



THE EFFECTS OF KAHOOT-BASED LEARNING AND MOTIVATION ON STUDENTS' READING COMPREHENSION OF THE TENTH GRADE STUDENTS AT MADYATAMA VOCATIONAL HIGH SCHOOL PALEMBANG

Anggi Anggraini^{1*}, Hanni Yukamana², Aswadi Jaya³

^{1,2,3}Universitas PGRI Palembang

E-mail: ¹gixanggraini@gmail.com, ²yukamana1975@gmail.com, ³aswadijaya4@gmail.com

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Corresponding Author:

Anggi Anggraini

Email Corresponding :

gixanggraini@gmail.com

ABSTRACT

This study aimed to examine the effect of Kahoot-based learning and students' motivation on the reading comprehension of tenth grade students at Madyatama Vocational High School Palembang. An experimental research method with a 2 x 2 factorial design was employed in this study. The data were obtained through a reading comprehension test and motivation questionnaire, then analyzed using independent samples t-test and Two-Way ANOVA. The findings indicated that students who learned through Kahoot-based learning achieved better reading comprehension scores than those who were taught using the conventional method, regardless of their motivation levels. Moreover, students with high motivation consistently demonstrated higher achievement than students with low motivation in both the Kahoot-based learning group and conventional learning group. The analysis also revealed a significant interaction between Kahoot-based learning and students' motivation in affecting students' reading comprehension. In conclusion, Kahoot-based learning positively influenced students' reading comprehension achievement, and its effectiveness was closely related to students' motivation levels.

Keywords: *Kahoot-based learning, students' motivation, reading comprehension* 5 to 6 keywords.

1. INTRODUCTION

The rapid advancement of digital technology has transformed contemporary education by promoting more interactive, learner-centered, and engaging instructional practices. In EFL contexts, technology-enhanced learning provides opportunities for students to interact actively with learning materials and participate more meaningfully in classroom activities. Among technology-supported approaches, gamification has gained considerable attention because it incorporates game elements into educational environments to enhance engagement and motivation. Recent evidence suggests that gamified instruction can positively influence EFL learners' participation, motivation, and academic achievement (Chan & Lo, 2024;

Earichappan & Hashim, 2024; Temel & Cesur, 2024).

Kahoot is one of the most widely adopted gamification platforms in language education. Through interactive quizzes, competitive scoring, time limits, and immediate feedback, Kahoot can transform conventional classroom activities into more dynamic learning experiences. Recent reviews indicate that its interactive features can strengthen learner engagement and support EFL instruction when aligned with appropriate pedagogical objectives (Hadi et al., 2024; Özdemir, 2025). Students have also reported positive perceptions of Kahoot and similar gamified platforms because they can create enjoyable and participatory learning environments (Pham et al., 2025).

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The potential of Kahoot is particularly relevant to reading comprehension, a fundamental EFL competence requiring learners to identify key information, interpret explicit and implicit meanings, make inferences, and construct coherent understanding from written texts. Despite its importance, EFL learners frequently experience reading difficulties associated with limited vocabulary, insufficient background knowledge, ineffective strategies, and low motivation (Allehyani, 2025). Recent studies suggest that Kahoot can facilitate reading instruction by increasing students' participation and providing interactive opportunities to process textual information (Mawarni et al., 2025; Ruchana et al., 2024). Positive attitudes toward Kahoot have also been reported in English reading classes, suggesting its potential to make reading activities more engaging (Suparmi & Susanto, 2025).

Motivation represents another important dimension of reading development because it influences learners' willingness to engage with texts, sustain effort, and employ appropriate learning strategies. Contemporary motivational theory emphasizes that motivation is dynamically shaped by learners' interactions with instructional environments (Urhahne & Wijnia, 2023). Evidence from EFL contexts further indicates meaningful relationships among learning motivation, reading engagement, and comprehension performance (Sari et al., 2026; Zakiyah et al., 2025). Accordingly, an engaging digital environment may support reading development not only through instructional activities but also by strengthening learners' motivation to participate.

This issue is particularly relevant in vocational education, where students need English reading competence to understand workplace communication, technical information, procedures, and other professional texts. Interactive digital instruction may provide an alternative to

conventional reading practices by creating more meaningful and participatory learning experiences. Recent studies have demonstrated the potential of Kahoot to enhance reading abilities, motivation, and engagement in English learning contexts (Boonyaruksa et al., 2025; Husna et al., 2025). Emerging research has likewise continued to examine Kahoot specifically in EFL reading instruction (Lestari et al., 2026; Purwani et al., 2026).

Despite this growing body of research, most previous studies have examined Kahoot, reading comprehension, or motivation independently or have focused primarily on learners' perceptions and direct instructional effects. Limited empirical attention has been given to whether the effectiveness of Kahoot-based learning varies according to students' motivation levels, particularly within vocational high school settings. Although recent experimental evidence has examined the contribution of Kahoot to EFL reading comprehension (Indawan et al., 2026), the combined effects of instructional approach and learner motivation remain insufficiently explored through factorial experimental designs.

Preliminary observations at Madyatama Vocational High School Palembang further indicated that tenth-grade students experienced difficulties in comprehending English texts, demonstrated limited motivation and classroom participation, and had relatively few opportunities to engage with interactive digital learning media. These conditions highlight the need for an instructional approach that can promote active participation while supporting reading development.

Accordingly, this study investigates the effects of Kahoot-based learning and students' motivation on the reading comprehension achievement of tenth-grade students at Madyatama Vocational High School Palembang. Using a 2×2 factorial design, the study examines the effect of

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Kahoot-based instruction, the effect of students' motivation, and the interaction between these variables on reading comprehension achievement. In doing so, it seeks to provide empirical evidence regarding whether Kahoot-based learning can support reading comprehension across different levels of student motivation.

2. LITERATURE REVIEW**2.1 Kahoot-Based Learning**

Kahoot-based learning has emerged as an effective technology-enhanced approach for promoting active participation and engagement in contemporary classrooms. As a game-based learning platform, Kahoot integrates instructional content with gamification elements such as points, competition, leaderboards, and immediate feedback to create interactive learning experiences (Deterding et al., 2011). Its real-time feedback and time-limited activities encourage students to remain actively involved while evaluating their understanding of learning materials (Wang & Tahir, 2020).

In EFL contexts, Kahoot has been applied to support vocabulary, grammar, listening, speaking, and reading comprehension. Its interactive features can transform passive instruction into a more participatory and student-centered learning environment while enhancing learners' motivation, engagement, and classroom interaction (Noori & Azimi, 2023; Rajabpour et al., 2021). Consequently, Kahoot provides meaningful opportunities for students to develop language competence while participating actively in the learning process.

Nevertheless, the effectiveness of Kahoot depends on appropriate pedagogical implementation. Teachers should align Kahoot activities with explicit learning objectives to ensure that students focus on understanding the content rather than merely competing for points (Pham et al., 2025). When appropriately integrated into instruction, Kahoot can provide an engaging

and meaningful digital learning environment with considerable potential to support students' reading comprehension in EFL classrooms.

2.2 Reading Comprehension

English plays a significant role in international communication, education, science, business, and technology. In Indonesia, English is primarily learned as a foreign language through formal classroom instruction, resulting in relatively limited opportunities for authentic communication outside educational settings (Carolina et al., 2024). Within this context, reading constitutes a fundamental language skill because it provides learners with access to information, vocabulary, grammatical structures, and broader linguistic knowledge necessary for developing English proficiency (Andini et al., 2024). Beyond language development, reading also contributes to knowledge acquisition, critical thinking, and intellectual growth (Patty, 2023; Woudenberg, 2021).

Reading comprehension refers to the active process of constructing and interpreting meaning from written texts rather than merely recognizing individual words (Caraig & Quimbo, 2022; Erya & Pustaka, 2021; Xiao et al., 2023). Successful comprehension requires the integration of multiple cognitive resources, including vocabulary, background knowledge, reading fluency, word recognition, inference, and reasoning skills (Hjetland et al., 2020; Sanir & Ozmen, 2022; Zhang et al., 2021). Readers also construct meaning by connecting textual information with prior knowledge and experience (Erlidawati, 2023; Fitriyani et al., 2025). However, EFL learners frequently encounter difficulties in interpreting implicit meanings and establishing relationships among ideas, making reading comprehension a continuing challenge in English language education (Kheang et al., 2024).

Reading comprehension is influenced by both cognitive and motivational factors,

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including reading ability, vocabulary knowledge, prior knowledge, strategies, interest, motivation, and learning environments (Sanir & Ozmen, 2022). Effective readers employ cognitive and metacognitive strategies such as predicting, questioning, monitoring, clarifying, and summarizing to regulate their understanding. Accordingly, interactive and technology-supported learning environments can provide meaningful opportunities for learners to engage actively with texts and receive appropriate instructional support. Strengthening reading comprehension is therefore essential not only for improving English proficiency but also for developing students' critical thinking, academic competence, and independent learning abilities.

2.3 Students' Motivation

Motivation is a fundamental psychological factor influencing students' engagement, persistence, and academic achievement. In EFL contexts, its role is particularly important because learners must sustain considerable effort to develop proficiency in a language that is rarely used in everyday communication. Self-Determination Theory distinguishes motivation into intrinsic and extrinsic forms, with intrinsic motivation arising from personal interest and satisfaction and extrinsic motivation being driven by external outcomes such as grades, recognition, or rewards (Ryan & Deci, 2020). Highly motivated learners generally participate more actively, persist when encountering difficulties, and employ more effective learning strategies than those with lower motivation.

Motivation is also closely associated with reading comprehension because successful reading requires sustained attention, strategic processing, and active interaction with written texts. Motivated learners are more likely to employ strategies such as predicting, identifying key ideas,

summarizing, and monitoring comprehension while persisting when encountering unfamiliar vocabulary or complex passages. Empirical findings indicate that higher motivation is associated with stronger engagement and better reading achievement (Ma, 2025; Radiyah et al., 2023). Thus, differences in motivational levels may contribute to variations in students' reading comprehension performance.

Students' motivation can further be strengthened through interactive learning environments. Kahoot, for example, incorporates competition, immediate feedback, leaderboards, and game-based activities that can increase enthusiasm and classroom participation (Noori & Azimi, 2023; Wang & Tahir, 2020). Such features may enhance learners' willingness to engage with reading activities and sustain their learning efforts. Consequently, motivation represents an important learner-related factor that may influence the effectiveness of Kahoot-based instruction, making it necessary to examine the interaction between Kahoot-based learning and students' motivation in improving reading comprehension achievement.

2.4 Previous Related Studies and Research Gap

Previous studies have demonstrated the potential of Kahoot-based learning to enhance students' engagement, motivation, participation, and academic achievement in English language education. Wang and Tahir (2020) found that Kahoot promotes active learning through features such as immediate feedback, competition, and leaderboards, while Rajabpour et al. (2021) reported that it can transform teacher-centered instruction into more interactive learning experiences. Similarly, recent studies have associated Kahoot with increased concentration, participation, and learning performance. Meanwhile, motivation has also been identified as an important factor in reading

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comprehension, as highly motivated learners tend to engage more actively with texts, employ effective strategies, and persist when encountering comprehension difficulties (Ma, 2025; Radiyah et al., 2023).

Despite these findings, Kahoot-based learning and students' motivation have generally been investigated separately. Previous studies have primarily examined either the effectiveness of Kahoot in improving engagement and achievement or the relationship between motivation and learning outcomes. Moreover, relatively limited research has employed a 2×2 factorial design to simultaneously investigate the main effects of instructional approach and motivation as well as their interaction effect on reading comprehension. Evidence concerning whether students with different motivational levels respond differently to Kahoot-based instruction also remains limited, particularly in vocational high school contexts.

Addressing this gap, the present study investigates the effects of Kahoot-based learning and students' motivation on the reading comprehension achievement of tenth-grade students at Madyatama Vocational High School Palembang using a 2×2 factorial experimental design. Specifically, it examines the main effect of Kahoot-based learning, the main effect of motivation, and the interaction between these variables. By integrating instructional and learner-related factors within a vocational EFL context, this study is expected to provide further empirical evidence for designing technology-enhanced reading instruction that accommodates students with different motivational characteristics.

3. METHODS

3.1 Research Design

This study employed an experimental research design to examine the effects of Kahoot-based learning and students' motivation on reading comprehension achievement. Experimental research is

commonly used to determine whether a particular treatment influences the outcomes being investigated by comparing participants who receive different learning treatments under controlled conditions (Taherdoost, 2022; Arib et al., 2024). In line with this perspective, Ghanad (2023) stated that experimental research enables researchers to evaluate the effectiveness of an intervention by systematically observing changes in the participants after the treatment has been implemented.

The study adopted a 2×2 factorial design, which enabled the researcher to examine both the individual effects of Kahoot-based learning and students' motivation as well as the interaction between these two variables. The first independent variable was the learning method, consisting of Kahoot-based learning and the conventional teaching method, while the second independent variable was students' motivation, which was categorized into high and low motivation. The dependent variable was students' reading comprehension achievement. To measure students' learning progress, a pre-test was administered before the treatment and a post-test was conducted after the treatment. In addition, a motivation questionnaire was distributed prior to the implementation of the treatment to classify students into high- and low-motivation groups. This research design allowed the researcher to investigate whether the effectiveness of Kahoot-based learning differed according to students' motivation levels.

Table 3.1 Research Design

Experimental	R	O ₁	X	Y ₁	O ₂
Control	R	O ₃	C	Y ₁	O ₄
Experimental	R	O ₅	X	Y ₂	O ₆
Control	R	O ₇	C	Y ₂	O ₈

The experimental group consisted of students with both high and low levels of motivation who participated in reading lessons through Kahoot-based learning. In contrast, the control group comprised

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students with comparable motivation levels who learned through the conventional teaching method. Employing a 2×2 factorial design enabled the researcher to examine not only the main effects of Kahoot-based learning and students' motivation on reading comprehension achievement but also the interaction effect between these variables. This design provided a comprehensive framework for determining whether the effectiveness of Kahoot-based learning varied according to students' motivation levels.

Table 3.2 Factorial Design

Students' Motivation	Kahoot-Based Learning	Conventional Teaching Method
High Motivation	X_1Y_1	X_2Y_1
Experiment	X_1Y_2	X_2Y_2

The experimental group consisted of students with both high and low levels of motivation who participated in reading lessons through Kahoot-based learning. In contrast, the control group comprised students with comparable motivation levels who learned through the conventional teaching method. Employing a 2×2 factorial design enabled the researcher to examine not only the main effects of Kahoot-based learning and students' motivation on reading comprehension achievement but also the interaction effect between these variables. This design provided a comprehensive framework for determining whether the effectiveness of Kahoot-based learning varied according to students' motivation levels.

3.2 Population and Sample

The participants were tenth-grade students at Madyatama Vocational High School Palembang in the 2025/2026 academic year. From a population of 245 students across seven classes, 48 students were selected through a two-stage sampling

procedure involving cluster random sampling and simple random sampling. They were equally assigned to the experimental ($n = 24$) and control ($n = 24$) groups.

Prior to treatment, students' motivation was assessed using a questionnaire and classified into high and low categories. Each group comprised 12 highly motivated and 12 low-motivated students, forming four subgroups within the 2×2 factorial design. This classification enabled the analysis of the effects of Kahoot-based learning, motivation, and their interaction on reading comprehension achievement.

3.3 Research Instruments

Two instruments were employed in this study: a reading comprehension test and a students' motivation questionnaire. The reading comprehension test consisted of multiple-choice items assessing main ideas, supporting details, vocabulary in context, inferences, references, and overall textual meaning. It was administered as a pre-test and post-test to measure changes in students' reading comprehension following Kahoot-based and conventional instruction.

Students' motivation was assessed prior to the treatment using a Likert-scale questionnaire covering interest, engagement, persistence, confidence, and attitudes toward learning English. The results were used to classify students into high- and low-motivation groups for the 2×2 factorial design. Prior to the main study, both instruments underwent expert validation, pilot testing, and validity and reliability analyses to ensure their appropriateness and consistency for data collection.

3.4 Data Collection Procedures

Data collection was conducted in four stages: motivation assessment, pre-test, treatment, and post-test. Prior to treatment, students completed a motivation questionnaire and were classified into high-

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and low-motivation groups for the 2×2 factorial design. Both experimental and control groups then completed a pre-test to assess their initial reading comprehension ability.

During the treatment, the experimental group received Kahoot-based instruction, whereas the control group was taught using the conventional method, with both groups receiving equivalent reading materials and learning objectives. After the treatment, a post-test was administered to measure reading comprehension achievement. The collected data were subsequently analyzed to examine the effects of Kahoot-based learning, students' motivation, and their interaction on reading comprehension achievement.

3.5 Data Analysis

The data were analyzed using IBM SPSS Statistics version 29. Descriptive statistics, including mean, standard deviation, minimum, and maximum scores, were calculated to summarize students' reading comprehension achievement. Prior to hypothesis testing, the Shapiro-Wilk test and Levene's test were conducted to examine the assumptions of normality and homogeneity of variance, respectively.

Inferential analysis involved an independent samples *t*-test to compare reading comprehension achievement between the Kahoot-based and conventional learning groups. A two-way ANOVA was subsequently employed to examine the main effects of learning method and students' motivation, as well as their interaction effect on reading comprehension achievement. Statistical significance was established at $p < .05$.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 4.1 Descriptive Statistics of Students' Reading Comprehension Scores

Group	Motivation	N	Pre-	Post-
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			test Mean ± SD	test Mean ± SD
Exp	High	12	67.83 ± 6.70	68.50 ± 8.87
Control	Low	12	68.75 ± 6.82	93.08 ± 6.52
Exp	High	12	68.50 ± 8.87	87.50 ± 4.89
Control	Low	12	56.75 ± 8.51	79.92 ± 4.44

Table 4.1 presents the descriptive statistics of students' reading comprehension scores before and after the intervention. Before the treatment, the experimental groups showed relatively comparable pre-test mean scores. Students with high motivation obtained a mean score of 67.83 (SD = 6.70), while those with low motivation obtained a mean score of 68.75 (SD = 6.82). In the control group, students with high motivation achieved a pre-test mean score of 68.50 (SD = 8.87), whereas students with low motivation obtained the lowest mean score (M = 56.75, SD = 8.51).

After the intervention, the post-test mean scores varied across the four groups. The experimental group with high motivation obtained a post-test mean score of 68.50 (SD = 8.87), whereas the experimental group with low motivation achieved a higher mean score of 93.08 (SD = 6.52). In the control group, students with high motivation obtained a mean post-test score of 87.50 (SD = 4.89), while those with low motivation achieved a mean score of 79.92 (SD = 4.44).

Overall, the descriptive statistics indicate differences in post-test mean scores among the four groups. These descriptive findings provide an initial overview of the students' reading comprehension performance before proceeding to the assumption tests and hypothesis testing.

4.2 Assumption Testing

Table 4.2 Test of Normality

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Group	Statistic	df	Sig.	Decision
Exp (pre-test)	0.924	5	0.558	Normal
Control (Pre-test)	0.935	24	0.123	Normal
Exp (Post-test)	0.910	5	0.468	Normal
Control (Post-test)	0.944	24	0.200	Normal

The normality of the reading comprehension scores was examined using the Shapiro–Wilk test. As presented in Table 2, all significance values exceeded the 0.05 level, indicating that both the pre-test and post-test scores of the experimental and control groups were normally distributed. Therefore, the assumption of normality was satisfied, and the data were considered appropriate for subsequent parametric analyses.

Table 4.3 Test of Homogeneity of Variances

Variable	Levene Statistic	df1	df2	Sig.	Decision
Reading Comprehension (Post-test)	0.501	2	26	0.611	Homogenous

Homogeneity of variances was assessed using Levene's test. As shown in Table 3, the significance value was **0.611**, which is higher than the significance level of **0.05**. Therefore, the assumption of homogeneity of variances was satisfied, indicating that the variances among the groups were homogeneous. Consequently, the data were considered appropriate for further parametric analyses, including the independent-samples *t*-test and two-way ANOVA.

4.3 Hypothesis Testing

4.3.1 Effect of Learning Method on High Motivation Students

The first research question examined whether there was a significant difference in reading comprehension achievement between high-motivation students who were taught

using Kahoot-based learning and those who received conventional method. The experimental group obtained a slightly higher mean post-test score ($M = 89.50$, $SD = 4.95$) than the control group ($M = 87.50$, $D = 4.89$), with a mean difference of 2.00 points.

Before conducting the independent samples *t*-test, Levene's test confirmed the assumption of homogeneity of variances ($p = .932 > .05$). The independent samples *t*-test revealed no statistically significant difference between the two groups, $t(22) = 0.966$, $p = .330$. Therefore, the first null hypothesis (H_{01}) was accepted.

The effect size analysis further indicated a small to moderate effect (Cohen's $d = 0.407$), suggesting that although the experimental group achieved slightly higher reading comprehension scores, the magnitude of the difference was relatively small. Overall, these findings indicate that Kahoot-based learning did not significantly improve the reading comprehension achievement of high-motivation students compared with the conventional teaching method.

4.3.2 Effect of Learning Method on Low Motivation Students

The second research question examined whether there was a significant difference in reading comprehension achievement between low motivation students who were taught using Kahoot-based learning and those who received conventional instruction. Experimental group obtained a higher mean post-test score ($M = 87.42$, $SD = 5.27$) than the control group ($M = 79.92$, $SD = 4.44$), with a mean difference of 7.50 points.

Before conducting the independent-samples *t*-test, Levene's Test confirmed the assumption of homogeneity of variances ($p = .315 > .05$). The independent-samples *t*-test revealed a statistically significant difference between the two groups, $t(22) = 3.772$, $p = .001$ (Table 4.23). Therefore, the second null hypothesis (H_{02}) was rejected, indicating that Kahoot-based learning significantly improved the reading comprehension achievement of low-

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motivation students compared with the conventional teaching method.

The effect size analysis showed a large practical effect (Cohen's $d = 1.540$), indicating that Kahoot-based learning had a substantial positive impact on the reading comprehension achievement of students with low motivation.

4.3.3 Effect of Motivation in Kahoot-Based Learning

The third research question examined whether there was a significant difference in reading comprehension achievement between students with high and low motivation who were taught using Kahoot-based learning. Students with high motivation obtained a slightly higher mean post-test score ($M = 89.50$, $SD = 4.95$) than those with low motivation ($M = 87.42$, $SD = 5.27$), with a mean difference of 2.08 points.

Before conducting the independent-samples t -test, Levene's Test confirmed the assumption of homogeneity of variances ($p = .745 > .05$). The independent-samples t -test revealed no statistically significant difference between the two groups, $t(22) = 0.999$, $p = .329$. Therefore, the third null hypothesis (H_{03}) was accepted, indicating that students' motivation did not significantly influence reading comprehension achievement within the Kahoot-based learning group.

The effect size analysis indicated a small-to-moderate effect (Cohen's $d = 0.408$), suggesting that the difference between the two groups was relatively small and not practically meaningful.

4.3.4 Effect of Motivation in Conventional Method

The fourth research question examined whether there was a significant difference in reading comprehension achievement between high- and low-motivation students who were taught using the conventional method. Students with high motivation obtained a higher mean post-test score ($M = 87.50$, $SD = 4.89$) than those with low motivation ($M = 79.92$, $SD = 4.44$), with a mean difference of 7.58 points.

Before conducting the independent-samples t -test, Levene's Test confirmed the assumption of homogeneity of variances ($p = .531 > .05$). The independent-samples t -test revealed a statistically significant difference between the two groups, $t(22) = 3.977$, $p < .001$. Therefore, the fourth null hypothesis (H_{04}) was rejected, indicating that students with high motivation achieved significantly higher reading comprehension scores than those with low motivation under the conventional teaching method.

The effect size analysis indicated a large practical effect (Cohen's $d = 1.624$), suggesting that students' motivation had a substantial influence on reading comprehension achievement in the conventional learning environment.

4.3.5 Interaction Effect Between Learning Method and Motivation

The fifth research question examined whether there was an interaction effect between Kahoot-based learning and students' motivation on reading comprehension achievement. Students in the experimental group achieved higher mean post-test scores than those in the control group across both motivation levels. High-motivation students in the experimental group obtained the highest mean score ($M = 89.50$, $SD = 4.95$), whereas low-motivation students in the control group obtained the lowest ($M = 79.92$, $SD = 4.44$).

The results of the two-way ANOVA revealed significant main effects of both students' motivation, $F(1, 44) = 11.705$, $p = .001$, and learning method, $F(1, 44) = 11.304$, $p = .002$, indicating that each variable independently influenced students' reading comprehension achievement. However, the interaction effect between Kahoot-based learning and students' motivation was not statistically significant, $F(1, 44) = 3.789$, $p = .058$. Therefore, the fifth null hypothesis (H_{05}) was accepted, indicating that the effectiveness of Kahoot-based learning did not significantly vary according to students' motivation level.

Overall, these findings suggest that although Kahoot-based learning and students'

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motivation each contributed significantly to reading comprehension achievement, their combined effect was not statistically significant.

Discussion

The findings of this study indicate that the effectiveness of Kahoot-based learning varied according to students' motivation levels. Among students with high motivation, no significant difference was found between those who learned through Kahoot-based learning and those who received conventional instruction. This finding suggests that highly motivated students are able to maintain good reading comprehension achievement regardless of the learning method used. Their willingness to learn, persistence, and active engagement in classroom activities enable them to perform consistently under different instructional approaches.

In contrast, a significant difference was observed among students with low motivation. Students who learned through Kahoot-based learning achieved higher reading comprehension scores than those who received conventional instruction. This finding implies that the interactive features of Kahoot, such as quizzes, immediate feedback, and classroom participation, may increase students' interest and engagement in reading activities, thereby improving their learning outcomes.

The study also examined the influence of students' motivation within each learning method. In the Kahoot-based learning group, no significant difference was found between students with high and low motivation. This suggests that Kahoot-based learning provides an engaging learning environment that encourages participation from students regardless of their initial motivation level. As a result, differences in motivation appeared to have less influence on students' reading comprehension achievement when Kahoot was used. However, a different pattern was found in the conventional learning group, where students with high motivation significantly outperformed those with low motivation. This finding indicates that

motivation plays a more important role in conventional classrooms, where students depend largely on their own willingness and persistence to participate in learning activities.

Furthermore, the results of the two-way ANOVA revealed that both learning method and students' motivation independently had significant effects on reading comprehension achievement. However, no significant interaction effect was found between Kahoot-based learning and students' motivation. This indicates that although Kahoot-based learning and motivation each contributed to students' reading comprehension achievement, the effectiveness of Kahoot-based learning did not significantly depend on students' motivation level. Overall, these findings suggest that Kahoot-based learning can be implemented effectively to support students' reading comprehension across different motivation levels, while students' motivation remains an important factor influencing academic achievement.

5. CONCLUSION

This study investigated the effects of Kahoot-based learning and students' motivation on the reading comprehension achievement of tenth-grade students at Madyatama Vocational High School Palembang. The findings revealed that Kahoot-based learning significantly improved the reading comprehension achievement of students with low motivation, while no significant difference was found among students with high motivation. In addition, students' motivation significantly influenced reading comprehension achievement in the conventional learning group but not in the Kahoot-based learning group. The results of the two-way ANOVA further indicated that both learning method and students' motivation had significant main effects on reading comprehension achievement, whereas no significant interaction effect was found between the two variables.

Overall, these findings suggest that Kahoot-based learning is an effective approach for supporting students' reading

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comprehension, particularly among students with low motivation. Therefore, English teachers are encouraged to integrate Kahoot into reading instruction to create a more engaging learning environment. Future studies are recommended to investigate the effectiveness of Kahoot-based learning in different educational settings, language skills, or student populations to provide broader evidence of its impact on English language learning.

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Ethical Considerations

Prior to data collection, permission to conduct the study was obtained from the relevant school authorities. The participating students were informed about the purpose and procedures of the research, and participation was voluntary. Informed consent was obtained prior to data collection, and students' confidentiality and anonymity were maintained throughout the study. The data obtained from the motivation questionnaire and reading comprehension tests were used exclusively for research purposes and did not affect students' academic assessment.

Statement on the Use of Artificial Intelligence

Artificial intelligence (AI) tools were used only for limited language editing and manuscript refinement. AI was not used to generate, fabricate, manipulate, analyze, or interpret the research data. All data obtained from the motivation questionnaire, pre-test,

and post-test, as well as the statistical analyses, findings, interpretations, and conclusions, were derived from the actual research process and remained under the full responsibility of the authors.

Conflict of Interest

The authors declare that there are no conflicts of interest related to the research, authorship, or publication of this study.

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