



## The Effect of the Number Heads Together (NHT) Learning Model on Critical Thinking in Geography Subjects at SMA Angkasa 1 Jakarta

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### Abstrak

Salah satu tantangan pendidikan ialah kurangnya proses pembelajaran yang kuat di dalam kelas, siswa tidak terdorong untuk mengembangkan kemampuan berpikir. Akibatnya, seorang guru harus maju selangkah. Proses pembelajaran perlu diubah menjadi siswa yang menjadi pusat dari pembelajaran dapat dicapai dengan berbagai cara, termasuk penggunaan model pembelajaran *Numbered Head Together* (NHT). Tujuan dalam penelitian ialah mengetahui pengaruh model pembelajaran *Number Heads Together* (NHT) terhadap berpikir kritis mata pelajaran Geografi di SMA Angkasa 1 Jakarta. Metode penelitian menggunakan penelitian eksperimen semu (*Quasi Experiment*). Subyek penelitian terdiri dari dua kelas, yang berjumlah 36 siswa untuk kelas eksperimen 36 siswa untuk kelas kontrol. Data dikumpulkan menggunakan instrumen tes berbentuk uraian. Teknik yang digunakan ialah uji normalitas, uji homogenitas, dan uji *Independent Sample T-test*. Hasil penelitian menunjukkan pengujian uji t memperoleh nilai *Sig.(2-tailed)* sebesar  $0,000 < 0,05$  maka  $H_0$  ditolak, bahwa terdapat pengaruh model pembelajaran *Number Heads Together* (NHT) terhadap berpikir kritis mata pelajaran geografi di SMA Angkasa 1 Jakarta.

**Kata Kunci:** Model Number Heads Together (NHT), Berpikir Kritis, Pembelajaran Geografi

### Abstract

One of the educational challenges is the lack of a strong learning process in the classroom, students are not encouraged to develop thinking skills. As a result, a teacher must take a step forward. The learning process needs to be changed so that students become the center of learning and can be achieved in various ways, including the use of the *Numbered Head Together* (NHT) learning model. The aim of this research is to determine the effect of the *Number Heads Together* (NHT) learning model on critical thinking in Geography subject at Angkasa 1 Jakarta High School. The research method uses quasi-experimental research (*Quasi Experiment*). The research subjects consisted of two classes, totaling 36 students for the experimental class and 36 students for the control class. Data was collected using a test instrument in the form of a description. The technique used is the normality test, homogeneity test, and the *Independent Sample T-test*. The results showed that the t test obtained a *Sig.(2-tailed)* value of  $0.000 < 0.05$ , so  $H_0$  was rejected, that there was an

*influence of the Number Heads Together (NHT) learning model on critical thinking in geography subjects at Angkasa 1 High School Jakarta.*

**Keywords:** *Number Heads Together (NHT) Model, Critical Thinking, Geography Learning*

## Introduction

Education is a method designed to develop general knowledge, develop mastery of theory, skills, make decisions, and find solutions to problems with actions to achieve goals (Haryanto, 2019). Education has the potential to eradicate illiteracy as well as equip skills, mental capacity and critical thinking. One aspect that is a concentration of challenges in education is critical thinking, apart from being part of the process of forming student morale, critical thinking skills are needed.

The current learning process is partly still using the old paradigm, there is no strong learning process in the classroom so that students are not directed to think critically. The learning approach in the classroom only encourages students to remember and memorize. The learning process becomes boring and students become bored with the learning pattern. Most students also have difficulty remembering the concepts they have learned, so they tend to answer short and basic description questions. So this is not in line with Gokhle's opinion in (Solihah, 2019) that questions directed at critical thinking are questions that focus on the concepts of analysis, synthesis, and assessment. In addition, according to Mushoddik (2016), student learning is more than just accepting what the teacher says. Students must be able to manage their thinking processes and create new relationships from the theories and concepts they learn.

Findings based on the 2018 Program for International Student Assessment (PISA) score for Indonesian students' ability is 379, which is below the global average of 489 (OECD, 2018). Furthermore, according to Nizam in Hadi & Novaliyosi (2019) based on the 2015 Trends in the International Mathematics and

Science Study (TIMSS) Indonesia was ranked 44 out of 49

countries, whereas in 2019, TIMSS 2019 (2009) Indonesia participants did not participate. The activities carried out by the teacher in the learning process are still more focused on mastering ideas than building critical thinking skills not yet developing critical thinking skills, therefore most students' critical thinking skills tend to be low.

Geography is one of the subjects in which critical and logical thinking can help develop an educated and dignified society. Geography is considered very important because it is a field of study that studies the natural processes of the Earth, life on this planet, and how humans interact with it in terms of spatial patterns and geographic groupings (Clarke, 2006). Geography also plays a role in contributing to the development of technology and applied science, and becomes significant in applied everyday life such as agriculture, fisheries, and other fields that interact directly with community activities, as well as sharpening students' mindsets so they are able to solve problems logically, critically, carefully, and accordingly.

According to some experts describe critical thinking like by Jensen (2011) that critical thinking as "Searching for relevant and reliable information about the world involves efficient and reliable mental processes." Meanwhile, Wijaya (2010) expressing his thoughts about critical thinking skills, is the act of evaluating ideas or concepts, separating them clearly, choosing, recognizing, researching, and developing them in a more ideal way. So critical thinking skills include the ability to evaluate ideas more precisely, select, identify, and test arguments in problem solving.

According to Susanto (2015), so that students can develop their critical thinking skills to the fullest, the class must be participatory, with the teacher functioning more as a mediator, facilitator, and motivator who supports student learning. These various problems must be addressed immediately through the use of learning strategies, skills in choosing and implementing appropriate learning models including components that affect the effectiveness of developing critical thinking skills. The application of the Number Heads Together (NHT) learning approach can be used to overcome learning challenges, stimulate learning in the classroom, and improve students' critical thinking (Zaakiyah et al., 2017).

NHT type cooperative learning is intended to develop students' ability to work collaboratively to solve a problem. The Number Head Together (NHT) learning model is a teaching method that emphasizes how students collect, analyze, and present knowledge after receiving it from various sources (Rahayu, 2006). According to Lie in Ibrahim (2000) suggests that Number Heads Together NHT is a method that allows students to discuss concepts and choose appropriate solutions. With this approach, students can develop mutually beneficial connections, communicate effectively, and think more critically.

Regarding the effectiveness of this learning model, there are several related studies including Nursyamsi's research (2016) revealed that the ability to think critically is motivated by the learning methodology. Based on the corrected average, learning NHT techniques has a greater influence than conventional learning, with a difference of 25.89%.

The indicators of critical thinking ability in the research were tested referring to the indicators put forward by Facione (2015), namely (1) Interpretation, (2) Analysis, (3) Evaluation, and (4) Inference.

Based on this background, the formulation of the problem is "Is there any effect of using the Number Heads Together (NHT) learning model on critical thinking in Geography subject at Angkasa 1 Jakarta High School?". The benefits of this research in general the results of this research are expected to be useful for the world of education at this time and in the future. Therefore, there are two types of benefits that can be drawn from this research, namely theoretical benefits related to the implementation of policies in the field of education and practical benefits related to their application in the school context.

### Metode

The research was conducted at Angkasa 1 Jakarta High School in the even semester of the 2022–2023 academic year using a quantitative approach and a quasi-experimental research type. Nonequivalent Control Group Design was used as the research design. The following is the research design in table 1.

**Table 1.** Research design

Group	Pre Test	Treatment	Post Test
Experiment	O <sub>1</sub>	X	O <sub>2</sub>
Control	O <sub>3</sub>	-	O <sub>4</sub>

Information :

O<sub>1</sub> = Experimental group pre-test

O<sub>2</sub> = Post-test experimental group

O<sub>3</sub> = Control group pre-test

O<sub>4</sub> = Post-test control group

X = The experimental class treatment used the NHT learning model

The population in this study were all students of class XI SMA Angkasa 1 Jakarta for the 2022/2023 academic year majoring in social studies. Overall, the number of students in class XI IPS is 145 students. By using the Non-Probability Sampling method, two classes were used as research samples.

The selection strategy is based on the researcher's assessment, so that only people who match the objectives or criteria will be selected (Davis, et al., 2012). The experimental class was chosen, namely class XI IPS 1 (36 students) and the control class, namely class XI IPS 2 (36 students).

Data collection was carried out by administering tests before and after treatment as well as testing the validity and reliability. The questions are presented in the form of a description of five questions. By using SPSS version 23.0 for Windows, researchers will apply data analysis procedures for normality testing, homogeneity testing, and hypothesis testing in this study.

### Results and Discussion

The two sample classes used consisted of an experimental class, namely class XI IPS 1, while the control class, namely class XI IPS 2. The experimental class and control class received direct teaching so that the researcher also played the role of teacher. The post-test questions were checked by the validator before being given to the two sample classes. According to the expert analysis, all elements of the question are relevant, although some require more explicit language explanation. The instruments used are considered valid and reliable based on the findings of the calculations performed. The instrument is declared valid if the results of  $r_{count} > r_{table}$ , in this test all  $r_{count}$  values obtained are greater than  $r_{table}$  then the instrument is categorized as valid. The coefficient value obtained in this test is 0.728, so the instrument is declared to have high reliability (0.70 - 0.90: high category).

**Table 2.** Pre-test and post-test results

Group	Amount	Mean
Experimental Pre-Test	36	51.11
Experimental Post-Test	36	80.22
Control Pre-Test	36	47.22
Post-Test Control	36	61.67

After that, the questions were distributed to the sample group, after getting the learning results they would be analyzed using the normality test, homogeneity test and hypothesis testing.

**Table 3.** Normality Test

Group	Sig	Information
Experiment	0.230	Normal
Control	0.020	Normal

The sample normality test uses Shapiro Wilk with an analysis qualification of  $\alpha = 0.05$ , meaning  $H_0$  is accepted if  $\text{sig} \geq \alpha = 0.05$ . Furthermore,  $H_0$  is rejected if  $\text{sig} < \alpha = 0.05$ . **Table 3** states that the significance value for the experimental class is as follows:  $0.230 > 0.05$  while for the control class it is  $0.020 > 0.05$ . Then the two samples are normally distributed.

The results of the homogeneity test are used as the basis for testing the hypothesis using SPSS 23.0, compare the post-test scores between the experimental class and the control class. Here are the results:

**Table 4.** Homogeneity Test

Group	Sig	$\alpha$	Information
Experiment	0.092	0,05	Homogen
Kontrol			

Based on **Table 4**, it states that the experimental class and control class data are considered homogeneous, with the value of interest in the homogeneity test being  $0.092 > 0.05$ . If the value of Sig ( $>$ )  $0.05$  is considered homogeneous, while if Sig ( $<$ )  $0.05$  it is considered non-homogeneous. The next test is the independent sample T test.

**Table 5.** Independent Test Sample T-test

Group	Sig (2-tailed)	$\alpha$	Information
Experiment	0,000	0,05	$H_0$ is rejected, $H_1$ is accepted
Control			

Based on **Table 5**, the results of the Independent Sample T-test for the experimental class with the Number Heads Together model and the control class, both of which obtained a Sig. (2-tailed) namely 0.000 < 0.05. Therefore H<sub>0</sub> is rejected, it can be concluded that there is an average difference in critical thinking skills between the experimental class and the control class.

**Table 6.** Percentage Category of Critical Thinking Ability

Presentase (%)	information
81,25 < X ≤ 100	Very high
71,50 < X ≤ 81,25	Tall
62,50 < X ≤ 71,50	Currently
43,75 < X ≤ 62,50	Low
0 < X ≤ 43,75	Very low

Source : (Ernayanti, 2016)

By comparing the averages of the two classes in **Table 2**, based on the category of percentage of critical thinking skills in **Table 6** it can be concluded that the experimental class is included in the category of high critical thinking skills (Critical) with an average of 80.22, while the control class is included in the category moderate (quite critical) with an average of 61.67.

In the experimental class, when learning took place, students were more responsive and active in participating. This is in accordance with the research findings of Kawuwung (2014) which shows that the NHT learning model can improve students' ability to think at a higher level, stimulate involvement in their learning, and encourage students to express their thoughts more boldly.

According to Trianto (2010), the following are the steps or syntax for implementing NHT: a) Numbering, where the teacher divides the group, assigns a number to each group member, ensures that no student has the same number, and distributes LKPD to each group. b) Questoining, These

questions can be specific or general. c) Heads Together, each member collaborates in solving each LKPD problem and ensures that everyone in the team knows the solution from the team. d) Answering, namely the teacher mentions several numbers, at that time the student whose number matches the one called by the teacher raises his hand and tries to answer the question so that he is given the opportunity to discuss his ideas and determine the best response.

The use of the NHT learning model can help students develop their capacity to think critically. This is based on the NHT syntax of Numbering, where students are assigned various group numbers when given a number. With the goal of cultivating a sense of obligation to the group, which motivates them to strive to contribute their ideas. Students learn how to assess problems and relate them to concepts during debriefing sessions to generate answers. Students also learn to assess problems and relate them to a concept to find answers through Questioning and Answering sessions.

Through case studies, experimental methodology, and group discussions, critical thinking skills can be strengthened. NHT is used to assess students' understanding of the content of the lesson and so that students are more interested in learning it. Basically NHT is a modification of group discussions. According to Nur (2005) argues that doing it this way will guarantee the full participation of all students, the right method to encourage greater individual responsibility in group discussions. Starting with problem identification, analysis, and evaluation of processes that fall into the category of critical thinking. Therefore, NHT can easily support critical thinking processes (Wati & Fatimah, 2016).

According to Kagan (2011), in NHT learning it is easy to use. Facilitate students to achieve their learning goals and strengthen critical thinking processes. A simple learning process is very important in the application of

learning, so that students can concentrate on learning materials and develop learning concepts effectively (Kolayis, et al., 2014). This model strategy can be applied in any subject and all age groups of students. Even though it has similarities with other learning models, this strategy emphasizes the use of special structures that are intended to influence student engagement patterns (Nursyamsi, 2016).

Nevertheless, each learning model certainly has drawbacks, including the Number Heads Together (NHT) model, which is less ideal for large classes because it takes a long time, it is likely that the teacher will mention the same number twice, and not all groups are called (Diana et al., 2023).

## Conclusion

The application of the NHT learning model in class XI IPS SMA Angkasa 1 Jakarta in Geography subjects was carried out well. Based on data analysis, a Sig.(2-tailed) value of  $0.000 < 0.05$  is obtained, so  $H_0$  is rejected. So it can be said that the NHT (Numbered Heads Together) model has an influence on the critical thinking of class XI IPS SMA Angkasa 1 Jakarta. The Number Heads Together (NHT) model encourages student participation in class, assisting in the development of critical thinking in students. This is because at this point, students are expected to voice their ideas at the stages of asking, thinking together, and giving answers. Research findings can be incorporated into teachers' recommendations for the best learning model to develop students' critical thinking skills.

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