem-solving.

School observation results showed that teaching teachers still use lectures and assignment methods, so there has not been much involvement of students to do such as observing the environment or doing simple tests. Teachers explain the next lesson material and the students are given the tasks of doing the exercises. There are schools that have been experimenting, but they have not been in contact with real-life

problems. The form of assessment questions conducted by teachers is still in the form of short-answer questions. There are only a few problem-solving activities.

This is the cause of the low ability of students in solving problems. Learning is not much centered on students to take an active role in finding their own concepts. Students are actively involved in learning but only to do the tasks independently. Students can not think and do creatively because they are not given opportunity by the teacher to develop innovation and creativity. As a result, students become less concerned about the problems that exist in the surrounding environment. Through problem-based learning or PBL, it is expected to motivate students to collaborate, work together, help each other, and create excitement in learning Tillman (2013). Sungur and Tekkaya (2006) stated that PBL trigger students to think critically, to be able to self-regulate and to train metacognitive thinking.

The analysis of teacher documents in the form of syllabus and RPP indicates that the syllabus used is a syllabus generally used by elementary school teachers for grade V, but there is no development in the learning activities. In the syllabus, there has been no development of learning activities involving students to conduct and practice problem-solving activities. The description in the learning experience column is a sentence of purpose with which it contains the learning objectives. The words used are less operational and still too broad. The ideal learning experience column contains the form of learning experience that will be provided to the students. For example, the practice proves the existence of the gravitational force of the earth with experiments conducted in several ways. Forms of the learning experience, if illustrated clearly in the syllabus, will facilitate teachers in preparing lesson plans and learning practices.

The lesson plan used is the copy from lesson plan which is generally used by teachers available on the internet, so there has been no development in core learning activities involving students learning actively and practicing problem-solving. Planning in core activities is still too broad, and there is no real form of student-centered learning. Preparation of sentences are still many activities that play an active role is the teacher. Better sentences involve more students. The method used is also still less precise, even in the method there is one model of learning. Therefore, in the lesson plan, there are elements of the method, but in it, there are methods and models. After being clarified to the teacher, they said that they did not understand the different methods of the learning model.

Teachers are required to do good planning so that learning can run coherently and effectively. Learning planning should be practical, time-economical, and beneficial for teachers (Cicek, V., 2013). Teachers should have taken the time to think about the teaching materials and their developers, as well as to develop planned pedagogical activities (Shen, J., Poppink, S., Cui, Y., & Fan, G., 2007). with good planning, learning is expected to be more focused and can be more effective and efficient.

Learning with PBLs should be designed to familiarize students in constructing their own knowledge through direct observation, discovering, interacting with the environment, and linking concepts they once had to existing environmental conditions. Glynn & Winter (2004) stated that learning activities by connecting with real life would provide benefits for students, facilitate students in receiving the subject matter as well as increase the ability of students to interact with the surrounding environment. Through such learning model, students are expected to be able to solve simple problems encountered in life.

Teachers' understanding of learning models should be able to train students to think critically, actively, creatively, and innovatively. Student learning outcomes in solving the problem are still low with a minimum of 75 mastery. The problem stated that teachers should have more understanding in using PBL model improve students' ability in solving problems. The above-mentioned factors indicate that learning that has been mostly teacher-centered is less effective in improving problem-solving skills. That is the need to involve students fully in learning activities as an effort to train students to be used to thinking actively, creatively, and critically (Oon-Seng Tan, et al. 2009). Teachers are lack of creativity in designing creative, innovative, fun, and challenging learning to do something more meaningful.

## CONCLUSION

Based on the analysis of all data, it can be concluded that the lesson planning is done by the teacher still contained a lot of plagiarism. The lesson plan is not prepared according to school conditions, subject characteristics and characteristics of students. Lesson plans and execution have not been reflecting the active and creative learning. Lessons have not been much centered on students. Students have not been fully involved so that innovation and creativity can develop.

Not all teachers, especially teachers of class V understand and apply learning with a scientific approach through scientific steps. Teachers apply many models of active learning, such as PjBL, PBL, Inquiry, and discovery. A small number of teachers who apply Problem Based Learning (PBL) learning have not followed the learning step scientifically, so the ability of students in solving problems is still low.

Planning and implementation of learning that does not involve many students to play an active role to do and find the concept, then result in the test results in problem-solving is still low. The low ability of children in solving this problem is caused by several factors, among others: students are less willing and not yet accustomed to making explanations of the essay, and not accustomed to arranging sentences in complex way. This can be tried by tracing problem-solving problems but with a multiple-choice form with options that are set to the higher level of analysis.

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