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Implementation of the Numbered Heads Together Model to Enhance Students' Critical Thinking Skills in Social Studies

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Abstract

This study aims to examine the implementation of the Teams Games Tournament (TGT) cooperative This study aims to describe the implementation of the Numbered Heads Together (NHT) learning model in Social Studies (IPS) and to examine the development of students' critical thinking skills. This research employed a qualitative approach with a descriptive method. The subjects were students of class VIII B at SMPN 3 Tarogong Kidul. Data were collected through observation, interviews, and documentation, and analyzed using the Miles and Huberman model, which includes data reduction, data display, and conclusion drawing. The results indicate that the implementation of the NHT model improves student engagement in learning, as evidenced by increased participation in discussions, confidence in expressing opinions, and social interaction among students. Furthermore, students' critical thinking skills show significant development, particularly in analysis, explanation, and inference. Students are able to identify problems, connect information, provide logical arguments, and draw systematic conclusions. However, evaluation skills remain less developed and require more intensive practice. Thus, the Numbered Heads Together (NHT) learning model is effective in enhancing student engagement and gradually developing critical thinking skills in Social Studies learning.

Keywords: *Numbered Heads Together, social studies learning, critical thinking, cooperative learning*

1. Introduction

21st-century education demands a learning process that focuses not only on delivering material but also on developing higher-order thinking skills, particularly students' critical thinking skills. Critical thinking skills are important for students because they help them understand problems, analyze information, evaluate various opinions, and draw logical conclusions. These skills include analysis, evaluation, and rational decision-making (Facione, 2011). Therefore, the learning process needs to be designed to encourage students to actively think, discuss, and solve problems. This demand aligns with the development of 21st-century skills, which include critical thinking, communication, collaboration, and creativity (Mardhiyah et al., 2021; Septikasari & Frasandy, 2018).

According to Facione (2011), critical thinking skills consist of several indicators: interpretation, analysis, evaluation, inference, explanation, and self-regulation. Meanwhile, Ennis (2011) defines critical thinking as a reflective and rational thought process in determining what to believe or do. Based on this opinion, learning that provides space for students to express opinions, provide reasons, and draw conclusions from discussions is crucial for developing critical thinking skills.

In the context of Social Studies (IPS) learning, critical thinking skills play a crucial role because students are not only required to understand social concepts and facts, but also to be able to analyze various problems in society logically and rationally. Ideally, IPS learning provides students with opportunities to identify problems, analyze cause and effect, and draw conclusions based on relevant data or facts. However, in reality, IPS learning in schools still tends to be conventional and teacher-centered. This condition results in students being less active in the

learning process, rarely engaging in discussions, and not being accustomed to developing independent thinking. This impacts students' ability to provide reasons, express opinions, and draw logical conclusions from information. This situation indicates that teacher-dominated learning does not provide optimal space for the development of students' critical thinking skills.

In line with this, Hendracipta et al. (2017) stated that summarizing activities in learning can help develop students' critical thinking skills. However, in practice, students still tend to rely on information from teachers and textbooks without conducting in-depth analysis of the problems presented.

To address these issues, a learning model is needed that actively engages students in the thinking process and social interactions. One such learning model is the Numbered Heads Together (NHT) cooperative learning model. This model emphasizes group collaboration, individual responsibility, and the active involvement of all group members in completing tasks. Afandi et al. (2013) explain that NHT provides students with opportunities to exchange ideas and find answers through group discussions. Furthermore, Slavin (2015) states that cooperative learning can enhance social interaction and student engagement in the learning process. This finding is supported by Sulistio and Haryanti (2022), who emphasized that cooperative learning can create an active and meaningful learning process. Kagan (2013) also stated that the NHT model can increase student participation through active involvement in group discussions. By randomly calling numbers, each student is required to understand the material, thus avoiding relying solely on specific group members.

Previous research has shown that the implementation of the NHT model has a positive impact on student learning. Febrianti (2020) found that the Numbered Heads Together (NHT) model can improve critical thinking skills in social studies learning. However, most of this research focuses on quantitative outcomes, resulting in limited in-depth study of the NHT model's implementation process in developing students' critical thinking skills contextually in the classroom. Based on this description, research is needed that examines the implementation of the Numbered Heads Together (NHT) learning model in social studies learning in greater depth, particularly in developing students' critical thinking skills. This research focuses on the implementation of the Numbered Heads Together (NHT) learning model in social studies learning to develop critical thinking skills in eighth-grade students at SMPN 3 Tarogong Kidul.

The research problem in this study is how to implement the Numbered Heads Together (NHT) learning model in social studies and how this model develops students' critical thinking skills. The purpose of this study is to describe the implementation of the Numbered Heads Together (NHT) learning model in social studies and to examine the development of students' critical thinking skills through its application. This research is expected to provide an empirical overview of the process of implementing the NHT model in social studies learning, particularly in developing students' critical thinking skills. To strengthen the conceptual foundation of this research, theoretical studies relevant to the development of critical thinking skills and the application of cooperative learning models are needed.

Furthermore, the development of critical thinking skills in learning is inseparable from the theoretical foundation of constructivism. Constructivism theory states that knowledge is actively constructed by students through learning experiences and interactions with the environment (Piaget, 1977; Vygotsky, 1978). From this perspective, effective learning is not simply the transfer of information from teacher to student, but rather provides opportunities for students to construct their own understanding through exploration, discussion, and reflection. Therefore, a student-centered learning model is essential to encourage active student involvement in the learning process.

Furthermore, Vygotsky (1978) emphasized the importance of social interaction in the learning process through the concept of the zone of proximal development (ZPD), which is the distance between a student's actual abilities and the potential development that can be achieved with the help of others. In this context, cooperative learning, such as Numbered Heads Together (NHT), is relevant because it allows students to help each other understand the material through group discussions. This interaction not only improves conceptual understanding but also trains critical thinking skills through argumentation and the exchange of ideas.

From a social learning theory perspective, Bandura (1986) states that learning occurs through observation, imitation, and interaction with the social environment. In cooperative learning, students can learn from their group mates by observing the thinking styles and problem-solving strategies used by others. This indirectly contributes to improving students' critical thinking skills. Furthermore, active learning theory is also an important foundation for developing critical thinking skills. Bonwell and Eison (1991) explain that active learning directly engages students in the learning process through activities such as discussions, problem-solving, and case analysis. Active learning has been shown to be more effective in improving higher-order thinking skills than passive learning. Therefore, the application of the NHT model, which requires students to be actively involved in discussions and answering questions, aligns well with the principles of active learning.

In the context of social studies learning, the inquiry approach also plays a crucial role in developing critical thinking skills. According to Joyce, Weil, and Calhoun (2015), inquiry-based learning encourages students to ask questions, gather information, analyze data, and draw conclusions independently. This process aligns with critical thinking indicators, which include analysis, evaluation, and inference. Therefore, integrating the cooperative learning model with the inquiry approach can strengthen the development of students' critical thinking skills.

Furthermore, social studies learning, which is oriented toward higher-order thinking skills (HOTS), requires students to not only memorize and understand information but also analyze, evaluate, and create solutions to social problems (Anderson & Krathwohl, 2001). This revised Bloom's Taxonomy places critical thinking skills as a crucial part of higher-order cognitive processes. Therefore, social studies learning needs to be designed in such a way as to facilitate the achievement of these skills.

Other research also shows that cooperative learning (NHT) is effective in improving students' learning outcomes and critical thinking skills. Huda (2014) stated that NHT can increase student engagement evenly because each group member has equal responsibilities. Furthermore, Lie (2010) emphasized that the structure of cooperative learning can create a learning environment conducive to discussion and the exchange of ideas. Thus, implementing the NHT model not only improves cognitive learning outcomes but also develops students' critical thinking and social skills.

Based on these various theoretical studies, it can be concluded that developing students' critical thinking skills requires active, collaborative, and student-centered learning. The Numbered Heads Together (NHT) learning model has a strong theoretical foundation from the perspectives of constructivism, social learning, and active learning, making it potentially effective in developing students' critical thinking skills in social studies. Therefore, this research is important to examine in more depth the implementation of the NHT model in a real-life classroom context and its contribution to the development of students' critical thinking skills.

2. Method

This This research uses a qualitative approach with descriptive methods. According to Sugiyono (2017), qualitative research is a method used to conduct research in natural settings, where the researcher serves as the key instrument, data analysis is inductive, and research results emphasize meaning rather than generalization. Similarly, Moleong (2018) states that qualitative research aims to holistically understand the phenomena experienced by research subjects, such as behavior, perception, motivation, and actions, through descriptions in words and language. This approach was chosen because the research aims to describe in depth the implementation process of the Numbered Heads Together (NHT) learning model in social studies and to examine how students' critical thinking skills develop during the learning process.

This research was conducted at SMPN 3 Tarogong Kidul in the even semester of the 2025/2026 academic year. The research subjects were grade VIII B students of SMPN 3 Tarogong Kidul. Subject selection was carried out using purposive sampling, a sampling technique with specific considerations in accordance with the research objectives. According to Sugiyono (2017), purposive sampling is used when researchers have specific considerations in determining research subjects. In this study, subjects were selected based on the consideration that the class had implemented the Numbered Heads Together (NHT) learning model in social studies and

demonstrated active student engagement during the learning process. In addition to students, the social studies teacher also served as an informant to obtain more comprehensive data regarding the learning process.

Data collection techniques in this study included observation, interviews, and documentation. Observations were conducted to directly observe the learning process and student activities during the implementation of the NHT model. According to Sugiyono (2017), observation is a data collection technique with specific characteristics compared to other techniques because it is not limited to people but also includes other objects. Interviews were conducted to gather in-depth information from teachers and students regarding their experiences and responses to learning. According to Sugiyono (2017), interviews are used when researchers want to learn more about respondents. Documentation is used to supplement data in the form of photos of activities, learning tools, and other relevant documents. This aligns with Arikunto's (2013) opinion, which states that documentation is used to obtain data in the form of notes, transcripts, books, and so on.

The research instrument in qualitative research is the researcher themselves, the primary instrument (human instrument). According to Sugiyono (2017), the researcher, as the key instrument, plays a role in determining the research focus, selecting informants, collecting data, assessing data quality, and analyzing data. In addition, supporting instruments are used in the form of observation and interview guides. Observation guidelines were developed based on indicators of students' critical thinking skills, such as the ability to analyze, reason, draw conclusions, and evaluate. Interview guidelines were developed to gather information related to students' and teachers' experiences during the implementation of the NHT model and the development of students' critical thinking skills.

The research procedure was conducted in three stages: preparation, implementation, and finalization. During the preparation stage, the researcher developed learning materials and research instruments. During the implementation stage, the researcher implemented the Numbered Heads Together (NHT) learning model in social studies and conducted observations, interviews, and documentation. In the final stage, the researcher analyzed the data and drew conclusions based on the data obtained.

The data analysis technique in this study employed the data analysis model according to Miles & Huberman (1994), which includes three stages: data reduction, data presentation, and conclusion drawing. Data reduction was carried out by grouping and focusing relevant data according to indicators of students' critical thinking skills. Data presentation was presented in narrative form to facilitate understanding of the research data. Next, conclusions were drawn gradually by verifying the data obtained to produce valid findings.

To maintain data validity, this study employed source and technique triangulation techniques. According to Sugiyono (2017), triangulation is a technique for checking data validity by utilizing various sources and techniques as comparisons against the data obtained. Source triangulation was conducted by comparing data from various informants, while technical triangulation was conducted by comparing the results of observations, interviews, and documentation. In addition, member checks were conducted with informants to ensure the data matched the actual conditions, ensuring a high level of reliability

3. Results and Discussion

The Results

Student Engagement in Learning

The results of the study indicate that the implementation of the Numbered Heads Together (NHT) learning model increased student engagement in the social studies learning process. This was evident in students' active participation in group discussions, answering questions, and participating in the overall learning process. Students were not merely recipients of information but also actively engaged in constructing knowledge through interactions with their group mates. Furthermore, the learning atmosphere became more lively due to two-way communication between students and between students and the teacher. This engagement demonstrates that the

NHT model is capable of creating more interactive and student-centered learning.

Furthermore, increased student engagement can also be observed from changes in learning behavior throughout the learning process. At the beginning of the lesson, some students were still passive and tended to wait for direction from the teacher. However, after several applications of the NHT model, students began to become accustomed to actively participating in group discussions. They were more confident in expressing opinions, asking questions, and responding to ideas from their group mates. This situation indicates a shift from passive learning to active learning that involves intensive social interaction. Furthermore, student engagement is also reflected in increased focus and attention to the learning material. Students appear more enthusiastic about participating in learning activities due to the elements of cooperation and individual responsibility within the group. This demonstrates that the NHT model not only increases students' physical activity but also their cognitive and emotional involvement in the learning process.

Students' Analytical Skills

Students' analytical skills developed during the implementation of the NHT model. Students began to be able to identify given problems, understand relevant information, and connect learned concepts to situations discussed in social studies lessons. During discussions, students actively expressed their opinions and sought to understand different perspectives from other group members. This demonstrates that students are beginning to develop systematic and critical thinking in analyzing a problem.

This development in analytical skills is also evident in students' ability to break down a problem into simpler components. Students began to distinguish between relevant and irrelevant information and group information into specific categories. This process demonstrates that students not only have a general understanding of the material but are also able to process information more deeply.

Furthermore, students began to demonstrate the ability to connect previously learned concepts to the new material being discussed. This demonstrates an active knowledge construction process within students. Thus, the NHT model facilitates the development of analytical skills through group interactions and structured discussions.

Reasoning Skills

In addition to analytical skills, students' reasoning skills also showed improvement. Students begin to develop logical arguments for their answers, both in group discussions and when asked to answer individually. This process demonstrates that students not only have a superficial understanding of the material but are also able to provide explanations to support their answers. Thus, students' critical thinking skills, particularly in providing reasons, begin to gradually develop.

This improvement is evident in the increasingly systematic and structured way students express their opinions. Students not only provide concise answers but also provide supporting explanations and relevant examples. This demonstrates that students are beginning to understand the importance of arguments in supporting an opinion.

Furthermore, in group discussions, students are also becoming accustomed to defending their opinions with logical arguments, while respecting the opinions of others. This process demonstrates development in reflective thinking skills, where students no longer passively receive information but also evaluate it before expressing their opinions.

Individual Responsibility in Learning

The implementation of the NHT model also encourages the growth of individual student responsibility in learning. The random number system requires each student to be prepared to answer questions. This encourages students to be more serious about participating in discussions and understanding the learning material. Students are no longer dependent on specific group members but instead strive to understand the material independently so they can contribute when called upon. This demonstrates that the NHT model is able to foster a sense of individual responsibility in the learning process.

Furthermore, this individual responsibility also has an impact on increasing student discipline in participating in learning. Students become more focused and less easily distracted because

they realize they may be called upon to answer questions at any time. This creates a more conducive and focused learning environment.

The resulting individual accountability contributes to improving the quality of group work. Each group member strives to understand the material, resulting in more active and productive discussions. Thus, the NHT model not only develops individual skills but also strengthens teamwork.

Limitations in Evaluation Skills

Despite improvements in several aspects of critical thinking, students' evaluation skills have not yet developed optimally. Students still experience difficulty critically evaluating answers and providing more in-depth and comprehensive arguments. This is evident in student answers, which tend to be descriptive and are not yet fully able to compare or evaluate various alternative solutions. Therefore, more intensive learning efforts are needed to continuously train students' evaluation skills.

These limitations indicate that evaluation skills are a more complex aspect of critical thinking than other aspects. Students require more intensive and continuous practice to develop this skill. Furthermore, learning strategies are needed that encourage students to think at a higher level, such as through case studies, debates, or HOTS-based questions.

Overall, the development of students' critical thinking skills through the implementation of the Numbered Heads Together (NHT) model can be seen in several indicators. A summary of the research findings is presented in Table 1.

Table 1. Research Findings

No	Critical Thinking Indicator	Indicator Description	Research Findings
1	Interpretation	Understanding and explaining the problem	Students are able to understand the problem and explain it in their own words
2	Analysis	Identifying information relationships	Students are able to identify important information and connect concepts in the discussion
3	Explanation	Providing reasons or arguments	Students are beginning to be able to provide logical reasons for their answers
4	Inference	Drawing conclusions	Students are able to formulate conclusions from the discussion results
5	Evaluation	Assessing arguments or solutions	Students still have difficulty evaluating answers in depth

Source: Research results 2026

Furthermore, the results in Table 1 also indicate significant development in students' critical thinking skills after implementing the Numbered Heads Together (NHT) learning model. Most students demonstrated significant improvement in critical thinking indicators, particularly in analysis, explanation, and inference skills. Students were not only able to understand problems but also began to analyze information, connect concepts, and draw conclusions more systematically and logically. Furthermore, the results in Table 1 also indicate variations in the level of development among students. Some students showed significant improvement, while others still required further guidance. This indicates that the implementation of the NHT model has varying impacts depending on the readiness and characteristics of each student. Therefore,

teachers need to provide more intensive guidance to students who are still experiencing difficulties in developing critical thinking skills.

Discussion

The results of this study indicate that the implementation of the Numbered Heads Together (NHT) learning model can increase student engagement in the learning process. This indicates that learning is no longer teacher-centered, but has shifted to student-centered learning. This condition aligns with Slavin's (2015) opinion, which states that cooperative learning can increase student participation through interaction and collaboration within groups. Furthermore, Kagan (2013) also emphasized that the NHT model is designed to actively engage all students through a numbering system that ensures each individual has a role in the learning process. This finding is further supported by Johnson and Johnson (2009), who stated that cooperative learning is effective in increasing social interaction and individual responsibility in the learning process.

Furthermore, this finding aligns with research by Huda (2014), which states that cooperative learning models, including NHT, can increase student engagement evenly because each group member has equal responsibilities. Furthermore, Lie (2010) also emphasized that the structure of cooperative learning provides equal opportunities for every student to actively participate in the learning process, ensuring that no student is dominant or passive. Thus, the results of this study further confirm that the NHT model is effective in increasing overall student engagement. Furthermore, increased student engagement demonstrates that a collaborative learning environment plays a crucial role in encouraging active student participation. Group interactions provide opportunities for students to exchange ideas and build understanding together. This reinforces the idea that cooperative learning serves not only as a learning strategy but also as a means to develop students' social skills.

This aligns with Vygotsky's (1978) theory, which emphasizes the importance of social interaction in the learning process through the concept of the zone of proximal development (ZPD), where students can achieve higher levels of understanding through peer assistance. Furthermore, research by Gillies (2016) also shows that group-based learning can improve the quality of student interactions and encourage active involvement in discussions. Thus, the collaborative learning environment created through the NHT model contributes significantly to improving the quality of the learning process.

Improved student analytical skills demonstrate that the NHT model encourages students to think more deeply about given problems. This aligns with Facione's (2011) theory, which states that critical thinking encompasses the ability to interpret and analyze information.

This finding is also supported by research by Anderson and Krathwohl (2001), who stated that analytical skills are part of higher-order thinking skills (HOTS) that can be developed through learning that requires students to be actively involved in processing information. Furthermore, research by Febrianti (2020) shows that implementing the NHT model in social studies learning can improve students' analytical skills through discussion and problem-solving activities. Thus, these research findings reinforce the effectiveness of the NHT model in developing analytical skills as part of critical thinking. Furthermore, the students' developing analytical skills demonstrate that the discussion process in the NHT model can stimulate higher-order thinking. Students not only receive information but also process it through asking, answering, and discussing questions.

This aligns with Bonwell and Eison's (1991) findings, which state that active learning can improve higher-order thinking skills because students are directly involved in the learning process. Furthermore, research by Prince (2004) also shows that active learning through group discussions can improve students' conceptual understanding and critical thinking skills. Thus, the discussion process in the NHT model is a crucial factor in developing higher-order thinking skills.

Furthermore, students' ability to reason demonstrates development in logical and reflective thinking. Students are beginning to develop arguments based on their understanding of the material being studied and supported by relevant information. This demonstrates that students not only receive information passively but also process it before expressing their opinions. These findings align with Kuhn's (1991) research, which states that argumentative skills are an essential component of critical thinking that develops through interaction and discussion. Furthermore,

Osborne's (2010) research also shows that discussion and argumentation activities in learning can improve students' ability to construct logical and systematic arguments. Thus, the NHT model provides an effective space for students to develop argumentative skills.

This development aligns with Ennis's (2011) opinion, which states that critical thinking is a rational thought process focused on decision-making based on justifiable reasons. In the learning process using the NHT model, students are trained not only to answer questions but also to explain the reasons behind those answers. This encourages students to think more deeply and consider various aspects before expressing an opinion.

Furthermore, research by Facione (2015) also confirms that the ability to provide reasons is a key indicator of critical thinking that needs to be continuously cultivated through learning that requires active student participation. Thus, the implementation of the NHT model indirectly trains students to think rationally and reflectively. The ability to provide reasons is also closely related to students' communication skills. Students who are able to present arguments logically demonstrate that they not only understand the material but are also able to communicate their thoughts clearly and structuredly.

The group discussion process in the NHT model provides a space for students to practice these skills through interaction with peers. This aligns with the opinion of Johnson and Johnson (2009), who stated that cooperative learning can improve students' interpersonal communication skills. Furthermore, research by Gillies and Boyle (2010) also showed that group discussions in cooperative learning can improve students' ability to convey ideas effectively. Thus, the NHT model not only develops students' cognitive aspects but also their communication aspects.

Furthermore, during discussion activities, students also began to become accustomed to evaluating arguments presented by their groupmates, albeit at a rudimentary level. This indicates early development in evaluative skills, which are part of critical thinking. Thus, the NHT model not only contributes to improved analytical skills but also encourages the development of reasoning skills, an important indicator of critical thinking.

However, research by Facione (2011) indicates that evaluative skills are one of the most complex aspects of critical thinking because they require in-depth assessment, comparison, and decision-making. This is also supported by research by Halpern (2014), which states that evaluative skills require intensive and continuous practice to develop optimally. Therefore, it is understandable that students' evaluative skills were not yet fully developed in this study.

Thus, the individual responsibility developed through the NHT model impacts not only learning outcomes but also students' attitudes and learning behaviors. Students become more independent, disciplined, and responsible for their own learning process. This is an important goal of modern education. These findings align with Bandura's (1986) theory of social learning, which emphasizes that individuals learn through social interactions and experiences. Furthermore, Zimmerman (2002) also stated that learning involving individual responsibility can enhance students' self-regulated learning. Thus, the NHT model contributes to developing students' learning characteristics and fostering a more independent learning environment.

These findings also indicate the need for further learning innovations that can optimally accommodate the development of evaluation skills. Teachers can integrate the NHT model with other strategies, such as problem-based learning or case studies, to encourage students to think more critically and deeply.

This aligns with Arends' (2012) opinion, which states that integrating various learning models can increase learning effectiveness, particularly in developing higher-order thinking skills. Furthermore, Savery's (2006) research also shows that problem-based learning is effective in improving students' evaluation and problem-solving skills. Therefore, combining the NHT model with other approaches can be a solution for optimizing all aspects of students' critical thinking.

4. Conclusion

Based on the research results and discussion, it can be concluded that the application of the Numbered Heads Together (NHT) learning model in social studies learning can increase student engagement and gradually develop students' critical thinking skills. This increase in student engagement is evident in their active participation in discussions, their courage to express their opinions, and their increased social interaction within groups. Furthermore, students' critical

thinking skills showed significant improvement, particularly in the areas of analysis, explanation, and inference. Students began to identify problems, connect information, provide logical reasoning, and systematically formulate conclusions. However, students' evaluation skills have not yet developed optimally and require more varied and continuous practice and learning strategies. Therefore, the NHT model can be an effective learning alternative for improving the quality of social studies learning, particularly in developing students' critical thinking skills. Therefore, teachers need to optimize the implementation of this model through careful planning and integration with HOTS-based learning strategies to ensure the comprehensive development of all critical thinking indicators.

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