THE EFFORTS TO INCREASE STUDENT ACTIVITY IN MATH LEARNING WITH SNOWBALL THROWING MODEL IN STUDENTS CLASS VIII

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ABSTRACT

The activity of students when lessons in class are still lacking. Some of his students still consider mathematics a difficult subject to understand. The students tend to be passive when the lesson takes place; they just sit back and accept the material presented by the teacher. This study aims to improve students' activeness in learning mathematics using Snowball Throwing (ST) model. This study is a classroom action research consisting of two cycles. The subject of this research is the students of class VIII C SMP Muhammadiyah 3 Yogyakarta academic year 2016/2017. This research aims to increase student activeness in learning mathematics by using the Snowball Throwing model. Data collection techniques include observation, unstructured interviews, and diagnostic tests. The success criterion in this research is marked by the increase in the average student activity percentage of at least 61% or good. The results showed that using the model learning model of Snowball Throwing can improve students' activity in learning mathematics. This is seen as an increase in the percentage of student's activity is 56.32% with sufficient criteria in cycle I and increased in the second cycle of 71.75% with Good criteria.

Keywords: Increase, Student Activity, Snowball Throwing Learning Model.

INTRODUCTION

Education in Indonesia has experienced various changes in terms of quality and quantity in educating the nation's life. In curricula that have been applied, every subject is adjusted to students' abilities and needs to achieve intellectual, emotional, and spiritual maturity. Integration and separation of subjects were carried out as an effort to limit and mature the contents. So that various subjects have increased quality and quantity of content. Mathematics, as one of the subjects in education, then to get and improve the quality of human resources needs to be improved in advance the quality of mathematics education. Mathematics is the basis of other knowledge or the parent of other branches of science learned in school. Therefore, various abilities of students are developed through learning mathematics, such as critical thinking, logical, careful, creative, and innovative, in addition to developing the ability to count, the ability to reason, and the ability to understand concepts.

Student learning activeness is an important basic element for the success of the learning process. Activity is both physical and mental, that is, doing and thinking as a series that cannot be separated. The activeness of students in the learning process is to construct their knowledge. Students are active in building an understanding of everything they encounter in the learning process. The students' activeness in the learning process is very carefully supported by the teacher's learning models and methods.

Based on the results of interviews conducted by researchers on December 9, 2016, with one of the mathematics teachers at Muhammadiyah 3 Yogyakarta Middle School named Mr. Agus Wiranto. He explained that the students tend to be passive when the lesson takes place, especially mathematics. They only accept the material delivered by the teacher, the activeness and independence of students when learning in class is still lacking. Some students still think mathematics is a difficult subject to understand. According to Aryani, Sekar Ayu et al. (2013: 33), active learning strategies are an alternative that can create active participation and involvement in the learning process, which in turn encourages ease in improving the quality of learning. Cooperative learning type Snowball Throwing

after (ST) can be used as an alternative to solving problems regarding student activity. According to Saefuddin, Asis and Ika Berdiati (2014: 88), learning strategies with this snowball throwing model can be packaged with PAIKEM, which can motivate learners to learn to contribute their thoughts through papers (color HVS whose numbers depend on needs) as a medium for pour ideas/opinions as instructed by the teacher. HVS papers are used as snowballs that are rolled and thrown rolling at each student.

The learning steps of Snowball Throwing, according to Saur Tampubolon (2013:97) as follows: a) The educator delivers the material to be presented. b) Educators form groups and call each chairman of the group to explain the material. c) Each group leader returns to their respective group, then explains the material delivered by the educator to his friend. D) Then each group is given a single sheet of paper to write down a question of what is concerned about the material described by the group's chairman. e) Then the paper containing the question is made like a ball and thrown from one student to another student for +/-15 minutes. f) After students can one ball/one question, it is allowed the students to answer the question written on the ball-shaped paper alternately. g) Assessment and close. This study aims to improve students ' activity in mathematics learning by using the Snowball Throwing (ST) model in grade VIII students at SMP Muhammadiyah 3 Yogyakarta.

METHODS

This type of research is Classroom Action Research (CAR). This class action research design is planned to consist of two cycles, each of which consists of four stages, namely planning, action, observation, and reflection.

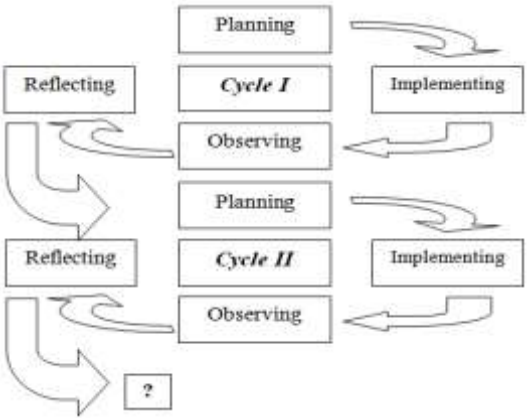

Figure 1. Research methods

Arikunto, Suharsimi, dkk (2007: 16)

This research was conducted at Muhammadiyah 3 Junior High School, Yogyakarta. This research was conducted in the even semester of the 2016/2017 school year. The subjects of this study were students of class VIII C in the even semester of SMP Muhammadiyah 3 Yogyakarta in the 2016/2017 school year, with 32 students. The class action research procedure is described as follows:

1. Cycle I
   a. Planning. At this stage, researchers design the actions to be performed in the research, including:1) Create a Learning Implementation Plan by using a commonly done model in schools that the model lecture according to the material to be taught. 2) Search for materials that support the subject matter to be taught. 3) make a test of learning results (diagnostics) for students.4) Arrange and prepare an observation sheet about the learning to be implemented.
   b. Action. Action is carried out by the Learning Implementation Plan. In carrying out this action, researchers as teachers in the learning process. Mathematics teachers play an observer in charge of noting the important things that occur during the learning process. The implementation of the action was done by teaching the material as a whole and then held a test of learning results (diagnostics).
   c. Observation. Observation is an attempt to observe action execution. The observation was done by Mr. Agus Wiratno as a grade VIII mathematics teacher during the learning process

by using an observation sheet that has been created by the researcher. Observation or observation is done to record all activities shown by students of grade VIII C of the even semester of SMP Muhammadiyah 3 Yogyakarta school year 2016/2017 during the learning process.

d. Reflection. At this stage, researchers conduct data processing and conduct discussions with the teacher to consider whether the action is reduced. The results that have been obtained in the observation phase are collected and analyzed. From that data will be seen about fulfilling the target expected in the guidance of learning set in the data analysis technique. If it has not met the target and the objectives have not been reached, then the study continues into cycle II. Weakness or deficiencies – deficiencies occurring in this I cycle will be corrected in the next cycle of cycle II.

2. Cycle II

In this II cycle, the working step is done using the snowball throwing model. Where the action in cycle II is structured based on the results of the reflection of the I cycle and the action to be performed is intended as an improvement and refinement of actions performed on the I cycle

a. Planning. At this stage, re-planned learning action refers to the cycle's outcome to fix the deficiencies and maintain and enhance the success achieved in the I cycle.

b. Action. Researchers carry out the learning activities at the action stage before, i.e., learning mathematics with a snowball throwing model. The implementation of the action in cycle II is not much different from the action on the I cycle. Only a few revisions are based on reflections on the I cycle to enhance the student's creativity further.

c. Observation. By the first cycle, observation is done during the learning process. Only observations are more emphasized in students who have difficulty learning to improve the activity of mathematics learning. Also, a second diagnostic test with the material is almost identical to the I cycle test.

d. Reflection. The reflection is a discussion between researchers and mathematics teachers about observations, tests, and changes that occurred after application with the snowball throwing model carried out in the next cycle of student learning results have not reached Good learning outcomes,

The component which became the indicator of basic competency achievement in this research is the increase of student mathematics learning activity by comparing the score of the cycle I observation percentage and cycle II observation with learning using Model Snowball throwing. It is characterized by an increased percentage of observation results from cycle I to cycle II by 61% (in good criteria).

RESULTS AND DISCUSSION

Data on the student's activity at Cycle I is stated in the following table:

Table 1. Results of activity of student cycle I

No.	Indicator	Score Meet I	Score Meet II	Score Total	Percentage	Criteria
1.	Enthusiastic students in the following learning	90	91	181	70,70 %	Good
2.	Student interactions with teachers	72	83	155	60,54 %	Enough
3.	Student interaction between students	35	41	76	59,38 %	Enough
4.	Group collaboration	68	82	150	58,60 %	Enough
5.	Student activities in groups	54	67	121	47,27 %	Enough
6.	Student participation in concluding the results of the discussion	47	59	106	41,41 %	Enough
	Total	366	423	789	56,32 %	Enough

From the table above, a percentage of the student's activity is achieved by 56.32% of observations. By the qualifications of percentage results of the student's active score, then in this cycle, the student's activity reaches sufficient criteria.

At each end of the meeting this cycle, I was given a diagnostic test to students to measure student's understanding of the material that has been studied using the snowball throwing learning model. The diagnostic test results of each meeting on the cycle I can be seen in the following table:

Table 2. Cycle I Diagnostic Test Analysis results

Information	Cycle I	
	Meet I	Meet II
Highest score	80	75
Lowest score	30	50
Mean score	55,47	63,13
Many students complete	3	3
Many students have not been completed	29	29
Percentage of students who completed	9,38 %	9,38 %

Based on the results of the diagnostic tests at each meeting in the I cycle, it can be seen that there are three students or 9.38% who achieved the compensation and 29 students or 90.64% who have not yet reached the compensation.

Data on students activity on cycle II is stated in the following table:

Table 3. Results of activity in student cycle II

No.	Indicator	Score Meet I	Score Meet II	Score Total	Percentage	Criteria
1.	Enthusiastic students in the following learning	101	109	210	82,03 %	Very Good
2.	Student interactions with teachers	91	98	189	73,83 %	Good
3.	Student interaction between students	43	45	88	68,75 %	Good
4.	Group collaboration	87	98	185	72,27 %	Good
5.	Student activities in groups	76	90	166	64,84 %	Good
6.	Student participation in concluding the results of the discussion	80	96	176	68,75 %	Good
	Total	478	536	1014	71,75 %	Good

From the table above, the percentage increased the activation of 71.75%. By the outcome of the percentage of students ' activation score, this cycle of student's activity is achieving good criteria and achieving a successful indicator of increased activity.

At each end of the meeting in cycle II, a diagnostic test was given to students to measure the students' understanding of the material learned using the snowball throwing learning model. The diagnostic test results of each meeting in cycle II can be seen in the following table:

Table 4. Results of Analysis of Cycle Diagnostic Test II

Information	Cycle I	
	Meet I	Meet II
Highest score	80	100
Lowest score	55	65
Mean score	70,47	78,13
Many students complete	12	27
Many students have not been completed	20	5
Percentage of students who completed	37,50 %	84,38 %

Based on the results of the diagnostic tests at each meeting in cycle II, it can be seen that at the first meeting of the II cycles were 12 students or 37.50% who achieved the compensation and 20 students or 62.50% who had not yet reached the compensation. Then, for the second meeting in cycle II, it experienced a fairly drastic increase. There are 27 students or 84.38% who reach satisfaction and only five students or 15.62% who have not reached the compensation.

The results of class action research conducted by researchers consisted of cycle I and cycle II on learning mathematics. Using a snowball throwing model showed an increase in student activity in mathematics learning. This is evident from the student's active observation of cycle I and the improved cycle II as well as from the diagnostic tests at each meeting on each cycle that has also increased.

Table 5. Analysis of the Results of Observation of Students' Active Cycle I and Cycle II

No	Indicator	Percentage	
		Cycle I	Cycle II
1.	Enthusiastic students in the following learning	70,70 %	82,03 %
2.	Student interactions with teachers	60,55 %	73,83 %
3.	Student interaction between students	59,38 %	68,75 %
4.	Group collaboration	58,60 %	72,27 %
5.	Student activities in groups	47,27 %	64,84 %
6.	Student participation in concluding the results of the discussion	41,41 %	68,75 %

From the percentage of active students table to learn mathematics at each cycle for each indicator, which includes: Students ' enthusiasm in following the study in cycle I of 70.70% increased to 82.03% in the cycle II, the student interaction with the teacher on cycle I of 60.55% increased to 73.83% in cycle II. The interaction between students in the I cycle of 59.38% increased to 68.75% in cycle II, group cooperation on the I cycle of 58.60% increased to 72.27% in cycle II, student activity in the group in cycle I 47.27% increased to 64.84% in Cycle II, and students participation in concluding the results of the discussions on the I cycle of 41.41% increased to 68.75% in cycle II.

From all indicators of active observation, there is a significant increase compared to other indicators, namely in the student participation indicators in concluding the results of the discussion, and the increase was 27.34% from 41.41% on the I cycle To 68.75% in cycle II.

Students' responses to math learning using the throwing snowball model are excellent, as seen from unstructured interviews with teachers and student representatives. Overall, it can be concluded that mathematics learning using a snowball throwing model can be used as an effort to improve student's activity in learning in class VIII, even semester SMP Muhammadiyah 3 Yogyakarta, and received positive responses from teachers and students. So the success indicator is achieved.

In a recent study by Widodo Yuliasto (2014) under the title increased student activity on mathematics learning through the Snowball Throwing Junior high School students stated that the application of Snowball learning strategy Throwing In mathematics learning could improve the activity of students, this is seen from the indicator of the willingness of students to work on the practice in front of the class has the most considerable improvement over other indicators, which amounted to 11.11% in cycle I and 66.66% On cycle II. This is an equation with research that has been researched by researchers, using the Snowball Throwing model can improve the activity of students, and the difference is on the indicators studied. This research indicator has increased the most from other indicators, namely the participation of students in concluding the results of the discussion of 41.41% in cycle I and 68.75% in cycle II.

In another study that was previously done by Zulaikha Nina (2014) under the title efforts to increase mathematics learning activities by using the model of cooperative learning Snowball Throwing in grade VIII students junior High School even Negeri 1 Jetis Bantul Regency school year 2013/2014 and also research conducted by Tanti Winahyu (2016) under the title Application of the Snowball

Throwing learning Model to improve activity and learning outcomes of grade XI IPS 2 SMA Negeri 1 Mojosari, both studies have stated that with Snowball Throwing learning models can increase student activity, this is evident in the enhancement of each cycle. In the study conducted by Zulaikha Nina (2014) under the title efforts to increase mathematics learning activities by using the cooperative learning Model of the Snowball Throwing type in class VIII Junior high School, 1 Jetis Regency Bantul school year 2013/2014 in the average cycle I percentage of student activity is 53.34% increase in cycle II that is 72.24% and increased again at Cycle III by 84.44%. In a study by Tanti Winahyu (2016) titled Application of Snowball Throwing learning to improve activity and learning outcomes of grade XI IPS 2 SMA Negeri 1 Mojosari in cycle I 60% increased in cycle II by 88.57 %. This is where the research has been researched by researchers using the Snowball Throwing model can improve the learning of mathematics; the difference in the variables studied. In this research variable, the increase is the activity of students, i.e., the 56.32% increase in cycle II by 71.75%.

CONCLUSION

From all the activities learning to teach mathematics using a Snowball Throwing model in class VIII C semester, even SMP Muhammadiyah 3 Yogyakarta school year 2016/2017 with Prism and limas material can be concluded that the implementation with Using Snowball Throwing Learning models can improve students ' activity in mathematics learning. It can be seen from the indicators – the indicators below:

1) The increased percentage of student activity is 56.32% (sufficient) in cycle I and cycle II of 71.75% (good).
2) Math learning using Snowball Throwing received a positive response from students meaning that students can receive well and be interested in following the learning by using the Snowball Throwing model. This is evident from unstructured interviews with students who demonstrate learning to go smoothly and get a positive response from students.

REFERENCES

Arikunto, Suharsimi, dkk. 2007. Penelitian Tindakan Kelas. Jakarta: PT. Bumi Aksara.

Aryani, Sekar Ayu, dkk. 2013. Desain Pembelajaran Aktif. Yogyakarta: CTSD.

Nina, Zulaikha. 2014. Upaya Meningkatkan Aktivitas Belajar Matematika Dengan Menggunakan Model Pembelajaran Kooperatif Tipe Snowball Throwing pada Siswa Kelas VIII Semester Genap SMP Negeri 1 Jetis Kabupaten Bantul Tahun Ajaran 2013/2014. Yogyakarta:Universitas Ahmad Dahlan.

Saefuddin, Asis dan Ika Berdiati. 2014. Pembelajaran Efektif. Bandung: PT. Remaja Rosdakarya.

Tampubolon, Saur. 2013. Penelitian Tindakan Kelas. Jakarta: Erlangga.

Winahyu. Tanti. 2016. Penerapan Model Pembelajaran Snowball Throwing Guna Meningkatkan Aktivitas dan Hasil Belajar Siswa Kelas XI IPS 2 SMA Negeri 1 Mojosari. Surabaya: Universitas Negeri Surabaya.

Yuliasto, Widodo. 2014. Peningkatan Keaktifan Siswa pada Pembelajaran Matematika melalui Snowball Throwing Siswa SMP. Surakarta: Universitas Negeri Surakarta.