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Is Difficult to Apply PBL Based on Lesson Study?

Farida Nur Kumala¹, Nury Yuniasih², Muhammad Nur Hudha³

Universitas Kanjuruhan Malang

faridankumala@unikama.ac.id, nuryyuniasih@unikama.ac.id,

muhammadnurhudha@unikama.ac.id

Abstract

This study purpose to describe the application of lesson study in the science course subjects. The application of Lesson Study is integrated with the application of problem based learning. This research is a descriptive qualitative research using instrument observation sheet and questionnaire of learning implementation, student response and learning progress. Data analysis used Miles and Huberman technique. The subjects in this study were class F2014. The learning process is assisted by 2 observers and documebtation of learning through video and photo. The results showed that the implementation of lesson-based learning consists of plan, do and see stage. At the stage of the plan implemented by developing lesson design, chapter design, RPP and learning instruments. In the do stage, problem-based learning consists of problem orientation, data collection, discussion of problems and conclusions. The last stage is seen done by reflecting on the learning process that takes place. Lesson study can improve the quality of learning both for lecturers and students. As the result shows that problem based learning takes 85% carried out. 80% student take apart activity in learning. Lesson Study improve learning activity to the lecturer and student.

Keyword: Lesson Study, Problem based learning, Learning Science

A. Introduction

Now days the implementation of learning is still only centered on the results. Actually it makes the learning has less of meaningful, because the students only pursue learning outcomes, without pay to the processes inside. As a result the science gained is instant and retention of learners to science less as time goes by. Learning that goes on like this is less able to empower the thinking ability of learners. The ability to think is an important skill to live and determine the decisions taken.

When a person only learns by memorizing, without interpreting the learning process, the ability to make decisions in the face of the real world up is considered quite hard. Seeing the competition that is currently strictly needed the empowerment of thinking skills in learning.

Empowerment of thinking skills can be done through learning (Pieterse etal, 2016) based on problems such as PBL or inquiry (Jansen, 2011) questions will be able to develop students' thinking skill. According to Dewey (in Sudjana, 2001) states that problem based learning is the interaction between stimulus and response, that relationship between the two directions of learning and the environment. The environment provides input to students in the form of help and problems, while the



brain's system effectively interprets help so that problems can be investigated, assessed, analyzed and searched for their problem solving.

Arends (1997) problem based learning is a learning approach that students do authentic problems to develop their own knowledge, develop inquiry, and critical thinking skills (Trianto, 2011); (Arlahlah, 2016); (Ghou, 2014). develop self-reliance and self-confidence

In addition to the improvement of learning through the model or method of learning, pedagogic skill of educators is also the main thing in the learning process. According to Irwantoro and Suryana, (2015) states that pedagogic competence is the ability of teachers in the learning both theoretic and in practice. Pedagogic competence consists of several points: mastering learners, mastering the theory and principles of learning, developing curriculum and designing lessons, organizing lessons, facilitating the development of potential learners, communicating effectively and organizing process evaluations and learning outcomes.

The way to improve teachers pedagogic competence can be used through lesson study. Lesson study is one of the teacher and student quality improvement program conducted by teachers in collaborative to plan, implement and evaluate the learning process detally and comprehensive.

Styler and Hiebert (in Spark, 1999): lesson study is a collaborative process of teachers to identify problems, design learning, implement learning and evaluate learning processes, revise learning and design and implement learning over and over.

Lesson study establishes a learning community for teachers together to analyze and implement the best learning to develop thinking skills and process quality improvement. In lesson study the process of learning is carefully observed by the observer and model lecturer to observe the activities and mindsets of learners. The data result to be analyzed and reflected to improve the next learning process. Lesson study not only pay attention and development of learners in the long term (Susilo, 2011).

Lesson study has several steps shown by Lewis in Susilo (2011) In Figure 1.

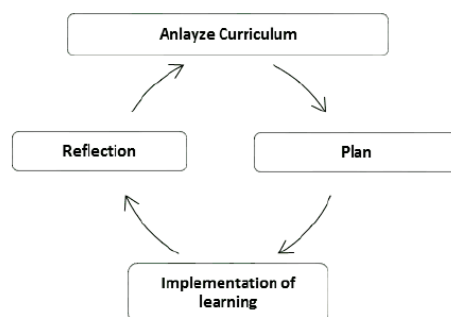


Figure 1. Lesson Study Step

Lesson study provides several benefits in the learning process (Susilo, 2011) such as : a). Improved learning based on data, b). deepen the teacher's knowledge of the subject matter taught, c). Provide opportunities for teachers to consider ideal quality for learners, c). Teachers learn collaboratively, d).



developing teacher pedagogical skills, e). Improving activities and thinking of learners not on teacher activities.

In this term, the purpose of this research is to improve the quality of learning process through lesson study program using PBL model in the learning process.

B. Method

This research is a descriptive qualitative research to observe the learning process using PBL model based on lesson study. This research was conducted in class F 2014 consisting of 40 students. The implementation of the study to implement lesson study in which there is a problem-based learning model.

The procedure in this research is, a). Plan, this stage lecturer model (lecturers teaching at the meeting) and observer lecturers jointly designing to develop lesson design, chapter design and RPP, b). do, at the stage do integrate problem-based learning that consist of several step such as: problem orientation, data collection, data analysis and conclusion, instruments used at this stage are observation sheets and questionnaire, c). See, the see stage is done by reflecting the advantages and inclusions. learning activities that take place at the stage do by observers and lecturers model. The results of learning placements were analyzed using miles and huberman analysis which consisted of collecting data, reducing data, presenting data and summarizing data.

C. Findings and Discussion

The results of the study describes the process of learning Science Elementary School using PBL model. Lesson study consisting of several activities namely plan, do and see. Activity plan is an activity in order to plan the implementation of learning process using PBL model. In this research, the activity plan is done by one model lecturer and two observer. The activity plan consists of several activities, namely developing lesson design, chapter design, election media and lesson plans.

Lesson study is done together in the beginning of designing learning. Collaboration and cooperative among teachers will increase the competence and knowledge for teachers. Lewis (2002) states that collaborative learning is more appealing because it allows teachers to connect with other teachers' learning, so the teacher can learn from each other.

Developing lesson design is a stage to develop and analyze the material to be studied at the meeting into small sections such as concept maps. The purpose of preparing lesson design to facilitate model lecturers in implementing learning and can analyze the difficulties in the material together with the observer. In this study the preparation of lesson design is done on the material substance and its form. The material is translated into smaller parts such as particle matter theory, solid, liquid and gas properties physically and chemically. The translation of the material into more detail is useful to guide the learning steps to be carried out as well as to reduce backwardness of



the material part during the execution of teaching the material. (Trianto, 2009) stated that the concept map aims to clarify the understanding of a reading, concrete the concept and explain the relationship between concepts. Lesson design is shown in figure 2.

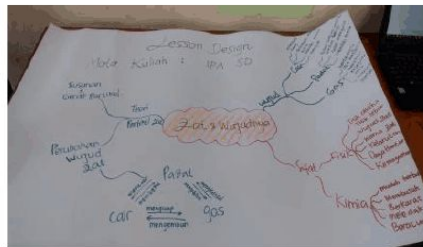


Figure 2. Lesson design

The result of lesson design development is continued in chapter design development stage. The development of chapter design is the stage of developing a short learning scenario. Chapter design is different from RPP, because chapter design only consists of three main parts namely the beginning, core and end. In the end stages of the evaluation provided during the learning process, at the core stage of the implementation of the learning model used / the stage of acquisition of the concept, in the early/begining stages of the preliminary written and apperception of the learning process. Each section is added to the teacher's conversation to the student and the student's response. In chapter design has line of student's activity . This line of response as an approximate student activity during the learning takes place. Chapter design show in figure 3.

The next chapter design is developed into a more detailed section such as RPP. The development of RPP is followed by determining the media, as well as the evaluation of the learning process. The RPP developed in this study refers to problem-based learning steps, while the steps are problem orientation, information collection can be through observation or practicum activities, discussion of observations and conclusions.

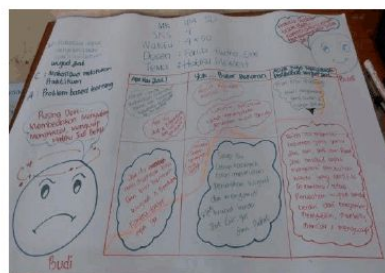


Figure 3. Chapter Design



In the second stage of the lesson study is the stage of do. At the learning stage do learning using problem-based learning model in accordance with the development of RPP in the previous stage. The do stage is done by observing the learning process implemented by the model lecturer and observer. Each observer is divided into several groups to observe all student activities in detail both attitude and mindset of students during the learning took place. A teacher in a lesson study looks at how to learn, activity, thinking in learning and analyze student learning outcomes detailly, so that teachers get extensive information (Ngang & Sam, 2015).

The implementation of problem-based learning model consists of several steps as follows:

- a. Problem orientation, Starting with the stages of problem orientation is the stage where students presented problems by lecturers model / team. Problems given, is apperception to explore the initial ability/ knowledge of students on the material to be studied. Problems are placed on the worksheet and discussed by the students together without seeking information from some sources either internet or direct practice.
- b. Information gathering, at the information gathering stage students collect information through several media such as the internet and practicum activities. Practicum is done by observing the physical properties of objects and observe the process of changing the form of substances using the original and manipulative media such as virtual simulation.
- c. discussions of observations, discussion of results conducted by discussing the results of observations and practicum followed by analysis of experimental data.
- d. inference, is the activity of drawing out the results of the experiment to become a concept of science. The conclusion is presented by the students to the front of the class. The learning process in accordance with the characteristics of problem-based learning that Arends (2001) in Trianto (2009): 1). Questioning, 2). authentic inquiry, 3). Produce the product and 4). collaboration.

The problem-based learning model is designed to help students develop thinking skills, solving problems based on acquired knowledge (Mat et al, 2011), studying the role of authentic adults and becoming independent learners (Trianto, 2009). End of the do stage, students are given a questionnaire to provide a response during the learning took place.

The third stage of the lesson study is see, this stage is reflecting the learning process that has been implemented. The see process begins with the opening of the moderator, the reflection of the model lecturer, the observer and the questionnaire of student responses to the learning process undertaken.

The results of reflection are used as a basis for improvement in the next stage. Based on the results of the discussion phase see that the process of learning PBL model takes about 85% of the target set, there are 20% of students who learn less well in the



classroom, this is due to lack of interaction with lecturers and students, and lecturer instructions on students who are less clear especially when students analyze and draw conclusions. Reflection is considered a teacher's skill to examine carefully and continuously to teach students to be better (Chetcuti, 2007 in Galini and Kostas, 2014). Reflection in lesson study provides an opportunity for teachers to see and improve their own learning outcomes with other teachers collaboratively (Susilo, 2011).

D. Conclusions And Suggestions

The implementation of lesson study-based learning provides many benefits to teachers and students. Regular collaboration among teachers to improve the learning process makes quality learning better.

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