

## A review on Numbered Head Together (NHT) learning model to improve biology learning outcomes

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Article information	ABSTRAK
Article history:	Penelitian ini bertujuan menganalisis hasil belajar siswa pada model NHT
Received February 24, 2021	pada materi sistem pernapasan. Penelitian ini menggunakan metode
Revised April 5, 2021	pengumpulan data pustaka, membaca dan mencatat bahan penelitiannya
Accepted April 28, 2021	( <i>library research</i> ). Pengumpulan data yang digunakan yaitu melalui studi
Kata kunci:	dokumentasi dengan tahapan pengumpulan data secara <i>editing</i> dan
Numbered Head Together	<i>organizing</i> . Data dianalisis dengan teknik induktif dan deduktif. Hasil
Hasil Belajar Siswa	penelitian: 1) hasil belajar siswa menunjukkan adanya peningkatan hasil
Sistem Pernapasan	belajar siswa dengan menggunakan model NHT, 2) strategi dalam
<i>Library Research</i>	meningkatkan hasil belajar terdiri dari sintaks yaitu penomoran, mengajukan pertanyaan, berpikir bersama dan menjawab pertanyaan, 3) terdapat hasil belajar siswa sebelum diterapkan model pembelajaran yaitu rendah dan setelah diterapkan model NHT mengalami peningkatan, 4) efektivitas model NHT efektif dalam meningkatkan hasil belajar siswa, 5) penggunaan model NHT dapat memberikan kesempatan kepada siswa untuk mengemukakan ide-ide pengetahuan dalam bertanya maupun berpendapat.
	ABSTRACT
Keywords:	This study aims to analyze student learning outcomes in the NHT model
Numbered Head Together	on respiratory system material. This research uses library data collection
Student Learning Outcomes	methods, reading and recording research materials ( <i>library research</i> ).
Respiratory System	Data collection used is through documentation study with data collection
Library Research	stages by editing and organizing. Data were analyzed using inductive and deductive techniques. The results of the study: 1) student learning outcomes showed an increase in student learning outcomes using the NHT model, 2) strategies in improving learning outcomes consisted of syntax, namely numbering, asking questions, thinking together and answering questions, 3) there were student learning outcomes before the model was applied. learning is low and after the application of the NHT model has increased, 4) the effectiveness of the NHT model is effective in improving student learning outcomes, 5) the use of the NHT model can provide opportunities for students to come up with ideas of knowledge in asking and arguing.

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## INTRODUCTION

Education is an effort to improve the quality of human resources development. Efforts to develop Human Resources can be made through education, as an outline of the goals of education itself, which is to help students develop their potential in a more positive direction so that someone can become more moral and beneficial to himself and his environment. The education of a country can produce people who are capable of competing in the times of development which not only have intellectual intelligence but skills that are useful for themselves and others (Yachsan, 2019).

Learning outcomes are an important part of seeing student success in learning in accordance with predetermined learning goals. Student learning outcomes can be seen from several aspects such as cognitive (knowledge), affective (attitude), and psychomotor (behavior) aspects. Learning outcomes are influenced by students' experiences of their interactions with the environment (Suparno, 2012). Most of the learning that is applied is still teacher-centered, which is dominated by conventional methods which tend to make students bored and not actively involved in the learning process (Nismarni, 2017). Efforts used to improve learning outcomes are by doing learning that can increase the learning success of students. The increase in the learning success of these students can be improved by using a cooperative learning model, namely by applying the numbered head together (NHT) cooperative learning model (Wahyuningsih and Singgih, 2015).

The numbered head together (NHT) cooperative learning model is a learning model that uses a cooperative approach (Slavin, 2008). NHT emphasizes special structures designed to influence student interaction patterns in increasing mastery of academic content (Wahyuningsih and Singgih, 2015). According to Gustaviana and Yuansyah (2013), the NHT model is cooperative learning that can stimulate students' thinking patterns and student activeness because each student has individual responsibility for group discussion learning so that students are always ready and no longer dependent on the theme. Murtia in Handayani (2018) states that the use of the numbered head together model can improve learning outcomes.

The learning steps for the Numbered Heads Together model, according to Al-Tabany (2014), are (1) Numbering; in this phase, the teacher divides students into groups of 3-5 people. Moreover, to each group member numbered 1 to 5, (2) Asking questions, the teacher asks a question to students. Questions may vary. Questions can be very specific and in the form of interrogative sentences, (3) Think together, Students unite their opinions on the answer to the question, and make sure each team member knows the team's answer, (4) Answer, the teacher calls a certain number, then the student whose number matches her hands and tries to answer questions for the whole class. The existence of such steps will provide opportunities for students to convey ideas in groups and in-class discussions (Trisnawati et al., 2018).

## METHODS

The method used by researchers in this research is the descriptive qualitative method. This type of research is library research. Library research is a study used in collecting information and data with the help of various materials in the library, such as documents, books, magazines, historical stories, etc. (Mardalis, 1999). The steps for library research, according to Zed in Sari (2020), include: 1) choosing a general idea about the research topic; 2) looking for information that supports the topic; 3) emphasize the focus of the research; 4) searching and finding the required reading material and classifying the reading material; 5) reading and making research notes 6) reviewing and enriching reading material; 7) reclassify the reading material and start writing the report. The data collection technique used is through documentation study with the stages of data collection by editing and organizing with inductive and deductive data analysis techniques. The data analysis technique used in this research is the content analysis method. This analysis is used to obtain valid inferences and can be re-examined based on the context. In this analysis, the process of selecting, comparing, combining, and sorting various meanings will be carried out until they are found that they are relevant. To maintain the rigor of the assessment

process and prevent and overcome misinformation, inter-literature checks are carried out and pay attention to the supervisor's comments (Krippendoff, 1993).

## **RESULTS AND DISCUSSION**

### **1. Learning Outcomes Using the Numbered Head Together (NHT) Learning Model in Biology Learning**

The results of research conducted by Sumarni (2020) show that after being given learning using the numbered head together (NHT) model, the action that students' learning outcomes have increased in each cycle. In the first cycle, it was 68.18%, and in the second cycle was 81.82%. This happens because students follow the learning well and understand the material they have received during the learning process. Because the NHT learning model has advantages, namely that it can increase student learning activities, the interaction between participants to work together, help each other in mastering learning materials, and increase individual understanding (Mauliza, 2020). Some of the supporting aspects of NHT learning are openness, criticism or suggestions, and tolerance. Openness in this learning activity accepts different opinions from others during learning activities, thereby adding complementary information during learning (Leasa et al., 2017). So it can be concluded that the Numbered Head Together (NHT) learning model can improve student learning outcomes on the respiratory system material.

### **2. Good Application of Numbered Head Together (NHT) Learning Model in Improving Student Learning Outcomes**

The results of research conducted by Yuliani *et al.*, (2018) show that student learning outcomes in the affective domain are 62.50% in the good affective category and 26.69% in the very good category. The results of the N-gain test on learning outcomes in the cognitive domain were obtained from the Posttest results which showed N-gain of 0.61 in the medium improvement category, while the results of the learning completeness analysis showed that 100% of students experienced completeness. The NHT learning strategy indirectly trains students to share information, listen carefully and speak calculatively, so that students are more productive in learning and improve student cognitive learning outcomes (Nursyamsi et al., 2016). Syntax in the type of NHT cooperative learning method, namely numbering, asking questions, thinking together, and answering questions. With this numbering, all students are required to be ready and active in teaching and learning activities.

### **3. Good Application of Numbered Head Together (NHT) Learning Model in Improving Student Learning Outcomes**

The results of research conducted by Nursyamsi et al. (2016) show that the mean early cognitive learning outcomes of the control class (conventional) were 47.60 and the final cognitive learning outcomes (54.03) increased by 13.52%. Whereas in the experimental class (NHT), the mean of students' initial cognitive learning outcomes was 52.80%, and the mean value of students' final cognitive learning outcomes was 66.33%, an increase in the mean cognitive learning outcomes of the experimental class (NHT) was 25.63%. This happens because the Numbered Head Together (NHT) learning strategy indirectly trains students to share information, listen to teacher explanations carefully so that it makes students more productive in learning and improves biology learning outcomes. This is in line with the results of Surya's (2018) research, which states that NHT learning is a type of cooperative learning that emphasizes special structures designed to influence student interaction patterns and has the aim of increasing academic mastery.

### **4. Student Learning Outcomes Before and After the Implementation of the Numbered Head Together (NHT) Learning Model**

The results of research conducted by Trisianawati et al. (2018) show that there are differences in the pretest and posttest results with the pretest mean of 45.00 with SD 14.43 while the mean posttest of students is 77.80 with SD 7.23. Obtained calculations using the t-

test Pair sample t-test data pretest and posttest students obtained t count of -14.08 with a probability of  $0.00 < 0.05$  with Ho's decision accepted. So it can be concluded that there are differences in student learning outcomes before the numbered head together (NHT) learning model is applied and after it is applied. Because the numbered head together (NHT) learning model makes students learn independently, students are more active in working on the problems they face. This is in line with Hapsari's (2016) research that NHT is part of a structural cooperative learning model, which emphasizes special structures designed to influence student interaction patterns that prioritize student activities in finding, processing, and reporting information from various sources. Which was finally presented in front of the class so that it could train students to share information with each other, listen carefully, and speak calculatingly.

## 5. The Effectiveness of Numbered Head Together (NHT) Learning Model on Improving Student Learning Outcomes

The results of research conducted by Uki (2018) show that the average increase in cognitive learning outcomes of students taught using the NHT model with a mean of 41.20, cognitive learning outcomes taught using the STAD model with a mean of 36.47, and cognitive learning outcomes students who are taught using conventional models with a mean of 34.84, this proves that the NHT learning model has an increase that is more effective than the STAD and conventional models. Student character after being applied the Numbered Head Together (NHT) learning model. This model is also based on a student center which can facilitate all students to be active in learning and share their ideas (Zaakiyah, 2017).

The results of research conducted by Siregar (2018) show that the students' character pretest in the experimental class obtained the highest score of 23, and the lowest was 17, with an average standard deviation of  $18.44 \pm 1.93$ . In the conventional class, the highest score was 20, and the lowest was 13, with a standard deviation of  $18.00 \pm 2.31$  while the results of the posttest of students' discipline characters in the experimental class obtained the highest score of 92 and the lowest of 85 with a standard deviation of  $86.51 \pm 2.59$  and in the conventional class, the highest score was 80, and the lowest was 75 with a standard deviation of  $77.6 \pm 2.07$ . Through the NHT learning model, the teacher tries to change the way students think to be more focused and able to solve any problems they will face even without the help of the teacher. This is in line with Luedi's (2017) opinion on the use of the NHT learning model for students to become more mature and independent in dealing with all problems. In addition, the teacher can provide an assessment to students who really understand the material given. In addition, the teacher evaluates student learning outcomes through questions related to the material that has been given.

## CONCLUSION

From the results of the analysis and discussion by previous theories and research, it can be concluded that the use of the numbered head together (NHT) splitting model can improve student learning outcomes. The use of the numbered head together (NHT) learning model provides opportunities for students to think higher and is given the opportunity to exchange learning experiences. Student character after the application of the Numbered Head Together (NHT) learning model can make the character of students more responsible and disciplined in the learning process both individually and in groups. The Numbered Head Together (NHT) learning model can provide opportunities for students to express their knowledge ideas in considering answers and be able to ask questions and argue with each other.

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