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**APPLICATION OF COOPERATIVE LEARNING MODEL TYPE OF  
NUMBERED HEAD TOGETHER TO INCREASE ACTIVITY AND  
LEARNING OUTCOME OF STUDENTS OF CLASS VIII SMP NEGERI 1  
PRAYA BARAT DAYA**

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**ABSTRACT**

The low understanding of the students in mastering the material was caused by teacher's method used conventional method and less attention with another method. So that way, it needed an interactive learning approach to solve the problems especially in prism and pyramid. The learning approach that mean here is Numbered Head Together. The research aimed to increase students' activities and achievement of SMPN 1 Praya Barat Daya in academic years 2020/2021 by implementing Numbered Head Together learning model. The research used classroom action research with two cycles. Each cycles consist of planning, acting, observing and reflecting. The subject of the research was students VIII 3 class with total subject 23 students. Based on the data analysis was gotten that there were increasing students activities and achievement from first cycle to the second cycle with average score 2,77 in active categories with classical completeness 82,60% and average score 78,04. And the cycle to average score was 3,05 with medium categories and the percentage 91.30% with average 83,91. Therefore, it took conclusion that the implementation of Numbered Head Together Learning Model can increase students' activities and achievement of SMPN 1 Praya Barat Daya in academic years 2020/2021.

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**Keywords:** Application, Cooperative Learning, Activities and Learning Outcomes, Prism and Pyramid.

**INTRODUCTION**

Education is a process to help humans develop their potential so that they can deal with any changes that occur. Education is also a social process that occurs in people and is exposed to selected and controlled environmental influences so that they can obtain optimal development of social and individual abilities. In other words, education will be strongly influenced by the individual's environment to produce permanent behavioural changes (Wahyudin, 2007).

Learning is a process of change, namely changes in behaviour as a result of interaction with the environment to meet life's needs (Daryanto, 2010, p. 2). Changes that occur in a

person are many, both in nature and type; because of that, of course, not every change in a person is a change in the sense of learning. Someone who learns will be aware of the change, or at least he feels that there has been a change in him.

One change will cause the following change and be useful for life or the following learning process. The more the learning effort is carried out, the more and better the changes are obtained so that the changes are active, meaning that the changes do not occur by themselves but because of the efforts of the person concerned. The changes that occur because of the learning process are permanent or permanent and have a purpose that will

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achieve. As a result, a person who has gone through a learning process will experience a complete change in behaviour, attitudes, skills, knowledge and so on (Daryanto, 2010, p. 2).

Learning is not to change behaviour but to change the school curriculum so that students can learn more and quickly learn something that is learned into a new skill and knowledge. According to Piaget (Daryanto, 2010, p. 11), regarding the development of the learning process in children, among others: (1) Children have a different mental structure from adults, (2) The mental development of children through certain stages according to the same sequence for adults. For all children, (3) the period for practising from stage to stage is not always the same at each stage. Furthermore, (4) the mental development of children is influenced by four factors: maturity, experience, social interaction, and equilibration (mechanical self-regulation to regulate the balance of assimilation and

accommodation processes). In addition, Gagne defines learning as a process of gaining motivation in knowledge, skills, habits and behaviour.

Based on observations at SMPN 1 Praya Barat Daya that the causes of low student achievement include lack of activity, the method used by the teacher is the lecture method so that student participation in understanding the subject matter and completing assignments from the teacher is still lacking; as a result, it has an impact on the acquisition of average scores. The average daily test results for the second semester of the 2019/2020 academic year and the average score for the first-semester final exam in mathematics for grade VIII students in the 2019/2020 school year. The following is the achievement data for the second semester of class VIII 3 daily tests for the 2019/2020 school year and the achievement data for the Final Semester Exams in mathematics, class VIII students for the 2019/2020 academic year.

**Table 1. Achievement Data for Final Semester I Mathematics, Class VIII Students of SMPN 1 Praya Barat Daya 2019/2020**

| No. | Subjects    | Class  | Average | Criteria Minimum Class | KK    |
|-----|-------------|--------|---------|------------------------|-------|
| 1.  | Mathematics | VIII.1 | 60,09   | 70                     | 62,8% |
|     |             | VIII.2 | 65,33   |                        | 63,9% |
|     |             | VIII.3 | 59,83   |                        | 57,7% |
|     |             | VIII.4 | 70,5    |                        | 64,4% |

Data source: Mathematics teacher archives at SMPN 1 Praya Barat Daya 2019/2020

From the table above, it can be seen that the average score of class VIII. Three students are lower than the average value of other class students and are one of the classes that are below the KKM value set by the school, which is 70 for mathematics. However, because class

VIII.3 is a class with too many students who skip class and do not want to take lessons at school, the average class grade is deficient. This encourages researchers to use class VIII.3 as the object of research.

**Table 2. Average Value of Semester II Daily Test for Class VIII 3 Year 2019/2020.**

| No. | Subjects            | Average | Criteria Minimum Class | CLC   |
|-----|---------------------|---------|------------------------|-------|
| 1.  | Circle              | 63,45   | 70                     | 69,4% |
| 2.  | Tangent to Circle   | 62,33   |                        | 58,3% |
| 3.  | Cubes and Blocks    | 60,0    |                        | 61,1% |
| 4.  | Prisms and pyramids | 59,42   |                        | 50,0% |

Source: Mathematics teacher archives at SMPN 1 Praya Barat Daya 2019/2020

From the table above, we can see that student learning achievement is still low, especially concerning prisms and pyramids. The subject matter of prisms and pyramids is often considered difficult by students, so the problems that occur in prisms and pyramids must get a solution so that students complete

the subject matter of prisms and pyramids. Based on the results of observations made at SMPN 1 Praya Barat Daya, there are so many problems that need action, especially on the subject matter of prisms and pyramids. To overcome these student problems, trying another learning model that invites students

to play an active role in the teaching and learning process is necessary.

To apply the right strategy, the teacher must master the learning model. The learning model is one component in the teaching and learning process that affects the achievement of learning objectives. Using the suitable model will increase student activity in understanding the subject matter so that the achievement of learning objectives can be improved, and learning will be more meaningful if students are actively involved in the learning process. Students actively seek and process information, asking questions and expressing their ideas to find a concept so that they can conclude their subject matter. The teacher only acts as a facilitator, so students do not only get information from the teacher.

*Cooperative learning* is learning that prioritizes cooperation, namely cooperation between students in groups to achieve learning objectives. The students are divided into small groups and directed to study the subject matter that has been determined. Cooperative learning aims to generate effective interaction among group members through discussion. In this case, most learning activities are student-centred, namely studying learning materials and discussing solving problems (tasks). Effective interaction allows all groups to master the material at a relatively equal level (Irzani, 2009).

The Numbered Head Together (NHT) method is a variant of group discussion. According to Selvin (1995), the purpose of the Numbered Head Together (NHT) method is to provide opportunities for students to share ideas and consider the most appropriate answers. In addition to increasing student collaboration, the Numbered Head Together (NHT) method can also be applied to all subjects and grade levels (Huda, 2020).

#### LITERATURE RIVIEW

Experts have developed learning models, including the cooperative model, one of which is the Numbered Head Together (NHT) approach. According to (Lie, 2008), this teaching and learning technique provides opportunities for students to generate ideas for each other and consider the most

appropriate answers. In addition, this technique also encourages students to increase their cooperative spirit. Numbered Head Together (NHT) learning is a variant of group discussion. The goal is to provide opportunities for students to share ideas and consider the most appropriate answers. In addition, it can also increase student cooperation (Huda, 2020).

According to (Huda, 2020), the implementation of learning using the Numbered Head Together (NHT) type is carried out in four stages. The four stages in the Numbered Head Together (NHT) learning are: 1. Numbering, Students are grouped into small groups of 4 to 5. Each group member has a heterogeneous academic ability and gender (one with high ability, two medium, and one low); if possible, group members come from different races, ethnicities, cultures, and religions. Furthermore, each group member is given a number 1, 2, 3, 4, and 5. The number owned by each group member will make it easier for the teacher to show one student from each group to do assignments, ask questions and so on. The teacher poses an assignment, question or question. In these steps, the teacher can ask questions, give assignments or give questions to students. The assignment is, of course, directed to be done by students in groups according to the groups that have been formed. group discussion

In this discussion, the teacher should always remind that each group member must understand what is being discussed and the answers to the problems given by the teacher. The existence of this discussion will further help students who have difficulty understanding the subject matter by being able to ask friends directly without fear and embarrassment. Many researchers say that peer teaching is more effective than teacher teaching. b. The teacher calls one number. Calling this number, the teacher can randomly choose a student number to convey answers or present the discussion results to other students. Responses from other friends Then, the teacher pointed to another number to present the results.

Numbered Head Together (NHT) cooperative learning is one type that emphasizes a unique structure designed to

influence student interaction patterns and aims to increase academic mastery. This type was developed by Kagen (Ibrahim, 2000).

## METHODS

The type of research used in this research is classroom action research. Classroom action research is an observation of learning activities in the form of an action, which is deliberately raised and occurs in a class together. (Arikunto, et al. 2011). So, what is meant by classroom action research (CAR) in this research is a collaboration between teachers and researchers to achieve learning objectives, namely increasing the activities and learning outcomes of class VIII students of SMPN 1 Praya Barat Daya through a specific action in a cycle.

The data from this action research were collected and analyzed in the following way: For each indicator of student activity (AS) in this study, a score will be given based on the following guidelines: A score of 4 is given if AS

> 75% of students perform descriptors, a score of 3 is given if 50 % < AS 75% of students perform descriptors, a score of 2 is given if 25% < AS 50% of students perform descriptors, a score of 1 is given if AS 25% of students perform descriptors. Calculating student learning activity scores with the equation:

$$AS = \frac{\sum X}{i} \quad (1)$$

Information:

AS = Average student activity score  
 x = Score of each student activity descriptor  
 i = Number of indicators

Determine MI and SDI with the following equations:

$$MI = \frac{Score\ Max + Score\ Min}{2} \quad (2)$$

$$SDI = \frac{1}{6}(Score\ Max + Score\ Min) \quad (3)$$

Information:

MI = Ideal Mean  
 SDI = Ideal Standard Deviation

**Table 3. Standard score guidelines for student learning activities**

| Interval                             | Category      |
|--------------------------------------|---------------|
| AS > (MI + 1,5 SDI)                  | Very active   |
| (MI + 0,5 SDI) < AS ≤ (MI + 1,5 SDI) | Active        |
| (MI - 0,5 SDI) < AS ≤ (MI + 0,5 SDI) | Active enough |
| (MI - 1,5 SDI) < AS ≤ (MI - 0,5 SDI) | Less active   |
| AS ≤ (MI - 1,5 SDI)                  | Not active    |

Bahtiar dan Saiful Prayogi (2012 : 171)

Teacher activity data were analyzed using equation (1.1), where "x" is the score of each teacher activity descriptor and "I" is the number of indicators. Furthermore, to determine MI using the same formula as in equation (1.2), while calculating SDI using equation (1.3) and the interval using the same formula as the analysis of student activity only at different intervals, namely, student activity is replaced with teacher activity (table 3.1).

After obtaining the learning outcomes data, the data were analyzed by looking for learning completeness and absorption, then analyzed quantitatively. Each student in the teaching and learning process is said to be complete if he gets 75. A minimum completeness score of 75 is chosen to adjust to the student's abilities in the school where the study is located. The following formula analyzed the test results:

$$CLC = \frac{N \geq 75}{N} \times 100\% \quad (4)$$

Information:

CLC = classical learning completeness  
 N = number of students present

## RESULTS AND DISCUSSION

This classroom action research was conducted from May 19, 2021, to May 31, 2021, at SMPN 1 Praya Barat Daya. The activity took place in cycle II, with class VIII.3 students of SMPN 1 Praya Barat Daya as the subject totalled 23 people, consisting of 10 male and 13 female students. Data about student learning and teacher activities in the teaching and learning process were obtained from student activity observation sheets and teacher activity observation sheets. Meanwhile, data on student learning outcomes were obtained from formative tests conducted at the end of each cycle.

**Table 4.1 Student Activity Observation Result Data Cycle I and II**

| Cycle   | Parameter                               | Information          |
|---|---|----------------------|
| <b>Students' Activity</b>                           |   |                      |
| I   | Many Students                           | 23 people            |
|   | Total score                             | 50                   |
|   | Max score                               | 4                    |
|   | Min Score                               | 1                    |
|   | Average score of student activity       | 2,77                 |
|   | <b>Category</b>                         | <b>Active Enough</b> |
| II  | Many Students                           | 23 people            |
|   | Total score                             | 55                   |
|   | Max score                               | 4                    |
|   | Min Score                               | 1                    |
|   | Average score of student activity       | 3,05                 |
|   | <b>Category</b>                         | <b>Active</b>        |
| <b>Teachers' Activity</b>                           |   |                      |
| I   | Total score                             | 17                   |
|   | Average score of teacher activity       | 2,83                 |
|   | <b>Category</b>                         | <b>Active Enough</b> |
| II  | Total Score                             | 20                   |
|   | Average score of teacher activity       | 3,33                 |
|   | <b>Category</b>                         | <b>Active</b>        |
| <b>Data Evaluation of Student Learning Outcomes</b> |   |                      |
| I   | Number of participants taking the test  | 23 students          |
|   | Number of questions                     | 5 question item      |
|   | Number of students who completed        | 19 students          |
|   | Number of students who did not complete | 4 students           |
|   | Max score                               | 100                  |
|   | Min score                               | 0                    |
|   | Grade average                           | 78,04                |
|   | Percentage of classical completeness    | <b>82,60 %</b>       |
|   | Highest score                           | 100                  |
|   | Lowest Value                            | 55                   |
| II  | Number of participants taking the test  | 23 students          |
|   | Number of questions                     | 5 questions item     |
|   | Number of students who completed        | 21 students          |
|   | Number of students who did not complete | 2 students           |
|   | Max score                               | 100                  |
|   | Min score                               | 0                    |
|   | Grade average                           | 83,91                |
|   | Percentage of classical completeness    | <b>91,30 %</b>       |
|   | Highest score                           | 100                  |
|   | Lowest Value                            | 65                   |

In this study, researchers conducted learning using the NHT (Numbered Head Together) type cooperative learning method on Prisma and Pyramid material with the hope that the learning outcomes of class VIII.3 students of

SMPN 1 Praya Barat Daya could be optimized to achieve complete learning. The material for prisms and pyramids presented in cycle I and cycle II are: identifying the properties of prisms and pyramids, making nets of prisms and pyramids, determining the surface area of prisms

and pyramids, calculating the volume of prisms and pyramids and working on related problems. With the surface area and volume of prisms and pyramids.

The results of the implementation of the first cycle shown in table 4.3 show that the average value of student learning is 78.04, with a percentage of student learning completeness of 82.60%. While in table 4.1 for student learning activities, the average value is 2.9 with a reasonably active category. Furthermore, table 4.2 for the average teacher activity is 2.8 with a reasonably active category. This means that students' learning mastery has not been achieved following the learning mastery set on the work indicator of 85%.

Table 4.4 shows that the deficiencies that existed during the first cycle that caused classical completeness in the class could not reach the indicators set by the school, namely 85%, so that in the second cycle, improvements were made to these deficiencies. From the changes in these activities, in the second cycle, during the observation and evaluation stages, it turned out that there was an increase where classical completeness in the first cycle was 82.60%, increasing to 91.30%.

Paying attention to cycles I and II from experience gained by researchers in the field during research with the application of the Numbered Head Together type of cooperative learning model on the prism and pyramid subject matter in the second semester of the 2020/2021 academic year, there was an increase in student activity and achievement in cycles I and II. Cooperative learning, which emphasizes Numbered Head Together, makes students work together to solve the problems they face. According to (Agus Suprijono, 2010, p. 58), correctly Implementing cooperative learning model procedures will enable teachers to manage classes more effectively. The cooperative learning model will be able to foster effective learning, namely learning characterized by: (1) "making it easier for students to learn" something "useful" such as facts, skills, values, concepts, and how to live in harmony with others; (2) knowledge, values, and skills recognized by those who are competent in assessing.

Through the learning model, the teacher can help students get information, skills, ideas, ways of thinking, and express ideas. The learning

model also guides learning designers and teachers in planning teaching and learning activities (Agus Suprijono, 2010, p. 45). Thus, the cooperative learning type, Numbered Head Together, is a learning model teachers can use to create a more pleasant learning atmosphere in the classroom.

Because the objectives of the research carried out, have been achieved. The learning activities are by the plans and expectations; the research cycle was stopped until the second cycle only, where in this cycle, there was an increase from the first cycle with the results of the observation of student activity of 2.27 and teacher activity of 2.83 with moderately active category, classical completeness was 82.60%, and in Cycle II increased, namely the results of student activity observations of 3.05 and teacher activity observations of 3.33 with active categories and 91.30% classical completeness. By looking at the results of the evaluation, it can be seen that the application of the Numbered Head Together Type of Cooperative Learning Model Can Improve Activities and Learning Outcomes in the Prism and Limas Main Materials for Class VIII.3 Students in the 2020/2021 Academic Year.

## CONCLUSION

Based on the results of research and discussion, it can be concluded that the cooperative learning model of the NHT type (Numbered Head Together) can improve the learning achievement of class VIII students of SMP Negeri 1 Praya Barat Daya. This can be seen from the percentage of classical completeness obtained in the first cycle of 82.60% to 91.30% in the second cycle. This shows an increase in the expected learning completeness. The suggestions that can be submitted based on the results achieved in this study are: (1).

It is expected that mathematics teachers consider children's development and level of thinking as a reference in choosing learning methods and strategies and try to implement cooperative learning with the NHT type (Numbered Head Together) because it will allow students to be more active in class. (2). It is expected that schools will provide learning facilities such as textbooks and other facilities because they can increase students' learning motivation, resulting in increased student achievement. (3). For future researchers who want to develop the results of this study, it is hoped that

they will try to apply the NHT type of cooperative learning method to other subjects with a broader scope or can compare this method with other learning methods.

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