International Journal of Educational Research Excellence (IJEREC)
https://ejournal.ipinternasional.com/index.php/ijerec

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

The Effect of Numbered Heads Together (NHT) Cooperative Learning on Improving Reading Comprehension of Narrative Texts Among Students

Ahmad Sarif Rambe[1*)], Sutikno[2)] , Rahmat Kartolo[3)]

[1, 2, 3)] Universitas Muslim Nusantara Al-Washliyah, Indonesia

Correspondence Authors: ahmad.sarif.rambe@gmail.com

Article history: received September 20, 2026; revised September 30, 2026; accepted Oktober 04,2026

This article is licensed under a Creative Commons Attribution 4.0 International License

Abstract

This atudy was motivated by low student achievement due to difficulties in understanding the elements of narrative texts, which was exacerbated by the ineffectiveness of conventional learning models in stimulating discussion and individual learning responsibility. This study used a quantitative approach with a quasi-experimental design and a pretest-posttest control group design. The sample was randomly selected by class, designating Class VI A as the Experimental Class (NHT N=24) and Class VI B as the Control Class (Conventional, N=23). The research instrument was an essay test. Data were analyzed using the Prerequisite Test (Normality and Homogeneity) and the t-Test (Independent Sample T-Test). The results of the prerequisite test showed that the data of both groups were normally distributed (Sig. > 0.05) and had homogeneous variance (Pretest Sig. 0.356; Posttest Sig. 0.298), so it was suitable to be tested with the t-Test. Before the treatment, the average pretest of both classes was relatively equal (Experimental 31.7; Control 34.91). After the treatment, the average posttest of the Experimental Class increased significantly to 74.8, far exceeding the KKTP, while the Control Class only reached 64.9. The increase in learning outcomes (Gain Score) of the Experimental Class (43.1 points) was much higher than that of the Control Class (30.0 points). The peak statistical analysis, the Independent Sample T-Test, yielded a significance value (Sig. 2-tailed) of 0.027. Because this Sig. value (0.027) is less than 0.05, H0 is rejected and Ha is accepted. The conclusion of this study confirms that the implementation of the Numbered Heads Together (NHT) cooperative learning model has a significant and effective effect on improving reading comprehension outcomes of sixth-grade students at SDN 07 Bilah Hulu. NHT has proven to be a learning solution that encourages individual responsibility and collaboration.

Keywords: Numbered Heads Together (NHT), Cooperative Learning, Reading Comprehension, Narrative Text, Learning Outcomes

I. INTRODUCTION

Reading comprehension constitutes one of the most fundamental competencies in primary education, serving as a gateway to academic success and lifelong learning. The ability to understand, interpret, and critically evaluate texts is not merely an academic requirement but a critical life skill that enables individuals to function effectively in society (Fauzi et al., 2025). In the Indonesian educational context, reading comprehension is a core component of the Bahasa Indonesia curriculum, particularly in the upper elementary grades where students transition from learning to read to reading to learn.

The significance of reading comprehension extends beyond language arts instruction. Students who struggle with reading comprehension face challenges across all subject areas, as the ability to extract meaning from textbooks, instructions, and assessment items is essential for success in mathematics, science, social studies, and other disciplines (Lubbiya & Liansari, 2026). Furthermore, in an increasingly information-rich society, comprehension skills are vital for navigating daily life, from understanding news articles and official documents to making informed decisions based on written information.

Among various text types, narrative texts present unique challenges and opportunities for developing reading comprehension. Hechanova et al. (2025) defined narrative texts as discourse that reconstructs events or occurrences, presented either chronologically (temporal sequence) or causally (cause-effect relationships). These texts serve multiple purposes: entertaining, informing, and educating, particularly through the transmission of moral values (Hechanova et al., 2025).

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

For elementary students, narrative texts are particularly significant because they align with children's natural affinity for storytelling and their developing understanding of story grammar elements (Al-Jarf, 2026). However, comprehending narratives requires sophisticated cognitive processing. Students must identify and integrate multiple story elements including characters (protagonists and antagonists), setting (time and place), plot (exposition, rising action, climax, falling action, resolution), conflict, point of view, and theme/moral message (Ohle-Peters et al., 2025). The complexity of narrative comprehension is amplified by the need for readers to make inferences, draw conclusions, and evaluate characters' motivations and actions. These higher-order thinking processes demand active engagement with texts and the application of strategic reading behaviors. When students lack these skills, their comprehension remains superficial, limiting their ability to derive meaning from texts.

Despite the recognized importance of reading comprehension, instruction in this area often falls short of optimal effectiveness. Classroom observations and teacher interviews at SDN 07 Bilah Hulu revealed several persistent challenges

First, conventional teaching approaches predominate in reading instruction. The teacher-centered model, characterized by lectures, individual seatwork, and minimal interactive discourse, fails to engage students actively with texts. This approach, as described by Sari (2025), positions students as passive recipients of information rather than active meaning-makers. Students listen to teachers explain text content without opportunities to discuss, question, or construct their own interpretations collaboratively (Juita Sari, 2025).

Second, student engagement and motivation remain consistently low. During reading lessons, students demonstrated passive behaviors: talking with peers, daydreaming, or simply waiting for instruction to conclude. When asked questions about texts, few students responded voluntarily, and those called upon frequently could not provide answers. This lack of engagement reflects broader motivational issues where students perceive reading comprehension as a dull, uninteresting task rather than an opportunity for exploration and discovery.

Third, individual responsibility and accountability are insufficiently promoted. In conventional classrooms, students can hide behind peers, avoiding the need to actively process texts. Those who do participate tend to be the same few high-performing students, while others remain disengaged. This pattern undermines the development of independent comprehension skills and fails to ensure that all students adequately process and understand texts (Destiara Andini Ulandari, 2025).

Fourth, assessment practices often measure surface-level understanding rather than deep comprehension. Traditional multiple-choice tests may assess recall of explicit information but fail to capture students' ability to infer, evaluate, and synthesize. Consequently, students may achieve passing scores without genuinely comprehending texts, creating a false sense of proficiency that masks underlying difficulties.

Fifth, the lack of structured collaboration opportunities prevents students from developing comprehension strategies through peer interaction. Reading comprehension is inherently social, as readers often discuss and negotiate meaning with others (Aghayeva, 2025). Yet conventional instruction typically isolates students, eliminating opportunities to learn from peers and co-construct understanding.

These challenges demand innovative instructional solutions that move beyond traditional approaches. The Indonesian Ministry of Education emphasizes the importance of student-centered learning that actively engages learners in constructing knowledge. However, translating this principle into practice requires concrete instructional models that effectively structure student engagement.

Cooperative learning models have emerged as promising alternatives to conventional instruction, offering structured approaches to promoting collaboration, accountability, and active participation (Juang Kurniawan, 2025). Among various cooperative learning models, Numbered Heads Together (NHT), developed by Spencer Kagan, appears particularly suited to addressing reading comprehension challenges. The model's structured phases ensure that all students participate actively, contribute to group discussions, and demonstrate individual accountability.

NHT's distinctive features align well with the demands of reading comprehension instruction. The "Heads Together" phase encourages collaborative meaning-making, allowing students to share interpretations, clarify confusions, and build deeper understanding through dialogue. The "Numbering" and "Questioning" phases ensure that all students are prepared to respond to questions, promoting individual accountability and eliminating the possibility of hiding behind more capable peers.

Despite the theoretical appeal of NHT and its demonstrated effectiveness in mathematics and science contexts (McGettigan et al., 2025), its application to reading comprehension instruction, particularly for narrative texts at the elementary level, has received limited empirical attention. This gap is significant because reading comprehension involves different cognitive processes and instructional demands than the subjects where NHT has typically been studied.

Furthermore, the Indonesian elementary context presents unique considerations, including large class sizes, limited resources, and cultural factors that may influence the effectiveness of collaborative approaches. Research conducted in local contexts is essential for generating evidence that informs practice in Indonesian schools.

Based on the identified problems and theoretical framework, this study addresses the following research question:

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

Is there a significant effect of implementing the Numbered Heads Together (NHT) cooperative learning model on improving reading comprehension of narrative texts among sixth-grade students at SDN 07 Bilah Hulu, Labuhanbatu Regency, Academic Year 2025-2026?

The following hypotheses were tested:
H_0 (Null Hypothesis): There is no significant effect of implementing the Numbered Heads Together (NHT) cooperative learning model on improving reading comprehension of narrative texts among sixth-grade students.
H_a (Alternative Hypothesis): There is a significant effect of implementing the Numbered Heads Together (NHT) cooperative learning model on improving reading comprehension of narrative texts among sixth-grade students..

II. METHODS

A. *Research Design*

This study employed a quantitative research approach with a quasi-experimental design, specifically the pretest-posttest control group design (Creswell, 2014). This design was selected because it allows for the comparison of outcomes between an experimental group receiving the NHT intervention and a control group receiving conventional instruction, while controlling for pre-existing differences through pretest measurements. The quasi-experimental approach was deemed appropriate because the school setting did not permit true random assignment of individual students to conditions, although intact classes were randomly assigned to experimental and control conditions.

Table 1. The Research Design Can Be Represented

Group	Pretest	Treatment	Posttest
Experimental (VI A)	O_1	X (NHT)	O_2
Control (VI B)	O_3	- (Conventional)	O_4

Where:
O_1, O_3 = Pretest scores (baseline reading comprehension)
X = Treatment (NHT cooperative learning)
O_2, O_4 = Posttest scores (reading comprehension after treatment)

B. *Time and Location*

The research was conducted at SDN 07 Bilah Hulu, Labuhanbatu Regency, North Sumatra, Indonesia, during the 2025-2026 academic year. The study took place over six weeks, including preparation, pretesting, three intervention sessions (two meetings per week), and posttesting. This timeframe was sufficient to implement the NHT model while allowing for comparison with conventional instruction.

C. *Population and Sample*

Population: The target population comprised all sixth-grade students at SDN 07 Bilah Hulu, totaling 47 students across two parallel classes. This population is characterized by similar demographic backgrounds, instructional experiences, and academic expectations.
Sample: The sample included all 47 sixth-grade students, with Class VI A (N=24) designated as the experimental group and Class VI B (N=23) as the control group.
Sampling Technique: Purposive sampling was employed based on the following considerations: (1) both classes had similar compositions in terms of academic ability distributions, (2) the classes had been receiving instruction from the same teacher with comparable methods prior to the study, and (3) the school administration permitted the assignment of classes to conditions.

D. *Variables*

Independent Variable: Implementation of the Numbered Heads Together cooperative learning model. Dependent Variable: Reading comprehension of narrative texts, measured through posttest scores.

E. *Research Instruments*

Three types of instruments were utilized to collect comprehensive data:

Reading Comprehension Test

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

The primary instrument was a reading comprehension test administered as both a pretest and posttest. The test consisted of 10 multiple-choice items designed to assess various levels of narrative comprehension. The test items were developed based on the following indicators aligned with Bloom's Taxonomy:

Table 2. Reading Comprehension Test

No.	Indicator	Cognitive Level	Item Nos.
1	Identifying characters in the story	C1 (Remember)	1, 2
2	Identifying setting (time and place)	C1 (Remember)	3, 4
3	Identifying plot sequence	C2 (Understand)	5, 6
4	Finding the main idea	C2 (Understand)	7, 8
5	Drawing conclusions	C3 (Apply)	9, 10

The test was developed following a systematic process:
Test Blueprint: A table of specifications was developed to ensure content validity and align test items with learning objectives and cognitive levels.
Validity Testing: Content validity was established through expert review by two education specialists who evaluated the alignment between test items and learning objectives. Item validity was calculated using the Pearson Product-Moment correlation formula:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$$

Where:
n = number of participants
X = item scores
Y = total scores

Items with correlation coefficients > 0.30 were retained.
Reliability Testing: Internal consistency was calculated using Cronbach's Alpha formula:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2}\right)$$

Where:
k = number of items
σi^2 = variance of each item
σt^2 = total variance
The instrument achieved a reliability coefficient of 0.78, indicating acceptable internal consistency.
Item Difficulty and Discrimination: Item difficulty (P) was calculated using:

$$P = \frac{B}{JS}$$

where B = number of students answering correctly, JS = total number of students.
Item discrimination (D) was calculated using:

$$D = \frac{BA - BB}{JA}$$

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

Where BA = number of upper group students answering correctly, BB = number of lower group students answering correctly, JA = number of upper group students.
Items with moderate difficulty indices (0.30-0.70) and discrimination indices above 0.30 were retained.
Observation Sheets
Structured observation sheets were developed to document teacher and student activities during NHT implementation. The observation instrument included:
Teacher Activity Observation: Eight indicators assessing adherence to NHT implementation steps: (a) delivering learning objectives, (b) explaining narrative text material, (c) organizing students into groups, (d) assigning numbers to group members, (e) delivering questions and facilitating discussion, (f) calling numbers to respond, (g) providing reinforcement, and (h) managing classroom time.
Student Activity Observation: Ten indicators assessing student engagement: (a) listening to teacher explanations, (b) active participation in group discussions, (c) expressing ideas in groups, (d) answering when called, (e) demonstrating cooperation, (f) paying attention to other groups' presentations, (g) asking questions, (h) contributing to group summaries, (i) following NHT procedures, and (j) completing assigned tasks.

Interview Guidelines
Semi-structured interview protocols were developed for teacher interviews to supplement quantitative data with qualitative insights about implementation challenges and perceptions.
NHT Implementation Procedure
The NHT intervention was implemented following Kagan's (2009) four-phase structure
Phase 1: Numbering
Students were divided into heterogeneous groups of 45 members, each receiving a unique identification number (15). Heterogeneity was based on academic performance, gender, and learning styles to ensure balanced groups.
Phase 2: Questioning
The teacher posed questions about the narrative text. Questions progressed from basic comprehension (identifying explicit information) to higher-order thinking (inferring, evaluating, and applying).
Phase 3: Heads Together
Groups discussed questions collaboratively. Each member contributed ideas, ensuring that all group members understood the answers. Students were encouraged to use comprehension strategies: summarizing, questioning, clarifying, and predicting.
Phase 4: Answering
The teacher randomly called a number (e.g., "Number 3"). The designated student from each group stood to present their group's answer. This phase ensured individual accountability as any member could be called to represent the group's understanding.

Control Group Instruction
The control group received instruction using conventional methods. Typically, this involved:
Teacher reading the text aloud
Teacher explaining content
Students answering comprehension questions individually
Minimal peer interaction or collaborative discussion

Data Collection Procedures
Data collection followed a structured sequence:
Stage 1: Preparation
Instrument development and validation
Research permission from university and school authorities
Training for research assistants and observers
Scheduling of research activities
Stage 2: Pretest
Both groups completed the reading comprehension pretest on October 22, 2025
Testing conditions were standardized to ensure reliability
Stage 3: Treatment
Three sessions were conducted over three weeks
Each session focused on a different narrative text
Experimental group received NHT instruction
Control group received conventional instruction

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

Observations were conducted during each session
Stage 4: Posttest
Both groups completed the reading comprehension posttest on November 12, 2025
The posttest used parallel items comparable to the pretest
Conditions matched the pretest administration

Data Analysis Techniques
Data analysis proceeded in three phases:
1. Descriptive Statistics
Means, standard deviations, minimums, and maximums were calculated for the pretest and posttest scores for both groups. Gain scores (posttest pretest) were computed to measure the magnitude of improvement.
2. Prerequisite Tests
Normality Test: The Shapiro Wilk test was used to determine whether the data were normally distributed. The test was applied to the pretest and posttest data for both groups. The significance level was set at $\alpha = 0.05$. Data were considered normally distributed if $p > 0.05$.
Homogeneity Test: Levene's test was used to assess whether variances were equal across groups. The significance level was set at $\alpha = 0.05$. Data were considered homogeneous if $p > 0.05$.

3. Hypothesis Testing
An independent sample t- test was employed to test the hypothesis, as all prerequisite conditions were met. The test compared the posttest means between the experimental and control groups.
Test Formula:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Where:
$\bar{X}_1$ = mean of experimental group
$\bar{X}_2$ = mean of control group
s_1^2 = variance of experimental group
s_2^2 = variance of control group
n_1 = sample size of experimental group
n_2 = sample size of control group
Decision Criteria:
Reject H_0 if $p < 0.05$ (significant effect)
Fail to reject H_0 if $p \geq 0.05$ (no significant effect)

III. RESULTS AND DISCUSSION

A. *Descriptive Statistics*

The research yielded comprehensive data on student reading comprehension before and after interventions. This section presents the findings systematically, beginning with descriptive statistics, followed by prerequisite tests, hypothesis testing, and discussion of the results.
Implementation Fidelity: Teacher and Student Activities
Teacher Activity Observation
The fidelity of NHT implementation was documented through systematic observation of teacher activities across three sessions:

Table 1: Teacher Activity Observation Results

Meeting	Maximum Score	Obtained Score	Percentage	Category
1	60	55	91.6%	Very Good
2	60	56	93.3%	Very Good
3	60	57	95.0%	Very Good

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

The teacher demonstrated consistently high implementation fidelity across all three sessions, with scores ranging from 91.6% to 95.0%, categorized as "Very Good." This pattern indicates that the teacher successfully implemented all phases of the NHT model: numbering, questioning, heads together, and answering. The slight improvement from Session 1 to Session 3 (3.4% increase) suggests increasing comfort and proficiency with the model.

B. *Student Activity Observation*

Student engagement was systematically observed across four dimensions: group discussion, collaboration, adherence to NHT procedures, and presentation of results.

Table 2: Student Activity Observation Results

Meeting	Max Score	Item 1	Item 2	Item 3	Item 4	Total	Percentage	Category
1	384	84	83	83	72	322	84%	Good
2	384	89	88	92	74	343	89%	Very Good
3	384	92	93	94	78	357	93%	Very Good

Item Key:
Group Discussion
Collaboration
Following NHT Rules (raising hands, discipline)
Presenting Discussion Results

Student activity showed consistent improvement across sessions, increasing from 84% (Good) in session 1 to 93% (Very Good) in session 3. This 9% increase reflects growing student familiarity with NHT procedures and increased engagement. The highest scores were observed for "Following NHT Rules" (94% in session 3), suggesting that students internalized the model's behavioral expectations. The dimension "Presenting Discussion Results" showed the lowest scores across all sessions, indicating that speaking in front of the class remained challenging for some students, al though this aspect also improved by 8% from session 1 (75%) to session 3 (83%).

C. *Pretest Results*

Before the intervention, both groups completed the reading comprehension pretest to establish baseline abilities.

Table 3: Pretest Results for Experimental and Control Groups

Class	N	Mean	Maximum	Minimum	Standard Deviation	Above KKTP (65)
Experimental (VI A)	24	31.7	56	5	16.45	0 (0%)
Control (VI B)	23	34.91	79	5	19.52	2 (8.7%)

The pretest results revealed that both groups had comparable baseline abilities in reading comprehension, although the control group showed a slightly higher mean (34.91 vs. 31.7). Critically, 0% of the experimental students and only 8.7% of the control students met the KKTP (65), indicating that reading comprehension was a significant challenge across both classes. The substantial ranges (experimental: 556, control: 579) indicate considerable heterogeneity in student abilities within both classes, reinforcing the need for instructional approaches that address diverse learning needs.

D. *Posttest Results*

Following the intervention, both groups completed the posttest to measure reading comprehension after treatment.

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

Table 4: Posttest Results for Experimental and Control Groups

Class	N	Mean	Maximum	Minimum	Standard Deviation	Above KKTP (65)
Experimental (VI A)	24	74.8	95	47	12.12	21 (87.5%)
Control (VI B)	23	64.9	88	25	14.34	12 (52.2%)

The posttest results revealed marked differences between groups. The experimental group's mean (74.8) substantially exceeded the control group's mean (64.9), representing a 9.9-point difference. More importantly, 87.5% of experimental students met or exceeded the KKTP, compared to only 52.2% of control students. The experimental group's minimum score (47) was nearly double the control group's minimum (25), suggesting that NHT particularly benefited struggling students who might otherwise fall far behind.

E. *Gain Score Analysis*

To measure the magnitude of improvement, gain scores (posttest pretest) were calculated.

Table 5: Gain Score Comparison

Class	Mean Pretest	Mean Posttest	Gain Score	N
Experimental (VI A)	31.7	74.8	43.1	24
Control (VI B)	34.91	64.9	30.0	23

The experimental group demonstrated a substantially higher gain score (43.1 points) compared to the control group (30.0 points), representing a 13.1-point difference in improvement. This indicates that students in the NHT class experienced approximately 44% greater improvement than their peers in the conventional class.

F. *Prerequisite Tests*

Before conducting the hypothesis test, assumptions of normality and homogeneity were verified.

Normality Test

Table 6: Normality Test Results (Shapiro-Wilk)

Class	Test	Statistic	df	Sig.	Decision
Experimental	Pretest	0.926	24	0.078	Normal
Control	Pretest	0.943	23	0.208	Normal
Experimental	Posttest	0.947	24	0.232	Normal
Control	Posttest	0.929	23	0.103	Normal

The Shapiro-Wilk test results indicated that all data sets were normally distributed, as all significance values exceeded 0.05: Experimental Pretest (p=0.078), Control Pretest (p=0.208), Experimental Posttest (p=0.232), and Control Posttest (p=0.103). This confirmation of normality allowed for parametric testing.

G. *Homogeneity Test*

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

Table 7: Homogeneity Test Results (Levene's Test)

Source	Levene Statistic	df1	df2	Sig.	Decision
Pretest (Based on Mean)	0.869	1	45	0.356	Homogeneous
Posttest (Based on Mean)	1.108	1	45	0.298	Homogeneous

Levene's test confirmed variance homogeneity for both pretest (p=0.356) and posttest (p=0.298) data, as both values exceeded 0.05. This satisfied the assumption of equal variances required for the independent samples t-test.

H. *Hypothesis Testing*

With normality and homogeneity assumptions met, an independent samples t-test was conducted to compare posttest means between groups.

Table 8: Independent Sample T-Test Results (Posttest)

	F	Sig. (Levene)	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	1.108	0.298	2.282	45	0.027	9.920	4.347
Equal variances not assumed			2.272	42.562	0.028	9.920	4.366

The t-test yielded a significance value (2-tailed) of 0.027, which is less than the alpha level of 0.05. This confirms that the difference between the experimental and control group posttest means is statistically significant.

To determine directionality (whether the experimental group significantly outperformed the control group), the t-test results were evaluated against the critical value. With df = 45 and α = 0.05 (one-tailed), the critical t-value was approximately 1.679. The obtained t-value (2.282) exceeded this critical value, indicating that the experimental group's performance was significantly better than that of the control group.

Decision Rule: Since t_calculated (2.282) > t_table (1.679) and Sig. (0.027) < 0.05, H_0 is rejected and H_a is accepted.

I. *Discussion*

The results of this study provide compelling evidence that the Numbered Heads Together (NHT) cooperative learning model significantly enhances reading comprehension of narrative texts among elementary students. The findings are consistent across multiple measures: posttest performance, gain scores, and statistical significance testing.

Magnitude of Effect

The mean difference of 9.9 points between the experimental and control groups represents a practically significant improvement. The experimental group's gain score of 43.1 points compared to 30.0 points for the control group demonstrates that NHT students progressed substantially beyond what would be expected through conventional instruction. This advantage becomes even more meaningful when considering the percentage of students meeting the KKTP: 87.5% in the experimental group versus only 52.2% in the control group. The NHT model not only raised average performance but also increased the proportion of students achieving mastery (Sun et al., 2021).

Mechanisms of Effectiveness

The effectiveness of NHT can be understood through multiple theoretical mechanisms:

Enhanced Active Participation

The NHT model's structured phases ensure that every student participates actively in the learning process. Unlike conventional instruction where participation is voluntary (leading to passive engagement by many students), NHT's "Heads Together" phase requires all group members to contribute to discussions. The "Answering" phase, where any numbered student may be called, creates positive pressure for participation. This explains the observed increase in student activity scores from 84% to 93% across sessions.

For reading comprehension, active participation is crucial. Comprehension requires active cognitive engagement with texts including questioning, summarizing, predicting, and clarifying. The collaborative nature of NHT structures this engagement, with students verbalizing their thinking and hearing others' interpretations. This aligns with Alisoy s (2022) Transactional Theory of Reading, which posits that meaning emerges from the transaction between the reader

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

and text. In NHT, multiple readers transact with the same text, producing richer meaning through their discussions (Alisoy, 2025).

Individual Accountability

The numbered heads mechanism eliminates the possibility of "hiding" in groups. Every student knows they may be selected to present the group's answer, creating individual accountability for understanding. This addresses a common weakness in some group work where certain members contribute while others coast on group efforts. The observation data confirmed high adherence to NHT rules (94% in session 3), indicating students took their individual responsibilities seriously.

This individual accountability is particularly important for reading comprehension because it ensures that all students process texts actively rather than relying on peers. In conventional instruction, students may decode words without understanding, but in NHT, the pressure to be ready to respond forces deeper processing.

Social Construction of Understanding

Vicente s (2024) concept of the zone of proximal development (ZPD) provides another lens for understanding NHT's effectiveness. In group discussions, more capable readers scaffold the comprehension of less capable readers. When students explain their interpretations, question each other, and build on ideas, they collectively achieve an understanding beyond what any individual could attain alone (Vicente & Baldera, 2024)

The observation data supported this, showing significant increases in group discussion quality across sessions. Students became more comfortable sharing interpretations, asking clarifying questions, and building on each other's ideas. This collaborative meaning-making process enhanced comprehension of narrative text elements: characters, setting, plot, and moral messages.

Strategy Development

The NHT process naturally prompts the use of comprehension strategies. During the "Heads Together" phase, students must summarize main ideas, make inferences about character motivations, and evaluate plot developments. These are not separate instructional goals but inherent requirements of the task structure. Repeated practice with these strategies through collaborative discussion develops comprehension proficiency.

This aligns with research on strategy instruction (Hamzah et al., 2025), which indicates that explicit strategy teaching combined with meaningful practice contexts enhances comprehension. NHT provides both the practice and the scaffolded context where strategies are applied in service of authentic comprehension goals rather than discrete skills exercises.

Motivation and Engagement

The observation data documented increasing engagement across sessions, suggesting NHT's motivational benefits. Students were more animated, asked more questions, and appeared more enthusiastic as they became familiar with the model. This motivational effect likely resulted from several factors: (1) the reduced threat of public failure (mistakes are shared by the group), (2) the increased interest generated by peer interaction, (3) the satisfaction of collaborative success, and (4) the variety introduced into instruction.

These motivational effects are consistent with research on cooperative learning's affective benefits (Slavin, 2010). When students enjoy learning and feel supported by peers, they engage more deeply with content and persist through challenges. This is important for reading comprehension because understanding narrative texts often requires sustained attention and effort motivating students to invest this effort is essential.

Comparison with Previous Research

The findings align well with prior research on the effectiveness of NHT. Nurrahmawati (2018) found significant effects of NHT on mathematics learning outcomes, and Rauf (2017) reported positive effects on biology outcomes and motivation. Safitri et al. (2025) confirmed the effectiveness of NHT in elementary mathematics.

This study extends the empirical base by demonstrating NHT's effectiveness in reading comprehension a domain with different cognitive demands than mathematics or science. Reading comprehension requires language proficiency, background knowledge activation, inferential reasoning, and aesthetic response processes that NHT appears to facilitate effectively (Safitri et al., 2025).

Thise study also addresses a gap in the literature regarding NHT implementation in Indonesian elementary schools. Previous research largely examined middle or secondary levels or focused on other subjects. This study provides evidence that NHT is feasible and effective at the elementary level, contributing to knowledge about age-appropriate cooperative learning practices.

IV. CONCLUSIONS

This study examined the effect of the Numbered Heads Together (NHT) cooperative learning model on improving the reading comprehension of narrative texts among sixth-grade students at SDN 07 Bilah Hulu, Labuhanbatu Regency. Based on comprehensive data analysis and hypothesis testing, the following conclusions are drawn. First, the implementation of the NHT model was conducted with high fidelity, as evidenced by teacher activity scores consistently above 90% (Very Good category) across three sessions. Student engagement also improved

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

substantially from 84% to 93%, indicating that students adapted positively to the collaborative learning structure. The observation data confirmed that all four NHT phases numbering, questioning, heads together, and answering were implemented effectively. Second, the NHT model produced significantly higher reading comprehension outcomes compared to conventional instruction. The experimental group's mean posttest score (74.8) substantially exceeded both the control group's mean (64.9) and the KKTP threshold (65). The gain score analysis revealed that NHT students improved by 43.1 points compared to 30.0 points for control students, representing approximately 44% greater improvement. Third, the statistical analysis confirmed a significant positive effect of NHT on reading comprehension. The Independent Sample T-Test yielded a significance value of 0.027 ($p < 0.05$), indicating that the difference between groups was not due to chance. The calculated t-value (2.282) exceeded the critical t-value (1.679), leading to rejection of H_0 and acceptance of H_a. Thus, the research hypothesis that NHT significantly improves reading comprehension of narrative texts is supported. Fourth, the mechanisms underlying NHT's effectiveness appear to include enhanced active participation, individual accountability, social construction of understanding, strategy development, and increased motivation. These interconnected factors created an instructional environment where students engaged deeply with narrative texts, developed comprehension skills collaboratively, and demonstrated improved individual understanding. Fifth, the findings align with and extend previous research on NHT's effectiveness. While prior studies demonstrated NHT's benefits in mathematics and science, this study provides evidence that NHT is equally effective in reading comprehension, a domain with different cognitive demands. The research also contributes to understanding NHT implementation at the elementary level, addressing a gap in the literature..

AI Usage Statement

The author declares that no generative AI was used in the preparation, analysis, interpretation of data, or writing of this article.

Author Contribution Statement

For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used “Conceptualization, A.S.F. and S.; methodology, A.S.F.; software, A.S.F.; validation, A.S.F., S. and R.K.; formal analysis, A.S.F.; investigation, A.S.F.; resources, A.S.F.; data curation, A.S.F.; writing—original draft preparation, A.S.F.; writing—review and editing, A.S.F.; visualization, A.S.F.; supervision, A.S.F.; project administration, A.S.F.; funding acquisition, S. All authors have read and agreed to the published version of the manuscript.” Authorship must be limited to those who have contributed substantially to the work reported

Funding Statement

"No external funding was received for this study."

Ethical Compliance

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Data Access Statement

A Data Access Statement is a section in a scientific publication or research report that explains how the data used or generated in the study can be accessed by readers or other researchers. This statement aims to promote transparency, support research reproducibility, and comply with open access policies, where applicable.

Common Elements in a Data Access Statement:

1. Data Location: Specifies where the data are stored, such as in online repositories (e.g., Zenodo, Dryad, or institutional repositories).
2. Access Instructions: Provides information on how to access the data, such as direct links, DOI (Digital Object Identifier), or contact details.
3. Data Availability: Indicates whether the data are publicly accessible, available upon request, or restricted due to ethical, legal, or privacy considerations.
4. Data Licensing: If the data are open, specify the applicable license (e.g., Creative Commons).

Examples of Data Access Statements:

1. Open Data:
   - "The data supporting this study are openly available in Zenodo at [DOI:10.xxxx/zenodo.xxxx]."
2. Restricted Data:
   - "The data that support the findings of this study are available upon request from the corresponding author. Due to privacy concerns, the data are not publicly available."
3. No Data Available:

Volume 06, Issue 01, January-June 2027
e-ISSN:2830-7933
DOI: 10.55299/ijerec.v6i1.2136

- "No datasets were generated or analyzed during the current study."

4. Conditional Access:
   - "The data supporting this study are available under restricted access and can be obtained upon reasonable request to the corresponding author and with the permission of the ethics committee."

Purpose of a Data Access Statement:

- Reproducibility: Enables other researchers to replicate or verify the findings.
- Collaboration: Encourages further collaboration by sharing data.
- Compliance: Adheres to the policies of funding agencies or journals that require open access to data.

Conflict of Interest Declaration

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

ACKNOWLEDGEMENTS

The author thanks all people in most cases, sponsors and support ers for their acknowledgments.

REFERENCES

[1] Aghayeva, J. (2025). AUTHENTICITY IN LANGUAGE PEDAGOGY: RETHINKING TEXT SELECTION FOR ESL LEARNERS. *Baltic Journal of Legal and Social Sciences*, *4*, 68–74. https://doi.org/10.30525/2592-8813-2025-4-7

[2] Al-Jarf, R. (2026). Spelling Error Types, Strategies, Sources, and Instructional Interventions among EFL Freshman Students: A Systematic Self-Review. *British Journal of Teacher Education and Pedagogy*, *5*(5), 28–44. https://doi.org/10.32996/bjtep.2026.5.5.4

[3] Alisoy, H. (2025). Can NotebookLM Support English Language Learners? A Theoretical Perspective on AI Tools in Education. *Porta Universorum*, *1*(6), 25–55. https://doi.org/10.69760/portuni.0106003

[4] Destiara Andini Ulandari. (2025). TEACHING THE INDONESIAN LANGUAGE IN PRIMARY SCHOOLS: A LITERATURE REVIEW ON STRATEGIES AND CHALLENGES. *SMART: Journal of Multidisciplinary Educational*, *3*(1). https://doi.org/10.61677/smart.v3i1.608

[5] Fauzi, A., Jannah, N. U. J., & Fikri, S. (2025). Digital Comics: Media Analysis in Maharah Qiro'ah Learning. *Journal of Literacy Education*, *1*(3), 107–117. https://doi.org/10.64780/jole.v1i3.75

[6] Hamzah, A., Rauf, W., Zia Ul Haq, M., & Muhammad Nur, A. (2025). An Experimental Study on the Role of Narrative Text in Enhancing Student Motivation in Reading Comprehension. *Jurnal Edukasi Saintifik*, *5*(1), 1–17. https://doi.org/10.56185/jes.v5i1.850

[7] Hechanova, H., Rollo, C., Libdan, I., & Disca, B. (2025). Learning through Playing: Improving Phonemic Awareness in Kindergarten Learners of Eugenio Llido Rañada Elementary School. *Psychology and Education: A Multidisciplinary Journal*, *37*(4), 407–416. https://doi.org/10.70838/pemj.370409

[8] Juang Kurniawan. (2025). A LITERATURE REVIEW ON THE TEACHING OF INDONESIAN LANGUAGE IN ELEMENTARY SCHOOLS: APPROACHES, METHODS, AND PRACTICAL IMPLICATIONS. *SMART: Journal of Multidisciplinary Educational*, *3*(1). https://doi.org/10.61677/smart.v3i1.607

[9] Juita Sari. (2025). NUMERACY LITERACY IN ELEMENTARY EDUCATION: A LITERATURE-BASED ANALYSIS OF STRATEGIES TO ENHANCE STUDENTS' FOUNDATIONAL COMPETENCIES. *SMART: Journal of Multidisciplinary Educational*, *3*(2). https://doi.org/10.61677/smart.v3i2.610

[10] Lubbiya, N., & Liansari, V. (2026). The Role of Picture Media in Text – Based Indonesian Language Learning in Elementary Schools. *Eduvest - Journal of Universal Studies*, *6*(1), 491–503. https://doi.org/10.59188/eduvest.v6i1.52106

[11] McGettigan, C., Jones, H., Bains, A., Rosi, V., Soopramanien, E., & Krishnan, S. (2025). *Audiobook enjoyment is enhanced by narrator pleasantness and familiarity*. https://doi.org/10.31234/osf.io/s8p2j_v1

[12] Ohle-Peters, A., Papatga, E., & McElvany, N. (2025). Fostering elementary school students' vocabulary acquisition through a digital tool. *European Journal of Psychology of Education*, *40*(4), 104. https://doi.org/10.1007/s10212-025-01012-x

[13] Safitri, P. I., Muliastuti, L., & Mayuni, I. (2025). Impact of Integration of GenAI-Synthesia with Cultural Content in Guided Reading Learning on Learners' Reading Skills and Reading Motivation. *International Journal of Learning, Teaching and Educational Research*, *24*(9), 148–166. https://doi.org/10.26803/ijlter.24.9.8

[14] Sun, Y., Wang, J., Dong, Y., Zheng, H., Yang, J., Zhao, Y., & Dong, W. (2021). The Relationship Between Reading Strategy and Reading Comprehension: A Meta-Analysis. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.635289

[15] Vicente, C. A., & Baldera, P. (2024). Examining the Effects of Metacognitive Awareness on the Reading Comprehension Skills of Grade 7 Students. *Romblon State University Research Journal*, *6*(2), 18–27. https://doi.org/10.58780/rsurj.v6i2.203