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THE IMPLEMENTATION OF SCIENTIFIC APPROACH FOR TEACHING PRISM AND PYRAMID IN MTSN MODEL BANDA ACEH

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Abstract

The method of learning math that still use conventional learning causes difficulties for students to understand the lessons and their learning outcomes tend to be low. In addition, students are not enthusiastic and as a result, many students are not good in learning process. One of the learning methods mandated by Curriculum 2013 and can be used in teaching and learning is the scientific approach. This method includes observing, asking question, collecting information, associating and communicating. The purpose of this research are 1) to determine student's learning outcomes in prism and pyramid by using the scientific approach in class VIII-6 MTsN Model Banda Aceh, 2) to determine the ability of the teacher in managing the class by using the scientific approach in class VIII-6 MTsN Model Banda Aceh, 3) to determine the student's response by using the scientific approach in class VIII-6 MTsN Model Banda Aceh. This research is a descriptive research, a mix of quantitative and qualitative approaches. The subjects were 36 students of class VIII-6 MTsN Model Banda Aceh. The data collection was done by post-test, observing the ability of the teacher, and students' responses. The conclusions are 1) student's learning outcomes in prism and pyramid by using the scientific approach in the class has successfully reached 94.44%, 2) the ability of the teacher in managing the class by using the scientific approach is quite good, and 3) the students' responses by using the scientific approach in the class is positive.

Keywords: *Scientific approach, learning outcomes, prism and pyramid.*

INTRODUCTION

Education is an invaluable thing in human life. The quality of education would increase if it is supported by several components such as teachers, students, evaluation and learning materials (Nurhidayati, *et al.,* 2016). One of the most important components is the teacher. The teachers need to present the material using a variety of learning methods so that the students are motivated to improve their learning outcomes.

So far, the paradigm of learning math in schools is dominated by the conventional learning, the students are positioned as an object, considered not knowing anything (Masykur, 2007, p. 57). Mostly of what happen in schools is the teacher think of themselves as people who have the knowledge and the students just listen and write on what is ordered by the teacher. As a result, the students have difficulty in understanding and their learning outcomes tend to be low. In addition, the students do not feel enthusiastic about the delivery of learning materials.

One of the learning approaches that can be used by teachers in the classroom is the scientific approach. Here, the students need to be involved in the learning process and the teachers are only

facilitators. The steps of the scientific approach include observing, asking questions, collecting information, associating and communicating (Eka, 2014, p. 12). With those steps, students are more enthusiastic in learning because they can participate in every steps of the scientific approach.

Prism and pyramid is one of math subjects in the junior high school that should be understood from the initial concept as a basis for studying the next material at the next levels of education. In addition, the learning process requires classroom management skills in delivering the material because every student has different ability and level of thinking. Therefore, the teacher must be able to choose the appropriate learning approach so students are able to understand the learning material to fit the target that has been determined by the curriculum. In general, learning math in schools still use the conventional learning, which is a model of learning dominated by the teacher. This causes that students' understanding on concepts to be relatively low. In classroom management skills, responses of the students are also an important part of the learning process. Students' responses strongly support the learning process.

Based on the background, the researchers would like to investigate the use of the scientific approach in the learning and teaching of prism and pyramid in a math class of a junior high school in Banda Aceh. Therefore, the research questions of this research are:

1) How is students' learning outcome in prism and pyramid by using the scientific approach in class VIII-6 MTsN Model Banda Aceh?
2) How is the teacher's ability to manage learning by using the scientific approach in class VIII-6 MTsN Model Banda Aceh?
3) What are the responses of students learning prism and pyramid using the scientific approach in class VIII-6 MTsN Model Banda Aceh?

Based on the problems above, the purpose of this research are 1) to determine student's learning outcomes in prism and pyramid by using the scientific approach in class VIII-6 MTsN Model Banda Aceh, 2) to determine the ability of the teacher in managing the class by using the scientific approach in class VIII-6 MTsN Model Banda Aceh, and 3) to determine the students' responses by using the scientific approach in class VIII-6 MTsN Model Banda Aceh.

The benefits of this research are:

1) To improve student's learning outcomes by using the scientific approach.
2) As an input for teachers on the implementation of the scientific approach according to Curriculum 2013 in the class.
3) As an additional knowledge for researchers in applying the learning approach.

METHODS

This research used a descriptive approach. This research examines the using of scientific approach in prism and pyramid. After the learning process was complete, the class was given a final test (post-test) and the student questionnaire in order to know the results of using the scientific approach in teaching and prism and pyramid in the experimental class. The subjects in this research were students of class VIII-6 in MTsN Model Banda Aceh 2015/2016. Hence, the data needed in this research were the students' test, teacher's activity, and students' responses.

Student's Learning Outcomes

The students' learning outcomes were determined by test. The test was given at the last meeting. The percentage of the learning outcomes was calculated by using the formula:

$$p = \frac{\text{number of students who completed}}{\text{number of students in total}} \text{ x } 100\%$$

The data were analyzed descriptively. The students are claimed to be successful if they have reached the score of 2.67 on 1-4 scale or 66.75 on 1-100 scale (Permendikbud, 2014, p. 23).

Teacher's Ability

The teacher's ability was determined by the observer. The observer needs to fill the observation sheet by writing a check mark (√). The data from teacher's ability was analyzed descriptively. The results are calculated as follows (Mukhlis, 2005, p. 69):

1.00 ≤ TKG < 1.50 not good
1.50 ≤ TKG < 2.50 unfavorable
2.50 ≤ TKG < 3.50 good enough
3.50 ≤ TKG < 4.50 good
4.50 ≤ TKG < 5.00 excellent
*TKG = Level of Capability Teachers

The ability of the teacher's classroom management are effective if the scores of each aspect are in the good or excellent category (Mukhlis, 2005, p. 69).

Students' Responses

The students' responses were determined by the questionnaire. The students need to fill the questionnaire by writing a check mark (√) for each question asked. The questionnaire in this research used the Likert scale. The data from the questionnaire were analyzed descriptively. The results were calculated as follows (Sunarti, 2014, p. 50):
For positive questions : 4 is strongly agree, 3 is agree, 2 is less agree and 1 is disagree.
For negative questions : 1 is strongly agree, 2 is agree, 3 is less agree, and 4 is disagree.

RESULTS AND DISCUSSION

Students' Learning Outcomes

The students' learning outcomes in class VIII-6 MTsN Model Banda Aceh were supported by the intelligence and their motivation to learn something new. After the implementation of scientific approach in prism and pyramid, the students in class VIII-6 MTsN Model Banda Aceh passed with a percentage of 94.44%.

At "observing" stage, the students were enthusiastic in observing the problem given by the teacher. They were very happy to learn with the everyday phenomena. Then, at "asking questions" stage, the students showed good behavior. Although the students who asked questions were only a few, but with the encouragement and guidance from the teacher, they slowly began to show their curiosity towards the learning materials.

The next stage was "collecting information". In this stage, the students found a variety of sources such as the student's handbook, the internet, discussion groups, and other relevant sources. Furthermore, at the "associating" stage, all students processed the information collected previously. In this stage, they were expected to learn a lot from the process of finding something. Then, they were directed to answer the questions on the worksheet.

The last stage was "communicating". At this stage, students were required to be able to express their opinions in front of the teacher and their friends. The students had a high spirit of learning. They also attended the additional courses provided by their school and they were also supported by the school's facilities.

Teacher's Ability

The ability of a teacher to manage a class is very important because it will impact the students' spirit in the classroom. The results of the teacher's ability in class VIII-6 MTsN Model Banda Aceh showed many different things in each aspect.

The aspect of "ability to motivate students" is in the good category in RPP I and RPP II and very good in RPP III. In this aspect, the teacher's ability increased at the third meeting because the more often she taught in the classroom, she was more relax in teaching. The next aspect is "teacher's ability to explain the subject ". This aspect is in the good category. It can be seen from RPP I to RPP 3 that the teacher's ability to manage the class in this aspect is constant.

Furthermore, the aspect of "student's ability to divide into several groups" is in the good category at the first meeting, increased to the very good category at the second meeting and fell back in the good category at the third meeting. In the aspect of "the ability to guide the group", RPP I is in the good category while RPP II and III increased in the very good category. Then in "the capability to optimize the working group interaction" aspect from the first meeting until the third meeting, the teacher's ability remains in the good category.

The next aspect is “ability to give reward”. This aspect is in the very good category at the first meeting, then fell in the good category at the second meeting and back to the very good category in the last meeting. This is because the schedule of RPP I and RPP III were in the morning so it was easier to control the students. Finally, the last aspect is “the ability of teachers to end the class”. From RPP I until III, they were in the very good category. It showed that the ability of the teacher in directing students to write conclusions, giving self-reflection, conveying moral values, giving homework, conveying the learning material to be studied at the next meeting, and ending the class was constant.

The result of the average score in RPP I is 4.2, which is in the good category, then RPP II is 4.4, also in the good category, and RPP III is 4,5 in the very good category. The total average is 4.3 which is in the good categories. And so, based on the result, it can be concluded that the ability of teacher to manage the class by using the scientific approach in class VIII-6 MTsN Model Banda Aceh is in the "good" category.

Students’ Responses

Based on the questionnaire that were distributed to the students, the majority of students in class VIII-6 MTsN Model Banda Aceh responded positively to the questions. From all of the questions in the questionnaire, most students provided a good response for the items. It shows that the students were pleased and grateful to learn prism and pyramid by using the scientific approach.

There were also some students who did not have positive responses in learning prism and pyramid by using the scientific approach. This is because every person is unique and different. There must be students who have different idea with their classmates. But overall, the students in class VIII-6 MTsN Model Banda Aceh responded positively to the use of the scientific approach in teaching and learning prism and pyramid.

CONCLUSION

Based on the research that has been conducted in class VIII-6 MTsN Model Banda Aceh, the conclusions are:

1) The student’s learning outcomes in prism and pyramid by using scientific approach in class VIII MTsN Model Banda passed with a percentage of 94.44%.
2) The teacher's ability to manage the class by using the scientific approach is in the “good” category.
3) The students’ responses to learn prism and pyramid by the using scientific approach is positive.

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