THE EFFECTIVENESS OF COOPERATIVE LEARNING TYPE NUMBERED HEAD TOGETHER (NHT) ON ARITHMETIC SERIES AND SEQUENCE MATERIAL LEARNING OUTCOMES

Huzaimatus Zhahra[1*], Saiful[2], Ahmad Choirul Anam[3]

[1,2,3]Mathematics Education, Faculty of Education, Universitas Ibrahimy Situbondo
Jl. KHR. Syamsul Arifin Situbondo, Indonesia

ABSTRACT (11pt Bold)

The learning model is the design of learning activities so that the implementation of learning achieves its educational objectives. Learning is a process carried out by providing education and training to students to achieve learning outcomes. This study aims to determine student activity during the application of the Cooperative Learning learning model of the numbered Head Together (NHT) type and to determine student learning outcomes after following the application of the Cooperative Learning learning model of the numbered Head Together (NHT) type. This type of research is Classroom Action Research (PTK), this Classroom Action research was conducted at MA Ibrahimy Secang Kalipuro in class XI, Semester II. The subjects to be studied in this study were XII MIPA classes with 26 students. Data collection techniques used were observation, interviews, tests, and documentation. Data analysis was done in the form of descriptive statistical analysis. The data analyzed were student activity observation data and test result data. The results of this study showed that student learning activities in cycle I obtained 72% and increased in cycle II to 100% then student learning outcomes in cycle I obtained an average value of 70.76 with 57% classical completeness and increased in cycle II from an average value of 89.96 with 96% classical completeness.

Keywords: Learning Model, Cooperative Learning, Numbered Head Together (NHT), Learning Outcomes

1. Introduction

Learning is part of education. According to the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, learning is the process of interaction between students and educators and learning resources that take place in a learning environment (Hanafy, et al, 2014). Learning is a process carried out by providing education and training to students to achieve learning outcomes (Yulia, et al, 2022). For this reason, it is necessary to choose the right learning model to achieve its educational goals. According to Joyce, Weil and Calhoun (in Warsono and Hariyanto, 2013: 172) the learning model is a description of the learning environment, including our behavior as teachers where the model is applied. Nurfitriyanti explained that the learning model is a conceptual framework that describes systematic procedures in organizing learning experiences to achieve specific learning objectives and functions as a guide for learning designers and teachers in planning teaching and learning activities (Nurfitriyanti, et al, 2016). Numbered Head Together (NHT) is a cooperative learning model that forms students into small groups that provide opportunities for students to share ideas with each other (Fatimah, Jalmo, Marpaung, 2014) to build students' interests and abilities in provoking students to create an active learning atmosphere so as to activate students' critical thinking (Gultom, 2018).

The characteristics of Numbered Head Together (NHT) are by 1). Numbering, namely the teacher divides students into several heterogeneous groups of 4-5 students. Each group member is given a different number. 2). Questioning, where the teacher asks questions or problems to students, 3). Thinking Together (Head Together), namely students think together in groups to find answers to the questions posed and ensure that each member of the group understands and can answer questions posed by the teacher, 4). Call out, where the teacher calls one number randomly, and 5). Answering students raise their hands when their number is mentioned by the teacher, then represent their group to answer the questions asked by the teacher. According to Huda

(2015, p. 245), the steps taken in applying the NHT type cooperative learning method are as follows. 1) The teacher presents learning materials or problems to students according to the basic competencies to be achieved, 2) Gives individual quizzes to students to get a basic or initial score, 3) The educator divides the class into several groups, each group consists of 4-5 students, each group member is given a number which will be his identity when randomly appointed as a representative who answers, 4) The teacher proposes problems to be solved together in groups, 5) The answer of one of the learners appointed by the teacher is a representative of the group's answer, 6) The teacher facilitates students in making a summary, directing and reaffirming at the end of learning, 7) Giving tests or quizzes to students individually, 8) The teacher rewards groups through awards based on the acquisition of the value of increasing individual learning outcomes from the base score to the next quiz score. The Numbered Head Togeher (NHT) type cooperative learning model aims to improve the integrated thematic learning process for the better. Students learn independently and discuss with their groups, can arouse students' learning motivation and can instill attitudes of responsibility, discipline, cooperation and mutual respect for opinions (Hernilam, et al, 2021).

Based on the results of research conducted by N. M. Juiartini & N. W. Arini with the title "Application of Learning Models to Improve the Learning Outcomes of Third Grade Students". The type of research used in this study is class action research. The results of this research show that in cycle I the average learning outcomes only reached 72.74 with a percentage of 72.74% and in cycle II reached 81.93 with a percentage of 81.93%. This shows that by applying the cooperative learning model of Numbered Head Togther (NHT) student learning outcomes increased (Juliartini, et all, 2017).

But in reality, from the results of observations made on students and the results of previous research, it is said that the low learning outcomes of students in learning mathematics students are not active in the teaching and learning process, due to the lack of variation in learning methods so that it dominates students are not active in the teaching and learning process.

The purpose of this study was to determine student activity during the application of the Cooperative Learning model of the Numbered Head Together (NHT) type to improve student learning outcomes and to determine student learning outcomes after following the application of the Cooperative Learning model of the Numbered Head Together (NHT) type.

2. Research Methods

This type of research is Classroom Action Research (PTK), Classroom Action Research is effective research to improve learning in the classroom (Anas, Salahuddin, 2015). This Classroom Action Research was conducted at MA Ibrahimy Secang Kalipuro in class XI, Semester II. The subject to be studied in this study is class XI MIPA with a total of 26 students. The data collection techniques used are 1) observation the purpose is to be able to determine the effectiveness of learning using the Numbered Head Together (NHT) learning model, 2) tests in this study were conducted to determine the improvement of student learning outcomes in studying mathematics subjects held at the end of each cycle 3) interviews were conducted to verify the test results, 4) documentation is used to obtain the data needed to strengthen the results of the researcher's research by using photographs of students when doing learning using the Numbered Head Together method.

The data analysis carried out is by using descriptive statistical analysis. The purpose of analyzing this data is to determine the final results of research on the effectiveness of the Cooperative Learning Type Numbered Head Together (NHT) learning model to improve student learning outcomes. The data analyzed are: student activity observation data and test result data.

3. Results and Discussion

In this discussion, it is presented how the successful use of the Numbered Head Together (NHT) type of Cooperative Learning model to improve student learning outcomes. In this Classroom Action research, 2 cycles were carried out, namely cycle I and cycle II, where each cycle consisted of four stages, namely planning (planning), implementation (action), observation (observation and evaluation), and reflection (Reflecting).

In cycle I, it shows that the observation results of student activities that are fulfilled are 8 items out of 11 and 3 items that have not been fulfilled so they are obtained with a percentage of 72%. This shows that student activity in cycle I has not met the expected standards. After

reflection, there are several indicators that have not been implemented, namely: 1) Students do not form heterogeneous groups so that the atmosphere in the classroom looks rowdy. 2) Students have not understood the material to other students by using concept maps during the learning process. 3) No students have responded to matters related to the material that has been summarized using concept maps. While student learning outcomes in cycle I there were 15 students who were complete and 11 students whose scores were still not complete with an average score of 70.76 with 57% classical completeness. The following table recapitulates the results of the cycle I test results, the table of student activity observation results and student learning outcomes in cycle I.

Table 1. Observation Result

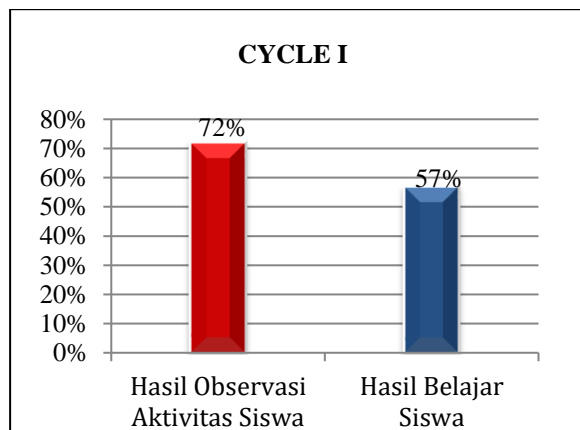| Observation Result		Completed	Not Completed
N	Valid	15	11
	Missing	0	4
Mean		76,00	63,64
Std. Error of Mean		,535	1,364
Median		75,00	60,00
Mode		75	60
Std. Deviation		2,070	4,523
Variance		4,286	20,455

Figure 1. Result of Student activity and Learning outcomes in Cycle I

After the test, the researcher conducted interviews which were carried out after the learning activities were completed. Interviews were conducted with 3 students who had been selected by the researcher. Interviews were conducted to find out the application of learning using the Cooperative Learning model type Numbered Head Together (NHT) to improve student learning outcomes. The following are the results of interviews conducted by researchers to students. Interviews with these 3 students stated that these students understood the steps of the Cooperative Learning model Numbered Head Together (NHT), did not experience difficulties in using the NHT learning model, understood the questions, were able to solve problems and could improve student learning outcomes. However, there are obstacles, namely a little difficulty in solving problems because of questions that are not understood.

Cycle II was a follow-up to cycle I which was based on the results of the researchers' reflection on the learning process. After improvements in cycle II, the results of student activity observations were obtained with a percentage value of 100%. This shows that the results of student activity observations have been carried out well. Meanwhile, student learning outcomes in cycle II show that there are 25 students who are complete and 1 student who is not complete from an average value of 89.96 with 96% classical completeness. II The following table recapitulates the results of the cycle I test results, the table of student activity observation results and student learning outcomes in cycle II:

Table 1. Observation Result

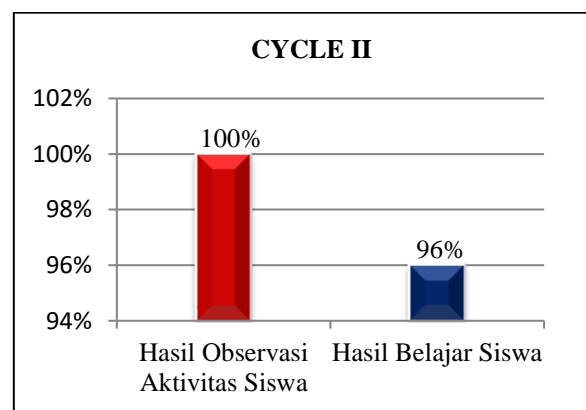| Observation Result		Completed	Not Completed
N	Valid	25	1
	Missing	0	24
Mean		76,00	90,60
Std. Error of Mean		,535	1,121
Median		75,00	90,00
Mode		75	85
Std. Deviation		2,070	5,603
Variance		4,286	31,396

Figure 2. Result of Student activity and Learning outcomes in Cycle II

This is also shown by research conducted by N.M. Juiartini & N. W. Arini which show that in cycle I the average learning outcomes only reached 72.74 with a percentage of 72.74% and in cycle II reached 81.93 with a percentage of 81.93%. From the results of the interview, it proves that students already understand the steps of the Cooperative Learning model type Numbered Head Together (NHT), students find it easier to understand the material by using the Cooperative Learning model type Numbered Head Together (NHT), and can improve student learning outcomes. This proves that the application of the Numbered Head Together (NHT) type Cooperative Learning learning model really helps students in improving student learning outcomes.

4. Conclusions

Based on the results of observations made by researchers, it shows that student activity during the application of the Cooperative Learning model of the Numbered Head Together (NHT) type in cycle I is 72% and has increased in cycle II, namely to 100% and student learning outcomes after using the application of the Cooperative Learning model of the Numbered Head Together (NHT) type can improve student learning outcomes from cycle I with an average value of 70.76 with 57% classical completeness and cycle II from an average value of 89.96 with 96% classical completeness.

For Teachers So that the learning process carried out does not feel monotonous and mediocre, it should use a learning model that can encourage or arouse students to be active, namely by using the Numbered Head Together (NHT) learning model or using learning models that are in accordance with learning materials to increase student activeness and maximum learning outcomes and for similar researchers it is recommended to use other learning models and also with different grade levels.

6. References

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