

The Improvement of Result Learning Mathematic Through Peer Teaching Method on The Factorization Algebra Material of The Students VIII-3 Class at SMP Negeri 5 Parepare

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Abstract

The research is a class action (Classroom Action Research). The aim of this research is to determine whether learning result can improve through learning mathematics Peer Teaching Method of factorization algebra material of students in class VIII3 at SMP Negeri 5 Parepare. The method of the researcher was Peer Teaching Method (a teaching method their peers in small groups). The subject of research is the students of VIII3 class at SMP Negeri 5 Parepare that is consisted of 18 students. The implementation of this research consisted of two cycles in each cycle consisting of four stages, such as: (a) planning stage, (b) action stage, (c), observation stage, (d) reflection stage. The collecting data analyzed by quantitative and qualitative analysis. The conclusion is the result of mathematic learning can improve through peer teaching method of the students VIII3 class at SMP NEGERI 5 PAREPARE.

Key words: Mathematic Learning Result, Peer Teaching Method

INTRODUCTION

Based on (Ruslan, 2011) described in his research that through Peer Teaching Method in mathematic learning would provide a better result in the improvement of mathematic learning result. By the method, the development of the learning process would achieve. Not only the learning process to give the information or knowledge from the teacher to the students, but also teachers should guide and assist the students in teaching then the students find their own answers to the problems faced by effectively and it does not merely help them to get service. So, this method would be hone to transfer the student's knowledge to their friends.

According to (Masnur, 2009) Peer Teaching (a teaching method their peers in small groups) is a method of teaching that is helped by their friends.

The ways of Peer Teaching Method based on (Purwandari, 2014) are:

- a. The teacher describes / explains the material in general and gives the examples of questions.
- b. After the teacher finished for explaining the material and gave the examples of questions, then the teacher gives the opportunity to the students for asking the question that they have not understood about the material.

- c. Furthermore, teachers hand out exercises that relates to material. It already talks to teams teaching; teaching teams selects from students who feel confidently and have knowledge to become volunteers teacher.
- d. After the exercises share, then teams teaching discuss all questions from the exercise.
- e. After all the questions discussed, the students of teams teaching each group of outside teams to serve as peer teaching.
- f. After the group formed, the students of teams teaching act as instructors for its members to describe and explain the exercises / questions that have given before it (process peer teaching).
- g. The teachers observe the learning process and provide guidance to students who have difficulty in the learning process.
- h. After the process completed peer teaching, the teacher asked a representative group to practice on the whiteboard and explain it to their friends.

The problem of this study is whether the result of mathematic learning can be improved through through Peer Learning Teaching Method to the Algebra Factorization Material of Students in VIII3 at SMP Negeri 5 Parepare?

RESEARCH METHOD

This research is a classroom action (classroom action research). The implementation of this research were divided into several cycles with the stages of implementation (Arikunto, 2002) include: planning (planning), action (action), observations (observation) and reflection (reflection).

To obtain the necessary of data in this research, the instruments of research are the test result sheets and observation sheet (observation). The collected data analyzed by using descriptive statistics.

RESULT

1. The Qualitative Data Analysis Results

In this research, the researchers observed of the learning process. It means that to know the changes in the attitude of students during the learning process, it focuses on the activities of students. The comparison of the percentage of students in each activity on the first cycle and the second cycle, it can be seen in Figure 1.

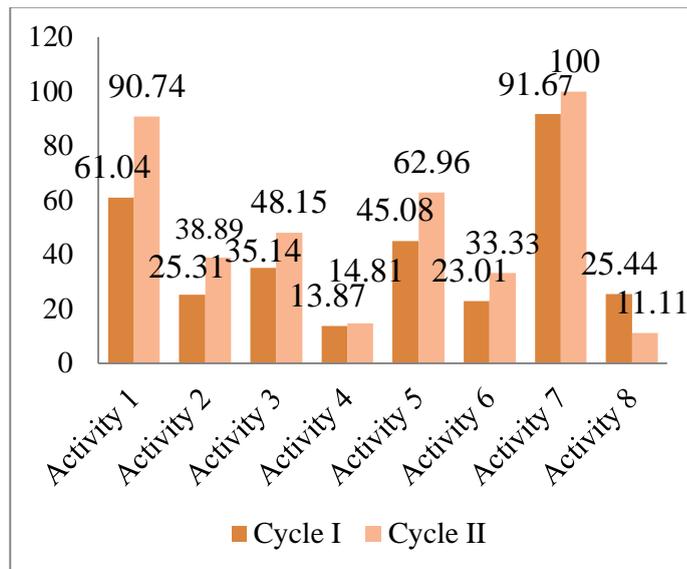


Fig. 1. The comparison of the percentage to students' activity in cycle I and cycle II

Based on the explanation, it can be concluded that the positive activities are done by students has increased from the first cycle to the second cycle, and for negative activities are done by students such the students are noisy, the students disturb their friends has decreased in the second cycle. This indicates that the implementation of *Peer Teaching Method* of learning can increase the activity of students in learning mathematic.

2. Quantitative Data Analysis Result

Data obtained from tests on each end of the cycle to describe the level of understanding students through the implementation of *peer teaching method* on the factorization algebra material, while the presentation as follows:

A. The Test Learning Result in Cycle I

In the first cycle, the test learning result is done in the form of a description. The implementation of proficiency level test conducted after the completion of the presentation of some of the sub-subjects materials in the first cycle by using *peer teaching method* learning. Quantitative description of the result mathematic learning to the students based on test results on the first cycle can be seen in Table I

TABLE I. THE STATISTIC SCORE IN RESULT LEARNING

MATHEMATICS OF STUDENTS IN CYCLE I	
Statistics	Value Statistics
Subject	18
Ideal score	100
The Highest score	86
The Lowest score	16
Range Score	70
Average Score	67.17
Median	74.50
Standard Deviation	20.77

Table I shows that the average score of result the mathematics learning of students after learning *peer teaching method* applied was 67.17, standard deviation was 20.77 score and the highest score of the students in the first cycle was 86, while the lowest score was 16.

If the mathematic learning result divide into five categories that is proposed Ministry of Education (2006), the obtained frequency distribution and percentage of mathematic learning result of students in Table II

TABLE II. THE FREQUENCY DISTRIBUTION AND PERCENTAGE OF
THE MATHEMATIC LEARNING RESULT OF THE STUDENTS IN CYCLE I

Mastery level%	Category	Frequency	Percentage
85% < score ≤ 100%	Very high	1	5.56
70% < score ≤ 85%	High	10	55.55
55% < score ≤ 70%	Enough	4	22.22
40% < score ≤ 55%	Low	1	5.56
0% ≤ score ≤ 40%	Very low	2	11.11
Totally		18	100

Table II shows that the student who the category of very high learning result was 1 student or 5.56%, the category of high was 10 students or 55.56%, the category of enough was 4 students or 22, 22%, the category of low was 1 student or 5.56% and the category of very low was 2 students or 11.1%. So that it can be argued the average score of mathematics learning result after the implementation in learning of *peer teaching method* in the first cycle was in fair category.

B. The Test Learning Results cycle II

In cycle II test learning result, which is form of essay questions. The implementation of these tests were conducted after the completion of the presentation in some of the materials sub-subjects in the first cycle by using *peer teaching learning method*.

If the mathematic learning result divide into five categories that is proposed Ministry of Education (2006), the obtained frequency distribution and percentage of the result mathematic learning of students in Table III.

TABLE III. THE STATISTIC SCORE IN RESULT LEARNING
MATHEMATICS OF STUDENTS IN CYCLE II

Statistics	Value Statistics
Subject	18
Ideal score	100
The Highest score	92
The Lowest score	62
Range Score	30
Average Score	80.39
Median	80.50
Standard Deviation	7.93

Table III shows that the average score of the result mathematics learning of students after learning *peer teaching method* applied was 80.39, standard deviation was 7.93 score and the highest score of the students in the second cycle was 92, while the lowest score was 62.

If the result of learning mathematics of students grouped into five categories proposed Ministry of Education (2006), the obtained frequency distribution and percentage of mathematics students as shown in Table IV.

TABLE IV. THE STATISTIC SCORE IN RESULT LEARNING
 MATHEMATICS OF STUDENTS IN CYCLE II

Mastery level%	Category	Frequency	Percentage
85% < score ≤ 100%	Very high	5	27,78
70% < score ≤ 85%	High	11	61.11
55% < score ≤ 70%	Enough	2	11.11
40% < score ≤ 55%	Low	0	0
0% ≤ score ≤ 40%	Very low	0	0
Totally		18	100

Table IV shows that the student who has been the category of very high learning result was 5 student or 27.78%, the category of high was 11 students or 61.1%, the category of enough was 2 students or 11.1%, there was no more students in the low and very low category. By seeing an average score of the result mathematic learning of students after learning in *peer teaching method* applied in the second cycle, then it was in the high category. This indicates that there is an increase in result of mathematics learning of students if it compares to the cycle I.

The improvement of result mathematic learning of the students from cycle I to cycle II after applying this learning *Peer Teaching Method* is illustrated by Figure 2.

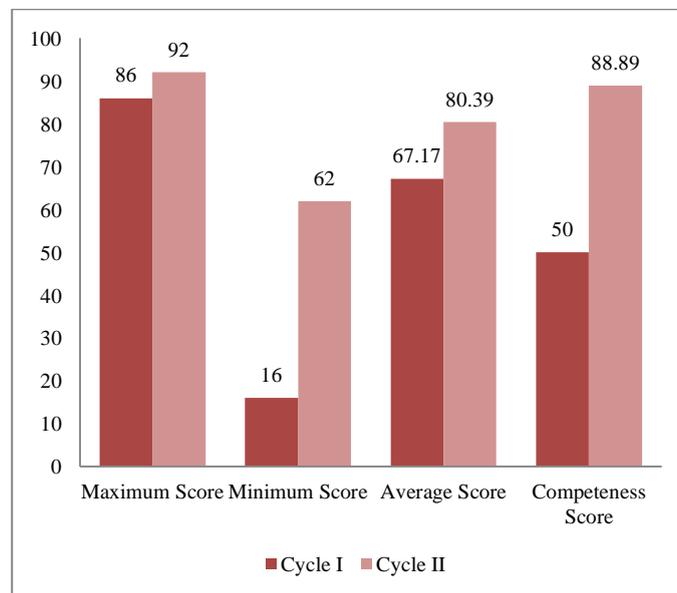


Fig. 2. The Result mathematic of students in the first cycle and the second cycle

Based on Figure 2, it can be seen that the maximum score obtained by the students and it has increased from the first cycle to the second cycle of 86 to 92 and the minimum score obtained by students; it increased from the first cycle to the second cycle that is from 16 to 62. Furthermore, the average score increased from cycle I to cycle II that was 67,17 to 80,39. Score completeness also increased from cycle I to cycle II that was from 50% to 88.89%. It can be concluded that the result mathematics learning of students has increased from the first cycle to the second cycle after learning applied *Peer Teaching Method*.

Discussion

After doing the reflection of activities conducted in the first cycle, then there some of the repair activities that needs for improving the result mathematic learning of the students in cycle II. There some ways, such as motivating students to learn math and say that math is actually not difficult if we are serious to learn it. The researcher asks the students about their readiness to learn. For the students who are playing in the classroom, directly the researcher/teacher reproves them and gives an oral question about the material. For the students who do not want to be taught or the students do not appreciate the researchers/teachers as volunteer, the teachers / researchers give the students for understanding of the objectives to be achieved in the learning *peer teaching methods*. The teachers / researchers inform the learner to write the name of the members who do not pay attention to the explanation of their friends in the learning process of *peer teaching*.

It is such as an effort for demonstrating that the learning process of *peer teaching* can improve result learning and active students towards math. This is an evident from the value of result learning of students after the students got the test in end of cycle II and the students' activity in the learning process has increased. It can be seen from the increasing number of students who pay attention to the teacher's explanation, the participation of each group representative presents the results of their group discussion on the board and explain it increasingly, the students who ask questions what they have not understood, and the students who do their homework also increasing. Likewise, the students who did some activities that do not correspond to the learning process and need guidance from teachers in the learning process of *peer teaching* also decreased.

It is a noted of a number changes that occur in every attitude of students for learning math. The changing is obtained from observations in the learning process takes place. The changes that occur are as follows:

- a. The students active during the process of *peer teaching* 35.14% in the first cycle, the students have many other activities in the learning process and it increased to 48.15% in the second cycle because the students have been more appreciative of their teachers in the process of *peer teaching*.
- b. The students who present the results of group discussion reached 13.87% in the first cycle because students did not understand the material taught by their friends and it increased to 14.81% in the second cycle, the students have been more active during the process of *peer teaching* takes place, so that students already understood the material about their friend taught.

- c. The students who can conclude the material that has been taught reaches 23.01% in cycle I because students still do not understand about the material that has been studied and it increased to 33.33% in cycle II because the students have more understanding about the material that has been studied.

The students who did other activities in the learning process reaches 25.44% in the first cycle because the students still do not appreciate their friends as a *teacher volunteers*. So they were so noisy in the learning process and it decreased to 11.11% in the second cycle because the students already appreciate their friends as a teacher and pay attention to their explanation even they ask something that they have not understood yet

CONCLUSION:

Besides the changing of attitude to the students from cycle I to cycle II, the test result of cycle II has increased if it is compared to cycle I. It is regard to success indicator, there increased in the result mathematic learning after two cycles test. In the first cycle, the average result learning of students for 67.17% and an increase in the second cycle of 80.39%. In the first cycle students completed as many as 9 students or 50% and 9 students from 18 students who completed or 50% while in cycle II students who completed to 16 students or 88.89 % and 2 students from 18 students who did not complete or 11.11%. Thus, it can be concluded that peer teaching methods in the learning to improve the result learning in the factorization algebra material of students in VIII3 class at SMP Negeri 5 Parepare.

REFERENCES

- Arikunto, Suharsimi. (2002). Class Action Research. Jakarta: Earth Script Learning Method. <http://riastypurwandari.blogspot.co.id/2014/05/metode-pembelajaran-peer-teaching.html>. accessed on 2 april 2016.
- Purwandari, Riasty. (2014). Peer Teaching
- Ruslan. (2011). Improving Results Through Learning Peer Learning Mathematics Masnur, Muslich. SBC. (2009). Contextual Competency-based learning. Jakarta: PT BumiAksara.
- Teaching Method Students of grade x 3 man 2 Parepare. Unpublished Thesis: UMPAR.