



## The Influence of the Number Head Together (NHT) Cooperative Learning Model on Improving Results Student's Mathematics Learning

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### ABSTRACT

By employing the cooperative learning model, which types types head together (NHT) in the learning process, being able to make the presented material more accessible to learners, learners to explore their own knowledge, and learners to address the established issues stating that the cooperative course of study The purpose of this study is to identify the influence of the cooperative learning model, which is primarily head together (NHT) on the increased outcomes of studying mathematicians. The study method was literature review by collecting data from scientific journals, books, and other associated sources. Studies based on the motode literature review review can conclude that application of the elevate head together learning model (NHT) affects the learning of the mathematics of learners as well as that of learners of learners. Literature data sources acquired and analyzed state the results of studying mathematically learners who use advanced head together (NHT) learning models (NHT) than those who use conventional models.

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## **INTRODUCTION**

Education is essential in providing qualified learners as human resources. There are so many important things in human development and life, one of which is education, with education, the birth of an intelligent society capable of building creativity and independence for its nation and country (cahyadi al, 2021). At the 2003 national education system, article no. 20, section 3, and 4, which affirms that education is held as a life-long process of cultivating and empowering learners by modeling, building volition, and developing creativity, learners in the learning process (pangestu al., 2019). The primary purpose of education is for optimum learning and learning experiences. Learning is a form of activity where interactions in learning and teaching learners with educators and resources learn to develop behaviors consistent with the educational purpose (hamalik, 2003: 2).

In the learning process are several subjects, one of which is a mathematical subject. The learning process is a system. Thus, the standard process for improving the quality of education can begin with the degenerating of each component that can shape and influence the learning process (sanjaya, 2006: 13). Mathematics is a deductive science that deals with hieratic ideas or concepts and receives generalization based on deductive reasoning (the goddess et al, 2021). According to the sumardyono (2004: 30), mathematics has 6 characteristics of abstract objects of study, based on agreement, deductive thought patterns, has empty meanings, attention to the talking universe, is consistent in its system.

The process of math learning goes on, the learning is still centered on the teachers (teacher center) and the learning methods used are just the lecture method, most of the learners are still embarrassed to ask and express their opinions, the responsibility of learners who are so lacking in the tasks given by the teacher, the lack of interaction between the learner and the learner, And most learners are less active so that learning participants are only passive. It is this factor that makes learners struggle with understanding the material presented by teachers, resulting in cahyadi et al, 2021).

The factor affecting the poor learning result is the learning process in the classroom, teachers tend to use conventional learning models (goddess et al, 2021). Learning is also the result of an assessment of a learning process expressed in the form of symbols, Numbers, letters, or sentences (marseno et al, 2021). According to hamalik (2003) the results of study are patterns, actions, values, understanding, and attitudes and perceived and capability. From both statements it may be inferred that a sense of learning is a real change in the conduct of learners after a teaching process that fits the teaching objective (jihad, 2012: 15).

One alternative cooperative learning model that can be used in math study is a cooperative head together. Continuing head together (NHT) or thinking together is a type of cooperative learning designed to involve learners who study the material involved in a lesson and check their understanding of the content of the lesson (pangestu & kadir, 2019). Recurring head together (NHT) was first developed by spencer kagen to involve more learners in

studying the material involved in a lesson and checking their understanding of the content of the lesson. Steps that can be taken in this learning model as follows (pangestu & kadir, 2019): phase 1: numbering (teacher divides learners into groups of 3-5 and to each group member are numbered between 1-5), phase 2: ask questions (teacher asks the learner questions, questions can vary), phase 3: Think together (learners unify their opinions on the answer to the question and convince each member of his team to know the team's answer), phase 4: answer the question (the teacher calls a particular number, then the students from each group of the same number raise their hands and prepare answers for the entire class).

Among the more full-head together cooperative learning models (NHT) are the interactions between learners through discussions/learners together in resolving problems. B) both clever and weak learners benefit from cooperative study activity. C) by cooperative work in this way, the construction of knowledge will be greater/likely for learners to come to their expected end. D) could provide learners with opportunities to use questions, discussions, and develop leadership skills (pangestu & kadir, 2019).

Based on the above background, the purpose of the study is to examine the influence of the cooperative study model, typical head together (NHT) on the increased results of learning in secondary secondary math subjects.

## **METHODOLOGY**

The study used the SLR (literature review) method. Literature review is a method of study conducted by identifying, reviewing, evaluating and interpreting. In this study, researchers conducted a systematic review of journals and other related resources and followed established procedures (triandini, etc., 2019).

Based on predetermined steps, researchers conducted a systematic search for literature studies conducted using a publication or publication application. The key word used is "free-head together (NHT)," "the result of learning," "math education." The criteria for identifying the study of literature is the study associated with the increased results of studying the mathematics of learners by using the distinctive head together learning model and research. Literature obtained is selected and analyzed according to predetermined criteria. Obtained data linked to key words that are as many as 20 articles. The criteria were selected to be 10 articles. Based on search results, we found 10 accredited national journals on Google scholar. The articles used are the same journal articles as research. The results of this study are summarized in this study and discussed together. The scientific criteria for the information articles are the scientific articles that have been published in a journal for at least 7 years. From 2017 to 2023.

## **RESULTS**

The results of research data included in this literature study are analysis and summary of the articles documented regarding NHT models and the learning of learners presented at the table below.

**Table 1 .** Research on the effect of using the Numbered Head Together learning model on students' mathematics learning outcomes

<b>Researcher and Year</b>	<b>Research Title</b>	<b>Research result</b>
<b>Jitu Halomoan Lumbantoruan (2022)</b>	Further insight into Student Learning Outcomes of Derivative Materials: Numbered Head Together and Expository Learning Model	The study demonstrates the effectiveness of the application of education-head together (NHT) learning models to improve students' math. The advanced head together learning model (NHT) has proved to be more effective in improving students' learning than the expository learning model (elm). This indicates that the results of t tests there is a significant increase in the learning of students who use the NHT learning model compared with the student using the expository learning model (elm). $T_{count} = 89.12$ and $t_{table} = 1.67$ , so $t_{count} > t_{table} = 89.2 > 1.67$ , which means zero hypothesis is rejected and alternative hypotheses is accepted. In addition, pre-test and post-test results indicate that significant use of NHT learning models can improve students' learning. The average output of the xi class 5 student pre-test class is 67.07 and the average output of the xi class 1 student pre-test is 68.90. After using the NHT learning model, the results of the xi 5th grade post-test of post-test students increased to 85.33 and the result of xixia class 1 post-test increased to 77.33. Thus, it may be concluded that application of the NHT model is effective in improving students' learning results at the subject in the xi high school class.
<b>Lukman Hakim Muhaimin1, Ahmad Mukhibin, Mitrayana, Dadan Dasari (2022)</b>	Mathematical Learning Experiment Using Numbered Heads Together And Think Pair Share Models, Examined From The Learning Style	Based on data analysis in this journal, the NHT learning model has a significant impact on students' learning math, with the students' math given the NHT learning model tend to be better than the students' math given to TPS 'study models. This can be seen at table 1 that the average margin indicates that the group of students given the NHT learning model has an average margin of 82.94. Rather, the group of students

Researcher and Year	Research Title	Research result
		treated by the TPS model of learning has a marginal average of 72.58 and can conclude that the NHT learning model has a better impact than the TMZ learning model on comparison subjects.
<b>Rizka Fajriyati, Supandi, Noviana Dini Rahmawati (2019)</b>	Effectiveness of Group Investigation (GI) and Numbered Head Together (NHT) Cooperative Learning Models on Mathematics Learning Achievement	The study is intended to learn the effectiveness of the cooperative learning model of group investigation (gi) and others' head together (NHT) toward the achievement of the eighth year high school students' mathematical studies using a quantitative method of experimental design. The research design used in this journal is design posttest-only control. The data analysis techniques used are normality tests, homogeneity, one-way anava, scheffe tests, simple linear regression tests, and proportional testing. Based on data analysis of proportion, as $t_{hitung} > t_{tabel}$ , which is $2.5185 > 1.68$ then $H_0$ was rejected. So the average achievement of learning math students who use the whole-head together learning model (NHT) is more than 75 which means to achieve individual kettles. The importance of studying classified experimental students that USES NHT learning models gained 84.38%. These studies also show that the NHT learning model can increase student activity and student learning motivation. It may be concluded that the mathematical performance of students who are treated by the whole-head together learning model (NHT) is better than that of students given conventional learning models.
<b>Beny Septian Sukmo Marseno, La Masi, Hasnawati (2021)</b>	<i>the Numbered Heads Together (NHT) Cooperative Learning Model on the Mathematics Learning Outcomes of Class VIII Students</i>	The purpose of this study is to identify the impact that the use of the full-head together cooperative learning model (NHT) has on the results of student mathematics. This kind of research is a pseudo-research experiment. This research USES the design research for the

Researcher and Year	Research Title	Research result
	at SMP Negeri 10 Kendari	posstest-only control design group. Analysis of studies and discussions indicates that there is a significant difference between learning mathematics from students who are taught using NHT and students who are taught using conventional learning. In addition, the average result of studying mathematics in experiment class was higher than in the control class, with the average result of learning mathematics in 71, 07, experimental class of 64.47.
<p><b>Ni Putu Anik Kusuma Dewi, Kadek Rahayu Puspadewi, I Made Wena (2021)</b></p>	<p>The Influence of the NHT Type Cooperative Learning Model on the Mathematics Learning Outcomes of Class VIII Students at SMP Negeri 4 Mengwi in the 2017/2018 Academic Year</p>	<p>The purpose of this study is to know if there is a significant positive impact of applying the NHT type of cooperative learning model to the results of studying the eighth year of the public junior high school student year 2017/2018. Based on normal test analysis and variance homogeneity analysis, it has been found that a fraction of the data resulting from studying student mathematics in normal distributed experiment and control groups and having homogeneous variants. The normal test results using the chi-square (paren2) test on experiment groups and control groups in a series of 8.547 and 5.351 with a 5% degree of importance. Whereas the results of the homosexuality test using the f test on experiment groups and control groups respectively were 1.69 and 1.86 with a 5% significance. Next, hypothesis tests using tests -t obtained tests obtained, anonymously-projected projected = 4.47 and projected projected projected =61 In other words, ata level of 5% significance, there is a significant positive impact of applying the NHT type of cooperative learning model to the results of studying the eighth year of the public junior high school student year 2017/2018.</p>
<p><b>Lis Nurhayati, Abd Rozak</b></p>	<p>The Influence of the NHT Type</p>	<p>Analysis indicates a difference in average grades prior to treatment of 56.59 and</p>

Researcher and Year	Research Title	Research result
(2022)	Cooperative Learning Model Using the <i>Problem Posing Method</i> on the Mathematics Learning Outcomes of Pengampon Kabuh One Roof Junior High School Students	subsequent treatment of 72.83. So, on average, this proves that learning with the drift heads together can have significant impact on the students' overall study. In the t-test, the value of $t_{hitung}$ was 14.835 and the $t_{tabel}$ of 1.70 with a significant 95% (rate = 0.05), hence the $t_{hitung} > t_{tabel}$ . So $H_0$ is rejected and $H_1$ is accepted. That means there is an average difference in the scores of learners before and after being treated. Thus summarized the influence of the use of NHT's cooperative learning model with the method of problem posing against the results of the math study of SMPN one roof study year 2018/2019.
Syamsiara Nur (2022)	The Effect of Using the Numbered Head Together (NHT) Model on the Learning Outcomes of Class XI Students at SMA Negeri 1 Wonomulyo	The purpose of this study is to examine the impact the free-head together learning model has on learning participants. The NHT data analysis in this journal shows that there is a definite difference between the NHT and conventional learning models and the cognitive learning of learners. The average has corrected the interaction between NHT learning models of 80,306, while the correction rate has been with the conventional learning model of 79,000. It may be concluded that learning with a NHT model is more indicative of improving cognitive learning outcomes than classes cemented with conventional learning.
Chess Budi Pangestu and Kadir (2019)	Improving Student Mathematics Learning Outcomes Through the Numbered Head Together (NHT) Cooperative Learning Model	This study is a method of experimentation with a design of the post test research only of experimental groups and control groups. Student mathematics study results are measured using an instrument test. Studies show that cooperative head together (NHT) types are more effective when it comes to studying student mathematics than conventional models. This was pointed at the t-test results that the difference

Researcher and Year	Research Title	Research result
		between the two groups was statistically significant, with at at 7.49 and a degree of significance at 0.05. Thus, the zero hypothesis is denied, and it can be concluded that the cooperative learning model NHT is effective in improving the results of student mathematics.
<b>Astuti (2017)</b>	Influence of Cooperative Learning Model Type <i>Numbered Head Together</i> (NHT) on Results Learning Mathematics for Class VII Students Bangkinang 1 Public Middle School	The research aims to identify the influence of the cooperative learning model typical head together (NHT) on the results of the vii school year 1 year (2014/2015) student math class (NHT). Based on analysis obtained by thitung = 2.01 and ttable = 1.67, ttable > ttable therefore, ttable > ttable therefore should be concluded that there was an influence of the cooperative learning model type head together (NHT) on the mathematics of the class vii school students 1 Bangkinang.
<b>Fristania Alfrida Destyaningrum, Supandi, Muhammad Saifudin Zuhri (2022)</b>	Effectiveness of Problem Based Learning and Numbered Head Together Learning Models with the Assistance of Macromedia Flash Media on Learning Outcomes	The study is in the background because students are less active and students less zealous for the lesson because of lack of motivation and lack of interest in learning. Hence, the study aims to learn the effectiveness of the learning model of the problem of based learning and ultimately head together with the help of macromedia flash that students have learned ata math class in xi high school. Based on analysis results obtained a degree of 5% significance. On sign value. $0.00 < 0.05$ , then $h_0$ is rejected. It means that there is a significant influence between variable variables that students' perception of the NHT learning model with the macro media flash and the independent variable that students are learning using the NHT media macro media flash's media hellion.

The cooperative learning model number head together (NHT) is one part of the cooperative learning that describes the relationship between teachers, participants and the learning process to popularize achievement, involvement

of thought and social skills (alfian, etc., 2022). The cooperative learning model, which types volunteer head together (NHT) is a learning process by dividing learners into several groups and each learner is numbered, and then randomly the teacher calls the student's number (puspaningrum, etc., 2022). Using the NHT type of cooperative learning model in the learning process, being able to make the materials presented more easily understood learners, learners able to explore their own knowledge, and learners capable of resolving the issues set forth. This is seen from the scientific research of halomoan lumbantoruan (2022), lukman magistrate muhaiminrum (2022), rizka fajriana dasari (2022), beny septian sukmo marseno, la masi, hasnawati (2021), ni putu kusuma goddess, kadek rahayu puspawati, I made wena (2022), shamsiara nur (2022), the master of pangestu and kadir (2019), astuti alfrida destyanrum, supandi, Muhammad saifudin zuhri (2022) who claims that the cooperative learning model, which types head together (NHT) can improve.

## CONCLUSIONS AND RECOMMENDATIONS

Studies based on the motode literature review review can conclude that application of the elevate head together learning model (NHT) affects the learning of the mathematics of learners as well as that of learners of learners. Literature data sources acquired and analyzed state the results of studying mathematically learners who use advanced head together (NHT) learning models (NHT) than those who use conventional models.

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