

The Effect of Kahoot! On Tenth Grade Student's Reading Comprehension: An Experimental Study at SMAN 3 Sidoarjo

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Introduction Background Of This Study:

Ideal Condition

- Reading is an essential skill in EFL learning
- Tenth-grade students should be able to:
 - Understand main ideas & supporting details
 - Identify narrative text structure
 - Interpret vocabulary in context
 - Make inferences & understand moral values
- Reading instruction should be interactive and engaging

Actual Condition

- Many Indonesian EFL students face difficulties in reading comprehension
- Preliminary observations at SMAN 3 Sidoarjo show students:
 - Struggle to identify narrative text structure
 - Have limited vocabulary
 - Rely heavily on word-by-word translation
 - Fail to understand implicit meanings
- Conventional methods fail to actively engage students

Research Background

Research Gap

Previous Research

This Research

Theoretical Gap

- Focuses on general reading comprehension outcomes.
 - Limited analysis of specific narrative reading components.
- Grabe (2009); Snow (2002); Nanda & Azmy (2020); Grabe & Stoller (2019)

- Focuses on narrative text comprehension.
- Examines key components: text structure, vocabulary in context, and inference making.

Population Gap

- Mostly conducted at junior high school or university level.
 - Limited research at senior high school (Grade 10)
- Aprilia et al. (2023); Rochmawati et al. (2023); Wang & Tahir (2020); Abida et al. (2024); Ridwan (2025)

- Conducted with tenth-grade senior high school students.
- Implemented in an Indonesian EFL classroom (SMAN 3 Sidoarjo).

Empirical Gap / Evaluation Gap

- Kahoot! is commonly used as a quiz or assessment tool.
 - Few experimental studies compare Kahoot! with conventional reading instruction.
- Wang & Tahir (2020); Ashfiah et al. (2025); Aprilia et al. (2023); Ahmed et al. (2025)

- Uses Kahoot! as an instructional medium in reading lessons.
- Applies a quasi-experimental design to measure its effect on narrative reading comprehension.

Research Objective & Research Question

RESEARCH OBJECTIVE:

To investigate the effect of Kahoot!-based instruction on tenth-grade students' reading comprehension of narrative texts at SMAN 3 Sidoarjo.

Specifically, this study aims to:

- Measure students' pre-test and post-test reading comprehension scores.
- Examine the statistical significance of the improvement.
- Calculate the practical effect size of the treatment.

Variables:

Independent Variable → Kahoot!-based instruction

Dependent Variable → Reading comprehension ability

RESEARCH QUESTION:

“Is there a significant difference between students' reading comprehension scores before and after being taught using Kahoot!?”

NOVELTY OF THIS STUDY:

- Focuses on narrative text comprehension at Senior High School level (Grade 10).
- Analyzes specific reading components: main idea; text structure; vocabulary in context and inference.
- Conducted in Indonesian EFL classroom context at SMAN 3 Sidoarjo.
- Uses a pre-experimental design to measure the effect of Kahoot!-based instruction.

Methodology

Research Design

Quantitative Pre-Experimental
One-Group Pretest–Posttest

Population

All 10th grade students
SMAN 3 Sidoarjo (2025/2026)

Sample

36 students — Class X-E12
Purposive Sampling

Instrument

- Reading comprehension test (Pre & Post)
- 10 Multiple Choice items (7 pts each)
- 5 True/False items (6 pts each)
- Max score = 100 | Formula: $(MC \times 7) + (TF \times 6)$
- Aspects: Main idea, vocabulary, text structure, inference, speed & accuracy

Data Analysis

- Descriptive statistics: mean, SD, min, max
- Normality test: Kolmogorov-Smirnov & Shapiro-Wilk
- Post-test data NOT normal (KS $p = 0.027 < 0.05$)
→ Wilcoxon Signed Rank Test (non-parametric)
- Effect Size: $r = Z / \sqrt{N}$ ($\alpha = 0.05$)

Research Procedure

Step 1 PRE-TEST

(18 April 2026)

- Baseline reading comprehension test
- Using narrative text (Malin Kundang)
- 15 items — 36 students of X-E12

Step 2 TREATMENT 1

(18 April 2026)

- Kahoot! quiz on narrative text
- Discussion of text structure & content
- Interactive gamified reading activities

Step 3 TREATMENT 2

(20 April 2026)

- Second Kahoot! session
- Focus: inference, vocabulary in context
- Immediate feedback & peer discussion

Step 4 POST-TEST

(20 April 2026)

- Final comprehension test
- Different narrative text (same indicators)
- Scores compared with pre-test

Design: X-E12 class | O1 (Pre-test) → X (Kahoot! Intervention) → O2 (Post-test) [Creswell & Creswell, 2017]

Findings: Descriptive Statistics

Pre-Test Mean

55.69

Post-Test Mean

78.11

Improvement

+22.42

Effect Size r

0.805

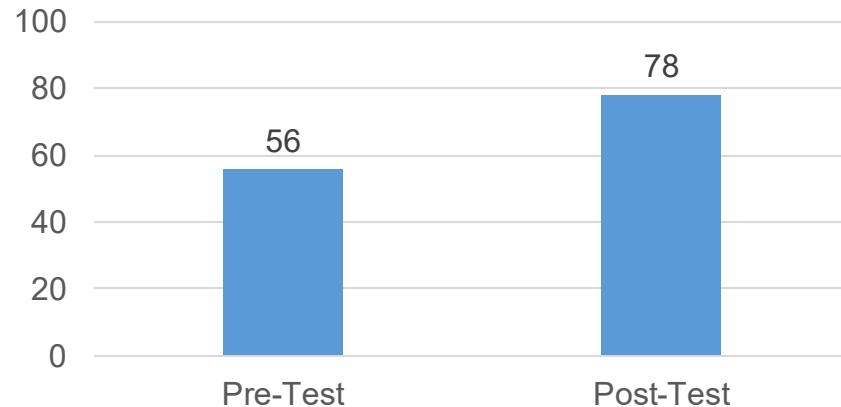
Category: Poor (50–59)

Category: Good (75–85)

Points gained after treatment

Large Practical Effect

Mean Score Comparison



Test	N	Min	Max	Mean	SD
Pre-Test	36	25	100	55.69	18.300
Post-Test	36	33	100	78.11	15.932

SD reduced: 18.300 → 15.932

Scores became more consistent after treatment

Score Categories:

Pre-Test: 55.69 → Poor

Post-Test: 78.11 → Good

Results: Normality Test & Hypothesis Testing

Table 2. Tests of Normality

	K-S Statistic	df	Sig.	S-W Statistic	df	Sig.	Result
Pre-Test	0.101	36	0.200	0.960	36	0.220	Normal
Post-Test	0.156	36	0.027	0.936	36	0.083	Not normal

*Post-test data not fully normal ($p = 0.027 < 0.05$) → Wilcoxon Signed Rank Test selected

Table 3. Wilcoxon Signed Rank Test Result

	Negative Ranks	Positive Ranks	Ties	Z-value	Sig. (2-tailed)
Post-Pre	4 (Mean: 3.75)	30 (Mean: 19.33)	2	-4.832	0.000

Decision: $p = 0.000 < \alpha = 0.05 \rightarrow H_0$ REJECTED $\rightarrow H_1$ ACCEPTED

30 out of 36 students showed improvement. Statistically significant difference exists between pre-test and post-test scores.

Results: Effect Size Analysis

Effect Size Formula:

$$r = Z / \sqrt{N} = 4.832 / \sqrt{36} = 4.832 / 6 = 0.805$$

$r = 0.805 \rightarrow$ Large Effect ($r > 0.5$)

Effect Size Interpretation Scale:

0.0	0.1	0.3	0.5	0.805
Negligible	Small	Medium	Large	★ THIS STUDY

Effect Size Interpretation Scale:

Effect Size (r)	Interpretation	This Study
$r < 0.1$	Negligible	
$0.1 \leq r < 0.3$	Small	
$0.3 \leq r < 0.5$	Medium	
$r \geq 0.5$	Large	$r = 0.805 \checkmark$ LARGE

Discussion

1. Kahoot! Significantly Improved Reading Comprehension

- Mean scores rose from 55.69 to 78.11 (+22.42 pts). 30 of 36 students improved. Kahoot!'s interactive quizzes encouraged deeper engagement with narrative text structures, vocabulary, and inference.

Supports: Wang & Tahir (2020); Aprilia et al. (2023)

2. Active Cognitive Processing

- Kahoot! promotes active learning. Immediate feedback and gamified quizzes strengthen cognitive processing of narrative orientation, complication, and resolution.

Supports: Snow (2002); Grabe & Stoller (2019); Derewianka & Jones (2016)

3. Motivation & Engagement

- Gamification reduces reading anxiety and increases motivation. Students with higher engagement showed better comprehension in the post-test.

Supports: Baah & Govender (2024); Riana & Ningrum (2025)

4. Fills the Research Gap — Limitation

- Empirical evidence for narrative text comprehension at SHS level in Indonesian EFL context. Pre-experimental design limits causal attribution; external variables cannot be fully controlled.

Note: Creswell & Creswell (2017)

Conclusion & Recommendation

CONCLUSION

Kahoot!-based instruction significantly improved 10th grade students' reading comprehension of narrative texts at SMAN 3 Sidoarjo.

1. Kahoot!-based instruction significantly improved narrative text reading comprehension.
2. Mean scores increased from 55.69 (Poor) to 78.11 (Good) — improvement of +22.42 points.
3. Wilcoxon Signed Rank Test: $Z = -4.832$, $p = 0.000 < 0.05 \rightarrow H_0$ rejected $\rightarrow$ statistically significant.
4. Effect size $r = 0.805$ indicates a LARGE practical effect — substantial educational impact confirmed.
5. Kahoot! effectively addressed EFL reading challenges: main ideas, narrative structure, vocabulary, inference.

RECOMMENDATION

For Teachers

- Integrate Kahoot! strategically in reading lessons to boost motivation and engagement
- Align gamified activities with instructional objectives and reading comprehension skills
- Use Kahoot!'s instant feedback feature to identify and address students' comprehension gaps

For Institutions

- Provide adequate digital facilities (devices, internet) to support gamified learning
- Invest in professional development for teachers on technology-enhanced instruction
- Develop policies to promote innovative pedagogical strategies in EFL classrooms

Thank You