The Effect of the Numbered Heads Together Cooperative Learning Model on Students' Learning Outcomes in Procedural Texts

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ABSTRACT

This study was conducted to address the low learning outcomes of students in writing procedural texts, which are often caused using conventional and less engaging teaching methods. To overcome this issue, the Numbered Heads Together (NHT) cooperative learning model was implemented as a more interactive and collaborative alternative. The purpose of this study was to determine the effect of the NHT model on students' learning outcomes in writing procedural texts for Grade VII students at MTs Al-Yusufiah Sidorejo. The research used a quasi-experimental design with a pretest-posttest control group design and was carried out over four meetings. The participants consisted of two classes: the experimental class, which received instruction using the NHT model, and the control class, which was taught using conventional methods. Data were collected through tests, observations, and questionnaires, and analyzed using a t-test to determine differences between groups. The results showed a significant improvement in the experimental group's performance, with a posttest mean score of 83.6 compared to 72.1 in the control group, and a Sig. (2-tailed) value of 0.001 ($p < 0.05$). Observation data also indicated that students in the experimental class were more active, collaborative, and engaged in the learning process. Based on these findings, it can be concluded that the NHT cooperative learning model effectively enhances students' writing performance, participation, and motivation in learning procedural texts.
Keywords: Cooperative Learning Model; Numbered Heads Together; Learning Outcomes; Procedural Text

INTRODUCTION

Indonesian language learning in junior high schools plays an important role in improving students' literacy and communication skills. One of the key competencies is writing procedural texts, which describe steps or stages in completing an activity. However, many students still struggle to organize ideas, arrange steps logically, and use clear and efficient language. Observations at MTs

Al Yusufiah Sidorejo showed that most Grade VII students found it difficult to produce complete and structured procedural texts. Evaluation results indicated that only 58 percent of students met the Minimum Competency Criteria (KKM) in writing procedural texts, showing that students' understanding and writing ability were still below expectations.

This situation reflects a broader national issue. Data from the Ministry of Education, Culture, Research, and Technology (Kemendikbud, 2023) shows that around 45 percent of junior high school students in Indonesia perform below the basic level in writing assessments, especially in explaining steps or procedures clearly. The low achievement is largely due to conventional teaching methods that are still teacher centered. Observations at MTs Al Yusufiah Sidorejo also revealed that classroom learning is dominated by lectures and individual tasks. Students tend to be passive, reluctant to express opinions, and often depend on peers during assignments. This indicates that the learning methods used have not encouraged active participation or collaboration among students.

To solve these problems, a shift toward learning models that engage students more actively is needed. One suitable approach is the Numbered Heads Together (NHT) cooperative learning model. This model emphasizes teamwork and shared responsibility among group members. Each student is given a number and has the same opportunity to represent the group's ideas, encouraging accountability and participation. Through this model, students are trained to discuss, exchange opinions, and help one another, which improves their understanding and social interaction skills. According to Auriantri and Winarti (2024), cooperative learning can significantly increase students' learning outcomes because it allows them to support and strengthen each other's understanding through discussion.

Previous studies have shown that the NHT model can improve students' learning outcomes. Aisyah, Mutia, and Parwanti (2023) found that the use of the NHT model improved students' ability to write procedural texts by increasing interaction and critical thinking during group discussions. Similarly, Agustin and Basri (2024) reported a significant improvement in students' participation and motivation after the implementation of the NHT model in writing classes. Another study by Aprilian, Pebriani, and Tatalia (2022) revealed that students taught with the NHT model achieved higher learning outcomes compared to those who learned through conventional methods.

Although several studies have discussed the NHT model, most of them were conducted in general writing contexts or at different education levels. The novelty of this study lies in its focus on the application of the NHT model specifically in procedural text writing at the junior high school level. It not only examines the cognitive outcomes of students but also explores their participation and collaboration during the learning process. This study also differs from previous research because it combines test results, observation data, and student response analysis to provide a more comprehensive view of the NHT model's impact on

learning. Based on this background, the purpose of this study is to determine the effect of the Numbered Heads Together cooperative learning model on the learning outcomes of Grade VII students in writing procedural texts at MTs Al Yusufiah Sidorejo. The findings are expected to provide useful insights for teachers in developing interactive and student centered learning strategies to improve literacy achievement in Indonesian language lessons.

LITERATURE REVIEW

Numbered Heads Together Cooperative Learning Model

The Numbered Heads Together (NHT) model is one of the cooperative learning strategies that emphasizes collaboration, shared responsibility, and active student participation. According to Apriani (2020), the key characteristics of the NHT model are: (1) heterogeneous grouping of students, (2) assigning each group member a unique number, and (3) encouraging joint discussion and problem-solving (heads together). This structure ensures that every student contributes to the learning process and is ready to represent the group's ideas when called upon.

As stated by Palupi (2023), the NHT cooperative learning model offers several advantages. These include: (1) improving students' learning achievement, (2) broadening understanding through peer discussion, (3) developing responsibility and teamwork, (4) increasing curiosity and motivation, (5) enhancing self-confidence, and (6) fostering a sense of cooperation and belonging among students. These advantages align with Rahman and Lestari (2022), who found that the NHT model encourages more balanced participation among group members and reduces students' fear of expressing opinions.

However, like other cooperative models, NHT also has limitations. Dewi and Sari (2021) note that group members sometimes depend too much on higher-performing peers, which can affect overall group performance. Additionally, if one member performs poorly, it may influence the group's results in subsequent tasks. To overcome these challenges, teachers are advised to monitor group interactions closely and use performance-based evaluation to ensure individual accountability. Overall, the NHT model has proven to be an effective method for promoting active learning, improving student engagement, and developing both cognitive and social skills. Recent studies, such as Agustin and Basri (2024), reaffirm that NHT significantly increases students' motivation and participation in writing lessons, making it suitable for teaching procedural texts that require clear reasoning and structured thinking.

Procedural Text

Procedural text is a type of functional text that provides instructions or steps to complete a specific task or process. According to Kustyarini and Utami (2021), procedural text aims to guide readers systematically through the steps required to

achieve a particular goal. It is typically written using imperative verbs and sequential connectors such as "first," "then," and "finally" to ensure clarity and coherence. Similarly, Kosasih (2020) defines procedural text as a form of writing that explains how something is done in a logical, detailed, and easy-to-follow manner so that readers can replicate the process successfully.

The structure of procedural text generally consists of three main parts: (1) Goal, which explains the purpose or the final result to be achieved; (2) Materials or Tools, which list the items needed to complete the procedure; and (3) Steps, which present the actions in a logical and sequential order. As stated by the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek, 2021), students' mastery of procedural text writing is essential because it integrates linguistic accuracy, logical thinking, and clarity of expression—skills that support their literacy development.

Procedural texts also serve as an important means of improving students' writing competence. According to Putri and Rahayu (2022), teaching procedural text writing helps students learn how to plan ideas, organize them systematically, and use language effectively to communicate instructions. Therefore, integrating innovative learning models such as NHT can make procedural text learning more engaging and meaningful. The combination of cooperative discussion and structured writing tasks allows students to develop both language proficiency and collaborative learning habits.

METHOD

Design and Samples

This research uses a quantitative approach with a quasi-experimental or pseudo-experimental design.(Arikunto, 2022). The design applied is Nonequivalent Control Group Design, which involves two groups of students, namely the experimental group and the control group. The experimental group will receive learning with the Numbered Heads Together (NHT) Cooperative Learning Model, while the control group will learn using conventional methods or lectures. The population in this study were all students of class VII at MTs Al-Yusufiah Sidorejo. The sample was selected using the purposive sampling technique according to(Sugiyono, 2016)purposive sampling in which two classes with balanced academic abilities were selected to be the subjects of the study. Each group consisted of about 30 students, so the total sample of the study was 60 students.

Instrument and Procedure

The learning outcome test was in the form of a pretest and posttest given to both groups. The pretest was conducted before learning to determine students' initial abilities in writing procedural texts. After learning was completed, a posttest was given to measure improvements in student learning outcomes. The questions used

covered aspects of understanding the structure of procedural texts, language rules, and clarity and systematic presentation.

Table 1. Research Design

Group	Pretest	Treatment	Posttest
Experiment (VII-1)	O1	NHT Learning	O2
Control (VII-2)	O1	Conventional Learning	O2

Observation sheets are used to assess student engagement in the lesson. The assessment can be seen whether students are actively involved in discussions, work together in groups, and understand what is being taught. To gain a better understanding, observations are conducted during several meetings in the learning process. To measure student responses to the implementation of the NHT Type Cooperative Learning Model, the experimental group received a questionnaire containing statements that must be answered by students regarding their motivation to learn, how easy the material is to understand, and how effective the model is applied.

Data Analysis

After the data is collected, the first step in the analysis is to conduct a normality test using the Kolmogorov-Smirnov or Shapiro-Wilk test to determine whether the data is normally distributed or not. If the data is normally distributed, then continue with a homogeneity test using Levene's test to ensure that the variances of the two groups are the same.(Arikunto, 2022). To test the research hypothesis, the t-test (Independent Sample t-test) is used if the data is normally distributed. This t-test is used to determine whether there is a significant difference between the learning outcomes of students taught with the NHT Model and students who learn with conventional methods. If the data is not normally distributed, the Mann-Whitney U test is used, which is an alternative non-parametric test.(Sugiyono, 2016).

RESULT AND DISCUSSION

After conducting research on the Influence of the Numbered Heads Together (NHT) Type Cooperative Learning Model on the Learning Outcomes of Procedural Texts in Indonesian Language Learning for Class VII at MTs Al-Yusufiah Sidorejo, it shows that this learning model is very effective in improving student learning outcomes. The following are the results of research in the field:

Pretest and Posttest Results

At the beginning of the study, a pretest was conducted on both groups to measure students' initial ability to write procedural texts. The results of the pretest showed that the average scores of the two experimental and control groups were not very different. The following are the results obtained:

Table 2. Pretest Results

Group	Number of Students	Pretest Average
Experiment	30	58.4
Control	30	57.8

The post-test was conducted after students received treatment for several meetings to find out how well they learned. The results showed that the average score of students in the experimental group increased significantly compared to the control group. The following are the results obtained:

Table 3. Posttest Results

Group	Number of Students	Pretest Average
Experiment	30	83.6
Control	30	72.1

This difference shows that using the NHT Type Cooperative Learning Model helps students understand procedural texts.

Table 3. Improvement of Pretest and Posttest Results

Group	Number of Students	Pretest Average	Posttest Average	Increase (%)
Experiment	30	58.4	83.6	42.98%
Control	30	57.8	72.1	24.74%

From the table above shows that the learning outcomes of both groups before treatment (pretest) are almost the same. However, after treatment (posttest), the NHT type cooperative learning model was applied, the learning outcomes of the experimental group increased significantly. Students in the control group who used the conventional method only experienced an increase of 24.74%, while students who used the NHT model experienced an increase of 42.98%.

Normality and Homogeneity Test

Before the hypothesis test was conducted, the data were tested for normality using Kolmogorov-Smirnov. The test results showed that the pretest and posttest data were normally distributed, so that it could be continued with the homogeneity test. The t-test results showed that the variances of the two groups were homogeneous, so that the t-test (independent sample t-test) could be used to determine the significance of the differences between the two groups. The following are the results of the normality test and the homogeneity test.

Table 4 Results of Normality and Homogeneity Tests

Statistical Test	Experimental Group	Control Group	Test Criteria	Conclusion
Normality	Sig. 0.072	Sig. 0.089	Sig. > 0.05 (Normal)	Data is normally distributed
Homogeneity	Sig. 0.238	Sig. 0.271	Sig. > 0.05 (Homogeneous)	The data has homogeneous variance

Normality test and homogeneity test were conducted to ensure that the data were normally distributed, and the results showed a Sig. value > 0.05, indicating that the variance of the two groups was the same. As a result, to find out whether there is a significant difference in learning outcomes, it can be continued with a t-test.

Hypothesis Test (t-Test)

Table 5. Hypothesis Test Results (t-Test)

Statistical Test	Sig. Value (2-tailed)	Test Criteria	Conclusion
T-test (Independent Sample t-test)	0.001	Sig. < 0.05 (Significant)	There is a significant difference between the experimental and control groups

Sig. Value (2-tailed) = 0.001, lower than 0.05, according to the t-test results. This shows that the learning outcomes of students using the NHT Type Cooperative Learning Model are very different from students using conventional methods. The NHT model has been proven to be more effective in improving student learning outcomes.

Student Engagement Observation Results

Students in the experimental group were given a survey in the form of a questionnaire to determine their perceptions of the NHT Type Cooperative Learning Model. The survey results showed that most students gave positive responses to the implementation of the NHT Type Cooperative Learning Model. The following are the results of the questionnaire obtained:

Table 6. Results of the Student Involvement Questionnaire in the Learning Process

Observation Aspect	Before Treatment (%)	After Treatment (%)	Increase (%)
Activeness in Discussion	40%	75%	35%

Cooperation in Groups	50%	85%	35%

This table shows the increase in student engagement after the implementation of the NHT Cooperative Learning Model. Students became more active in discussions, better able to work together in groups, and more adept at systematically compiling procedural texts. This shows that students' social and critical thinking skills improved after using the NHT model.

The findings of this study demonstrate that the Numbered Heads Together (NHT) cooperative learning model had a significant effect on improving students' learning outcomes in writing procedural texts. The experimental group's mean score increased from 58.4 to 83.6, representing a 42.98 percent improvement, while the control group's score increased from 57.8 to 72.1, or 24.74 percent. The t-test result (Sig. 0.001 < 0.05) confirmed that this difference was statistically significant. These results indicate that the NHT model provides a more effective learning experience than conventional teaching methods. The improvement can be attributed to the model's collaborative structure, which promotes student interaction, accountability, and active participation key elements that foster deeper understanding and knowledge retention.

The effectiveness of the NHT model can be explained through the lens of social constructivist theory, particularly the ideas of Vygotsky (1978), who emphasized that learning occurs through social interaction and shared problem-solving. The NHT strategy creates a learning environment in which students must collaborate to reach a shared understanding before presenting answers to the class. This process allows students to construct knowledge through dialogue, clarification, and negotiation of meaning. Similarly, Slavin (2021) argues that cooperative learning enhances achievement because it combines cognitive engagement with positive interdependence each student's success contributes to the group's overall achievement. In this study, the group-based accountability inherent in the NHT structure ensured that every student was actively involved, resulting in higher engagement and better mastery of procedural text writing skills.

The results also support recent studies highlighting the benefits of cooperative learning in language classrooms. Agustin and Basri (2024) found that the NHT model improved students' writing motivation and participation by providing equal opportunities for students to contribute ideas. Likewise, Aisyah, Mutia, and Parwanti (2023) reported that NHT encouraged students to think critically and collaborate effectively when composing written texts. Palupi (2023) also emphasized that NHT helps balance participation in heterogeneous classrooms by giving each student a clear role and responsibility. The current study builds on these findings by demonstrating that NHT not only improves general writing performance but also enhances students' mastery of procedural text structure, particularly the logical sequencing of steps and the appropriate use of imperative verbs and transition words.

A new insight from this study is the effectiveness of NHT in a short implementation period. The intervention was carried out across four learning meetings, yet it resulted in substantial improvement in both performance and engagement. This finding suggests that NHT can produce meaningful results even within limited classroom time. In addition, observation data revealed that students' activeness in discussion increased from 40 percent before treatment to 75 percent after treatment, while cooperation improved from 50 percent to 85 percent. These behavioral changes indicate that NHT not only improved cognitive outcomes but also enhanced social and communication skills. These results align with the findings of Rahman and Lestari (2022), who observed that cooperative learning reduces students' anxiety, builds confidence, and promotes a supportive learning environment.

Another key finding of this study is that NHT was especially beneficial for students with lower initial performance. The model's structure encourages mutual assistance and peer tutoring, allowing weaker students to learn from stronger peers through explanation and practice. This interaction leads to deeper comprehension and long-term retention of procedural writing principles. Observation notes also showed that students became more confident in expressing ideas and used clearer language when describing steps in a process. This finding is consistent with the work of Putri and Rahayu (2022), who found that cooperative learning fosters both academic and interpersonal growth by creating opportunities for students to practice communication and teamwork.

The implications of these findings are twofold. For teachers, the NHT model provides a practical and effective strategy for improving both literacy skills and student engagement. Teachers are encouraged to implement the model regularly, ensuring that groups are heterogeneous and that each member actively contributes during discussions. Tasks should be designed to emphasize the features of procedural texts, such as clear goals, sequential steps, and appropriate linguistic structures. Teachers should also integrate formative assessments during group work to monitor individual accountability and understanding. Additionally, providing linguistic support such as word banks and sentence starters can help students use more accurate and cohesive language in their writing.

For researchers, this study opens several avenues for further investigation. Future studies could expand the sample to different schools or grade levels to test the model's consistency across contexts. Longitudinal studies could also examine the long-term effects of NHT on writing performance and student motivation. Comparative research between NHT and other cooperative strategies such as Think-Pair-Share or Jigsaw would help identify the specific cooperative elements that contribute most to literacy improvement. Moreover, qualitative studies using classroom discourse analysis could explore how peer interaction and verbal explanation contribute to text comprehension and writing development.

Overall, this study strengthens the evidence that the Numbered Heads Together model is an effective and engaging approach to improving students' procedural text writing. By combining collaboration, accountability, and active participation, the model enhances not only students' academic performance but also their confidence and communication skills. It bridges the gap between cognitive and social learning, aligning well with the goals of the current curriculum, which emphasizes collaboration, creativity, and critical thinking.

CONCLUSION

This study confirmed that the Numbered Heads Together (NHT) cooperative learning model effectively improves students' ability to write procedural texts in Indonesian language learning. The model encouraged active participation, collaboration, and critical thinking, leading to better learning outcomes and stronger engagement in classroom activities. Its success demonstrates that learning becomes more meaningful when students construct knowledge together rather than learning passively through teacher-centered instruction. The main contribution of this study lies in showing how cooperative learning, particularly the NHT model, can serve as an innovative and practical approach to enhance literacy skills at the junior high school level. By integrating discussion, accountability, and group reflection, this model not only supports academic improvement but also builds students' communication and social competence. Teachers are encouraged to apply the NHT model in other language learning topics such as descriptive or narrative writing to foster active and collaborative learning environments. Future researchers may explore its implementation in higher grade levels or other subjects to determine its wider applicability and long-term impact on student learning and motivation.

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