

The Effect of The Numbered Head Together Learning Model on The Student's Biology and Character Learning Outcomes in The Principles of The Respiratory System in Class XI SMA Negeri 1 Panai Hulu

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Abstract

This study aims to determine; the influence of the Numbered Head Together learning model on learning outcomes and student character on the subject of the respiratory system at SMA Negeri 1 Panai Hulu. The research method uses a quasi-experimental method with a research sample of 2 classes that are determined randomly with cluster random sampling technique taught by learning model Numbered Head Together type cooperative. And 1 class is taught using conventional learning strategies while 1 class is taught using the Numbered Head Together learning model on learning outcomes and student character on the subject of the respiratory system. The research instrument used a learning outcome test of 30 questions in the form of multiple choice; student discipline character test as many as 20 questions and the questions have been tested for validity. The results showed: There was a significant effect between the use of the Numbered Head Together type of cooperative learning model on learning outcomes and student character on the subject of the respiratory system at SMA Negeri 1 Panai Hulu. Biology learning outcomes of students who are taught by cooperative learning model type Numbered Head Together 87.60 ± 3.30 . and Discipline Characters Students who are taught by cooperative learning model Numbered Head Together are 86.51 ± 2.59 .

Keywords

learning outcomes; student character



I. Introduction

As a large country and with abundant natural resources, basically, Indonesia has great potential to become one of the advanced, dignified and better nations than it is today, and all of this can be realized, of course, with the support of quality, creative and creative human resources. have a clear and directed vision for the progress of the Samoto nation, (2013), to meet the goal of creating quality human resources, of course, education is the most important factor that cannot be separated. Human Resources (HR) is the most important component in a company or organization to run the business it does. Organization must have a goal to be achieved by the organizational members (Niati et al., 2021). Development is a change towards improvement. Changes towards improvement require the mobilization of all human resources and reason to realize what is aspired (Shah et al, 2020). The development of human resources is a process of changing the human resources who belong to an organization, from one situation to another, which is better to prepare a future responsibility in achieving organizational goals (Werdhiastutie et al, 2020). When viewed from the aspect of quality and quantity, the implementation of education is still the most prominent problem in any attempt to reform the national

education system. Both problems are difficult to handle simultaneously because in an effort to improve quality, neglected quantity problem and vice versa. Therefore, it is not surprising that the problem of education is never resolved anywhere, including even in developed countries. Darmawati, J. (2013).

However, the government, in this case the Ministry of National Education, has made various efforts in overcoming all educational problems. These efforts cover almost all components of education. For example curriculum renewal, renewal of the teaching and learning process, improvement of teacher quality, procurement of textbooks, procurement and improvement of learning facilities and infrastructure, improvement of the assessment system, organizational arrangement and education management, and various efforts that lead to maximum achievement of teaching/educational outcomes. Andrayani, (2017), All elements that affect the achievement of maximum learning outcomes are considered. It's just that the reality shows that every time a teaching evaluation is carried out, the results are often unsatisfactory, including in the teaching of Science-Biology in general. Of course, many influencing factors, including student interest in the subject in question, deserve to be questioned. This is in accordance with the opinion of Abu Ahmadi, (2007), that if there is no one's interest in a lesson, there will be difficulties in learning.

This is in accordance with Law No. 20 Years 2003 concerning the National Education system in article 3 (three) which states that National Education functions to develop capabilities and shape the character and civilization of a dignified nation in order to educate the nation's life. relevant again.

We also hear, see, and witness, how young people, students and university students who are expected to be the backbone of the nation have been involved with VCD porn, sexual harassment, drugs, motorcycle gangs and gambling Mulyasa, E. (2014), development and implementation of the 2013 curriculum. which is based on character education, which was originally launched only for schools that are considered competent, has now been disseminated to all schools in Indonesia, including SMA Negeri I Panai Hulu.

Chairiyah (2014), in learning teachers are busy preparing material systems and lesson plans prepared by teachers and books published by the government in each class so that they can apply character education to their students. Teachers are also required to insert at least 12 characters that are expected to be able to have an impact on the expected character changes on students in line with the vision and mission of national education, namely: mandate of the proclamation of the Unitary State. Republic of Indonesia through the educational process.

Mutia, A, M. (2016), the use of learning models can stimulate students' learning. In certain conditions, students feel bored with the lecture method because they have to faithfully and calmly listen to the teacher's explanation about a problem. Such teaching activities need the teacher to take over with another atmosphere, namely various uses of the Teaching System Development model, the Numbered Head Together (NHT) model so that boredom can be cured and turned into an atmosphere of activity that is far from sluggish Andriani, R., & Rasto, R. (2019), using a learning model that is in accordance with the psychological conditions of students. So it is important to understand the psychological condition of students before using the teaching model in order to get optimal results from each student.

II. Research Method

This research was conducted at SMA Negeri I Panai Hulu, Labuhanbatu Regency. And when the research was carried out in March 2022. The population in this study was all students of class XI SMA Negeri I Panai Hulu consisting of grade 3 with a total of 120 students. The sample of this study was two classes which were taken and determined randomly by Cluster Random Sampling. This type of research is quantitative research. The data collection technique in this study is by means of a test which will be carried out 2 times, namely the initial test (Pretest) and the final test (Posttest). The initial test aims to determine the initial ability of each student. The final test aims to determine the results achieved by students after the teaching and learning process takes place. The instrument in this study is in the form of questions consisting of 30 multiple choice questions. And The student discipline character test is 20 questions, and the questions have been tested for validity. Then the questions were distributed during the pretest and posttest. The results of the pretest and posttest will be the data on learning outcomes and student character in the subject of the respiratory system in class XI SMA Negeri 1 Panai Hulu. In order to facilitate research, it is necessary to do a method, so in this study the author uses a quantitative method (Arikunto, Suharsimi.2010), the main purpose is to determine the influence of the Numbered Head Together Learning Model on the learning outcomes of biology and student character in the main system discussion. breathing in Class XI SMA Negeri I Panai Hulu.

III. Result and Discussion

The description of the data presented in this study shows that the results of the pretest. In the Numbered Head Together class, the students' pretest results obtained the highest score of 57 and the lowest 33 with an average standard deviation of 39.58 ± 4.91 and the data on the initial ability of the Numbered Head Together class students had a normal distribution of data ($Z = 1.087$; $P = 0.188$) . Meanwhile in the conventional class, from the pretest results, the highest score was 53 and the lowest was 30 with an average value and standard deviation of 39.6 ± 5.76 and the data had a normal distribution ($Z = 9.54$; $P = 0.325$).

In Numbered Head Together, from the posttest results, the highest score was 90 and the lowest was 83 and the average value and standard deviation was 87.60 ± 3.30 and the data had a normal distribution ($Z = 1.53$; $P = 0.018$). Furthermore, the results of the homogeneity test of student learning outcomes using the Levene's Test showed that the variation in the data between the two sample groups in the population was homogeneous ($F = 0.505$; $P = 0.605$).

3.1 Description of Student Discipline Character Data

Discipline character data were also collected in two stages, namely before being given a lesson (pretest) and after being given a lesson (posttest). The results of the initial test for student discipline character, showed that changes in the character of conventional class students, changes in student discipline character with the highest score of 23 and the lowest 13 with an average value and standard deviation of 20.00 ± 2.31 and the data is normally distributed ($Z = 0.962$; $P = 0.313$). Meanwhile, in the Numbered Head Together class, the highest score for student discipline was obtained, the highest score was 23 and the lowest was 17 with an average standard deviation of 18.44 ± 1.93 and the data was normally distributed ($Z = 0.999$; $P = 0.271$).

While the Posttest results for the Discipline character of students after being given cooperative learning in the Numbered Head Together Class, from the posttest results obtained the highest student Discipline character value is 92 and the lowest is 85 and the average value and standard deviation is 86.51 ± 2.59 and the data has a similar distribution, normally distributed ($Z = 1.56$; $P = 0.015$).

Furthermore, the results of the homogeneity test of student learning outcomes using the Levene's Test showed that the variation in the data between the two sample groups in the population was homogeneous ($F = 0.505$; $P = 0.605$). Furthermore, the results of the homogeneity test of student character changes using the Levene's Test showed that the data variation between the two sample groups in the population was homogeneous ($F = 5.525$; $P = 0.005$).

3.2 Data analysis

Hypothesis testing was carried out to find out the data on learning outcomes and the character of students' discipline (based on pretest and posttest data).

a. The Influence of Numbered Head Together Learning Model and Conventional Learning on Student Biology Learning Outcomes.

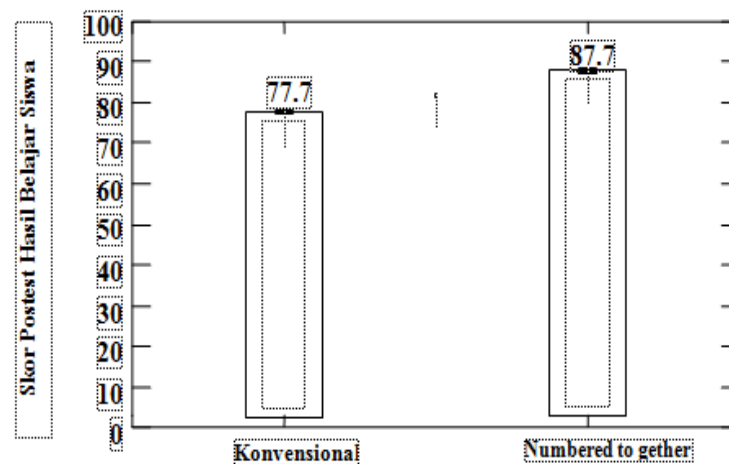


Figure 1. Influence Model Learning Numbered Head Together, and Conventional Learning on Student Biology Learning Outcomes on the Respiratory System Material at SMA Negeri 1 Panai.

The results of the analysis using SPSS Software Version 22 showed that the Numbered Head Together learning model significantly affected student learning outcomes ($F = 94.96$; $P = 0.000$) and pretest did not correlate with posttest scores or learning outcomes ($F = 2.72$; $P = 0.10$). Furthermore, the results of the Tukey test showed that the learning outcomes of students who were taught using the Numbered Head Together Learning Model 87.66 ± 3.30 were significantly higher than those of conventional strategy students.

b. The Influence of Numbered Head Together Learning Model and Conventional Learning on Discipline Character.

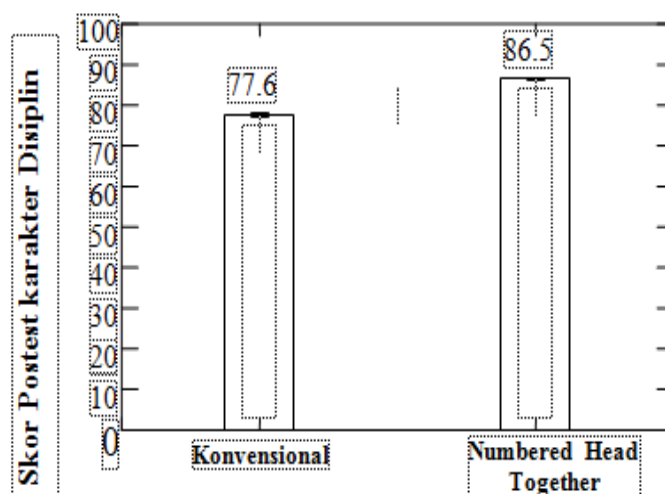


Figure 2. *The Influence of Numbered Head Together Learning Model and Conventional Learning on Student Discipline Characters in the Respiratory System Material at SMA Negeri 1 Panai Hulu.*

The results of the analysis using SPSS Version 22.0 software showed that the learning model significantly affected the student's discipline character ($F= 210.24$; $P= 0.000$) and changes in the student's character discipline ($F=6.19$; $P=0.29$). Furthermore, the test results Tukey showed that the Discipline character of students who were taught by the Numbered Head Together Learning Model, 86.51 ± 1.71 was significantly higher than the score of the Disciplined characters of students who were taught by the Conventional Learning Model.

3.3 Discussion

Based on the data that has been obtained by researchers from the results of hypothesis testing using the SPSS version 22 program to see the effect of the learning model using Numbered Head Together 87.66 ± 3.305 which is significantly higher than the learning outcomes of students who are taught using the conventional learning model 77.69 ± 2.961 . This shows that the Numbered Head Together learning model is proven to be effective in improving students' biology learning outcomes compared to conventional learning.

This result is in accordance with what was stated by Nur Kholis (2017), that students who were taught using the cooperative learning model experienced greater progress in their understanding of the subject matter compared to students who were taught using conventional learning. In line with that H. Kartikasani, & S. Khanafiyah, Sutikno (2012), said that the cooperative learning model was developed to achieve learning outcomes in the form of academic achievement, tolerance, accepting diversity, and developing social skills.

The results of this study are also in accordance with the research results of Saleh & Samsul, H. (2015), which concluded that Numbered Head Together learning can have good potential to increase student activity and learning outcomes, because the use of this learning strategy will make it easier for students to understand and recall the material that has been studied. The results of students' biology learning on the respiratory system material using the Numbered Head Together learning model is higher than using

conventional learning strategies. This is because the learning model gives students time to think and respond and help each other. This is evidenced by learning observations that involve all students to think about the problems that occur in the respiratory system material. For example, if in the food chain, producers will run out in prey, will it damage the system in the food chain. In this case, students think to find solutions to existing problems, thus enabling students to explore their knowledge cooperatively in the process of interaction and discussion with other students in their class. In this case, after students find all key words or important terms from a subject matter that has been studied,

The conclusion obtained is also in line with the opinion of Nazliah Rahmi (2017), which suggests that the Numbered Head Together strategy consisting of 3-5 people is heterogeneous in ability by involving students to think or discuss with themselves after reading, then talk and share ideas with friends and write conclusions individually at the end of the lesson.

Then the effect of using the Numbered Head Together Learning Model and the character of student discipline which was analyzed using SPSS version 22. The results of the covariate analysis obtained $F_{count} > F_{table}$, namely $210.245 > 3.091$ and a probability value of $0.000 < 0.05$. Thus, accept H_a or reject H_0 so that it can be concluded that there is a significant effect between the use of the Numbered Head Together Learning Model and the student discipline character of 86.51 ± 1.712 , which is significantly higher than the conventional learning model.

The conclusions above also support the results of Siregar's research, ZA (2018), in his research journal, stated that the results of the application of the Numbered Head Together Learning model had a positive impact on increasing student achievement and changing character.

IV. Conclusion

Based on the results of the research and discussion previously stated, it can be concluded that:

1. There is a significant effect of learning outcomes between students who are taught using the Numbered Head Together learning model on the respiratory system material in Class XI SMA Negeri 1 Panai Hulu.
2. There is a significant influence on the value of discipline character. Students who are taught using the Numbered Head Together learning model on the respiratory system material in Class XI SMA Negeri 1 Panai Hulu.

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