

Enhancement of Learning Competence Using Learning Project Based Learning Model

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Abstract – This research was aimed to improve the students' learning competence by using Project Based Learning in Natural Science in class VII of SMPN 1 Tebing Tinggi. This was classroom action research. This research was conducted through two cycles of planning, implementation, observation, and reflection. Data on attitude competence was obtained using attitude instrument observation. The skill data was obtained using observation sheet instruments practice test while the knowledge data was from the scores. The result of the research in aspects of knowledge in cycle 1 to obtain data 54,16% of students who complete, while in the second cycle increased to 79,16%. Aspects of attitude shows the acquisition of data 2,63 with a good predicate, while in the second cycle increased to 3,03 good predicate. Skill aspect in cycle I obtained data of 2.82 good predicate, increased in cycle II to 3.09 good predicate. The conclusion that the use of Project Based Learning Model could improve the student learning competence.

Keywords – Learning Model Project based Learning, Cognitive, Affective, Psychomotoric Science Competencies

I. INTRODUCTION

IPA is a set of concepts that are interconnected with the concept charts that have evolved as a result of experimentation and observation, and will further be useful for further experiment and observation. The nature of the IPA includes the four elements of products, processes, applications and attitudes. The science-learning process emphasizes the provision of hands-on experience to develop competencies to explore and understand the natural surroundings scientifically.

Through the observation and experience of the author as a teacher of science subjects in SMP Negeri 1 Tebing Tinggi Class VII, it is known there are still many problems that the author met in the learning process. The problem of the learners is the low competence of learners' knowledge. Based on the result of daily test value of 2nd semester of academic year 2016/107 on global warming material from 24 students with minimum mask criteria (KKM) of 70, students who scored above the KKM only 10 students or about 41.6% and 14 people or about 59.4% got the score below KKM. Based on observations through the observation sheet for the

students' attitude competence, only 20.83% of the students who got the category of good attitude with the meaning of the word has not shown the expected attitude in the learning. As for the skills competencies of learners the overall average gets the value of enough.

The learning process that should be applied in the curriculum of 2013, especially in science lessons, has not been fully done by researchers as a classroom teacher so far that has an impact on the low competence of learners according to the data above. This can be seen from the learning process of learners is still less interactive, learners look lazy, even some are pensive when listening to teachers provide material. When the researchers convey the material by explaining / lecture learners look bored, telling stories with a friend, some even doing drawing activities, this happens especially in the students who sit in the back. After submitting the materials the researcher asks the students whether something is not understood, but the learner's answer is silent, even when the researcher asks again but learners cannot answer, even if there are only 2 or 3 people who have high ability.

Based on the 2013 Curriculum Process Standards the learning process in the educational unit is organized in an interactive, inspirational, fun, challenging, motivational way for active participation, and provides sufficient space for initiative, creativity and independence according to the talents, interests and physical and psychological development learners.

One of the learning model that has a purpose in accordance with the desired expectations that learners not only accept the concept of material in an abstract, but participate actively in mengkonkritkan material so that it can receive the material in a contextually, is to apply the model of learning Based Project Learning. Project-based learning model (Project Based Learning) is a learning model that uses the project (activity) as the core of learning

In the learning process of Project Based Learning learners engage in exploration, assessment, interpretation, and synthesis of information to gain learning competence (knowledge, skills and attitudes). It is expected that with the concept of material that has been accepted is still abstract through the learning model of Project Based learning this makes the knowledge is concrete.

This is also reinforced by the content of Permendikbud No. 22 Year 2016 is to encourage the ability of learners to produce contextual work, both individual and group it is advisable to use a learning approach that produces work based on problem-solving (Project Based Learning). According to Wena (2014: 145) Project-based learning has great potential to provide a more engaging and meaningful learning experience for learners.

Based on the background and identification of problems that have been found, the formulation of the problem in this study is as follows: (1) How to increase the knowledge competence of learners in science lesson by using the learning model of Project Based Learning? (2) How is the improvement of students' attitude competency in science lesson using Project Based Learning? (3) How is the improvement of students' skill competence in science lesson using Project Based Learning model?

Based on the description on the problem restrictions and problem formulation that the researchers pointed out above, the purpose of this study are to: (1) Describe the increase of knowledge competence of learners in science lesson with the model using Project Based Learning. (2) Describe the enhancement of students' attitude competence in science lesson by using the learning model of Project Based Learning. (3) Describe the improvement of students' skill

competence in science lesson using Project Based Learning model.

II. METHOD

Type of research conducted is Classroom Action Research. The research was conducted in SMP Negeri 1 Tebing Tinggi Kabupaten Meranti. This research was conducted on the even semester of academic year 2016/2017 in April-May. The subjects of this study are the students of class VII.2 SMPN 1 Tebing Tinggi, consisting of 24 students, consisting of 11 male students and 13 female students. Based on the type of research conducted, the research procedure in this study is packaged in cycle form.

Broadly every cycle consists of 4 stages: planning, action, observation / observation and reflection. (1) Planning stage: at this stage prepared everything needed at the beginning of the research. (2) Stage of Action: starting from the introduction stage is to open learning and after that enter the core activities. At the core activities in the first phase begins by asking the essential question (Start with the essential question). The second stage of the learning process is the design of the project (Design a plan for the project). The third stage of the learning process is (Create a schedule). The fourth stage is to monitor students and progress the project (Monitor the student and progress the project). The fifth stage is assessing the outcome of the learner's work (Asses the outcome) (3) Observation stage (Observation): At this stage the observer observes and records the things that occur during the course of action. (4) Reflection: The data obtained from the observation, then discussed between the observers with the researcher.

This research data is taken from: (1) Observation sheet (2) Test (3) Field Notes. Primary data source of this research is the students of class VII SMPN 1 Tebing Tinggi. Technique of data analysis in this research is quantitative data and qualitative data. Quantitative data is data in the form of numbers or numbers. Quantitative data can be presented in the form of tables, graphs, pie charts and the like.

III. RESULTS

This class action research (PTK) was conducted from April 20, 2017 to May 13, 2017 in class VII.2 SMPN 1 Tebing Tinggi Lesson Year 2016/2017 in two cycles. This study includes 7 meetings where 4 meetings for the first cycle with the subject of Earth Structure and Dynamics with time allocation of 3x40 minutes and 2x40 minutes per meeting. While in the second cycle, the subject of the Solar System consists of 3 meetings. Each time the meeting

reflects on the learning competencies, the evaluation is carried out at the last meeting of Cycle 1 and Cycle 2.

a. Exposure to pre-cycle results

Knowledge competence analysis on Global Warming material is known that the number of learners who complete with got the achievement value above KKM is 10 people or 41.6%. While learners who do not complete as many as 14 people or 59.4%. The average overall attitude value is 2.05 with enough categories. Average overall 2.08 skill score with sufficient category.

b. Cycle Exposure 1

Daily value test results in Cycle 1, known total number of learners who complete as many as 13 people or 54.2% and students who do not complete as many as 11 people or 55.8%. Average overall attitude value 2, 64 with Good category. Average skill score 2.81 with Good category.

c. Cycle Exposure II

Daily value test results in Cycle II, known the number of students who complete as many as 19 people or 79.2% and 5 months unnecessary students or 20.8%. The average value of attitude as a whole is 3.03 with Good category. Average skill score of 3.09 with Good category.

d. Increasing Competence Learning Inter-Educate Students Cycle

Percentage improvement mastery learners' competence increase from pre cycle to cycle II can be seen in table 1.

Table 1. Increased Knowledge Competence from Prasiklus to Cycle II

Criteria	Prasiklus			Cycle 1			Cycle 2		
	J	%	R	J	%	R	J	%	R
Completed	10	41,67	75,5	13	54,16	73,46	19	79,17	84,1
Not complete	14	58,33	40	11	45,83	32,72	5	20,83	41

The percentage increase in the attitude competence of learners increasing from pre cycle to cycle II can be seen in table 2.

Table 2. Increased Competence of Attitudes from Pre-Cycles, Cycles I and Cycle II

No	Indicator Attitude	prasiklus	Cycle I	Enhancement	Cycle II	Enhancement
1	Responsible	1,92	2,50	0,58	2,94	0,44
2	Discipline	1,96	2,59	0,63	3,14	0,55
3	Cooperation	2,29	2,59	0,30	3,03	0,44
Average		2,05	2,55	0,50	3,03	0,48

The percentage of increasing the competence of students' skills increases from pre cycle to cycle II, can be seen in table 3.

Table 3. Skill Competency Improvement from Prasiklus to Cycle I and Cycle II

No	Skills Indicators	Pra siklus	Cycle I	Enhancement	Cycle II	Enhancement
1.	Skill set up tools and materials	3	4	1	4	0
2.	Skills in doing the project	1,83	2,79	0,96	2,83	0,04
3.	Skills in recording project result data	2,13	2,14	0,01	2,78	0,64
4.	skills in reporting / presenting project results.	1,38	2,30	0,92	2,75	0,45
Average		2,08	2,81	0,73	3,09	0,28

IV. DISCUSSION

Competence of learners' knowledge increased due to increased understanding of learners by conducting various activities of project activities. Knowledge competencies can be built through learning activities that focus on direct learning activities. According Hamalik (2008: 17) effective teaching is a teaching that provides the opportunity to learn alone or do their own activities. Learning Model Project Based Learning is one of the learning models to realize the learning outcomes by increasing the activity in learning in accordance with the principle of how to learn actively. This is consistent with Grant's (2002: 3) statement. Project-based

learning offers an interesting method of learning to make active learners to construct knowledge. Rooted in constructivism, constructivism and cooperative learning, project-based learning has strong theoretical support for successful achievement.

The role of the learning model of Project Based Learning in improving the attitude of responsible, discipline and cooperation in the students where the project activities undertaken must be implemented well by learners in order to get the learning objectives to be achieved. In the process of learning the attitude of responsibility can be shown by doing tasks in accordance with the predetermined, active role in the group, and dare to bear the risk of what has been done. According to Global School Net (2000) reported the Auto Desk Foundation's research on the characteristics of Project Based Learning Collaborative learners are responsible for accessing and managing information to solve problems. This is in accordance with the statement of Safnowandi (2012: 1) that PjBL encourages students to become independent learners that are responsible for completing complex tasks. Manurut Johnson & Johnson 1989 in Ngalmun (2014: 197) Project Based Learning model of learning can improve collaboration.

Skill competencies increase from pre-cycle to Cycle II. This is as expected according to Sardiman (2004: 103), in learning there needs to be activity, because in principle learn it is doing "learning by doing". In the learning activity there are some principles of psychology view. According to the old psychology view, activity is dominated by the Researcher, whereas according to the view of modern psychology activity is dominated by students. Increasing the average competence of students' skills through the implementation of the model of Project Based Learning where learners become accustomed to work real. In accordance with the statement of Waras (2008: 36) this is based on the reason of strong and meaningful knowledge and skills to be constructed through authentic tasks and tasks.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSION

Based on the results of the study can be concluded that with the implementation of the model of Project Based Learning able to improve the aspects of learning competence peseta learners on aspects of knowledge. This can be seen from the data that is before implementing the learning model Project Based Learning learners who get the value above 70 is 10 people or 41.67%, in the first cycle increased to 13 people or 54.17% and in the second cycle also there is a

complete increase of students as much as 19 people 79.17%. In cycle 2 for knowledge competence has been declared thoroughly in classical because it has passed the limit of classical completeness that has been set that is 75%.

The competence of learners' attitudes increased from pre-cycle to Cycle II. Competence attitudes are observed are the attitude of responsibility, discipline and work together. The average value of attitude competence is good. Competence Skills of learners have increased from prasiklus up to cycle II. The average score of competence skill with Good category.

B. SUGGESTION

Based on the results of research obtained it can be suggested some things as follows: (1) For Teachers: Learning Model Project Based Learning can be used as an alternative in science learning process, especially applying the 2013 curriculum aimed at improving the competence of learners. (2) For Students: Students are expected to have a big share in the learning process by taking an active role during the learning process, so that students can improve learning outcomes for the achievement of learning objectives. Students who have not shown participation in learning activities are advised to increase activity at the time of learning and better prepare before classroom learning begins. (3) For the researcher, then it is expected to be more thorough and objective in doing the observation so as to obtain the result which really represents the condition of the student. And for further researcher can add or combine with other learning method.

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