

## ASSESSING THE EFFECTIVENESS OF GAME-BASED LEARNING FOR ENGLISH VOCABULARY DEVELOPMENT USING LUDO PEDAGOGY

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### ABSTRACT

Vocabulary acquisition is crucial for young learners as it forms the foundation for communication skills. However, traditional vocabulary instruction often lacks engagement, leading to low retention and motivation. This study investigates the effectiveness of game-based learning, particularly Ludo pedagogy, in enhancing English vocabulary among fourth-grade students at an elementary school in Jepara. Using a pre-experimental one-group pretest-posttest design, 24 students participated in four treatment sessions. Data collection included pretests and posttests to assess vocabulary improvement. The findings revealed a statistically significant increase, with an average gain of 9.94 points. A dependent t-test confirmed that game-based learning positively impacted vocabulary retention and engagement. The integration of structured board games with instructional flashcards created an interactive learning environment that enhanced student participation. This study contributes to game-based education by demonstrating its potential to improve vocabulary acquisition. The results suggest that incorporating game-based strategies can effectively support vocabulary learning, making it more enjoyable and meaningful for young learners. Future research should explore its long-term effects and broader applications in various educational settings to further evaluate its instructional potential.

**Keywords:** *Educational Games, Game-based Learning, Ludo Pedagogy, Vocabulary Acquisition, Young Learners.*

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### INTRODUCTION

Vocabulary acquisition is a fundamental aspect of language learning, particularly for young learners in elementary school. A strong vocabulary foundation enables students to develop essential language skills, including listening, speaking, reading, and writing. Mastery of vocabulary allows students to comprehend texts, express their thoughts effectively, and engage in meaningful communication. The vocabulary of a specific language includes the terms that are crucial for understanding and participating in meaningful discourse (Alfuhaid, 2023). Vocabulary development plays a significant role in language proficiency, as it enables learners to decode meaning, construct sentences accurately, and

engage in both oral and written communication. Without sufficient vocabulary knowledge, students struggle with comprehension, fluency, and language expression, which can hinder their academic progress and everyday interactions.

The importance of vocabulary mastery has been widely recognized in language education research. Dewi & Syahuma (2022) stated that vocabulary is necessary for students to easily learn English. Students who have a limited vocabulary will not be able to use the English language effectively. A well-developed vocabulary allows learners to access and understand instructional materials, engage in discussions, and apply linguistic structures appropriately. Vocabulary is considered the key to understanding English for foreign language learners, as an increase in vocabulary knowledge leads to better comprehension and overall language proficiency (Prastiwi & Saktiono, 2023). In order for students to acquire additional competencies, they must first master vocabulary (Musdalifah & Romdaniya, 2022). Without a rich vocabulary, students may face challenges in grasping reading material, forming sentences, and even engaging in basic conversations, which can hinder their academic growth and communication skills. Furthermore, vocabulary knowledge influences other aspects of language learning, such as grammar, pronunciation, and writing skills, highlighting its central role in linguistic development.

Despite its importance, vocabulary acquisition remains a continual challenge for young learners. Conventional pedagogical approaches frequently depend on mechanical memorization, which is often perceived as boring and fails to facilitate enduring retention. Traditional rote memorization methods, such as drilling and word lists, may provide short-term retention but do not promote deep learning or long-term recall. Consequently, students often forget newly acquired vocabulary due to a lack of meaningful engagement with the words. As a result, numerous students perceive vocabulary acquisition as tedious, leading to diminished motivation and engagement within the educational environment. This lack of engagement is particularly problematic considering that young learners are naturally susceptible to distraction, making language teaching even more challenging.

To address this issue, teachers have a responsibility to create curiosity and foster a more engaging and innovative learning environment (Prayoga, 2022). One way to achieve this is by understanding and leveraging different types of learner motivation. Motivation in language learning is commonly divided into two categories: intrinsic motivation, where students are driven by genuine interest in the course material, and extrinsic motivation, where students are motivated by external rewards such as achieving high grades or receiving praise. According to Andari (2023), students' success at all educational levels depends on their motivation to learn a language, and parents, environments, and instructors can all play critical roles in helping students develop that motivation. When students are intrinsically motivated, they are more likely to engage with learning materials actively and independently, whereas extrinsically motivated students may require additional encouragement from their surroundings.

However, many English classrooms still emphasize repetition-based learning with limited exposure to contextualized vocabulary usage. Rote

memorization and textbook-based instruction often fail to provide meaningful connections between vocabulary and real-world applications. Furthermore, the absence of engaging, student-centered teaching materials contributes to students' disinterest and makes vocabulary acquisition a slow and unproductive process (Dewi & Syahuma, 2022). This lack of engagement can result in a cycle where students view vocabulary learning as a passive task rather than an interactive process that supports their language development. As a result, there is a pressing need for more innovative teaching methods that promote active engagement, contextual learning, and long-term vocabulary retention.

In the context of one of Elementary school in Jepara, the phenomenon of insufficient vocabulary acquisition is particularly pronounced among students in the fourth grade. Empirical observations suggest that a significant number of students encounter challenges in both the recollection and appropriate utilization of English vocabulary, which detrimentally impacts their comprehensive language development (Fauzi, 2022). A conducted classroom survey elucidated that students frequently fail to retain newly introduced lexicon shortly following their initial exposure, thereby indicating a deficiency in retention capabilities (Cuc & Cuong, 2023). Furthermore, students express a perception of English lessons as lacking engagement, primarily attributable to the absence of interactive and dynamic pedagogical activities. Educators similarly report challenges in sustaining students' concentration during vocabulary instruction, as traditional teaching methodologies tend to be ineffective in captivating their interest (Husanović, 2022). The lack of interactive learning resources and innovative instructional methodologies has resulted in students facing considerable obstacles in the enhancement of their vocabulary, consequently hindering their overall language acquisition process (Dewi & Syahuma, 2022).

However, when subjected to interactive and stimulating pedagogical strategies, students have manifested an exceptionally favorable reaction. Preliminary classroom experiments employing interactive learning modalities, such as gamification and visually-oriented activities, have resulted in increased interest and involvement from students (Prayoga, 2022). Students exhibited an increased eagerness to interact with the educational content and demonstrated a greater propensity to practice vocabulary within authentic contexts (Cuc & Cuong, 2023). Studies by Purnami (2022) suggest that English teachers should incorporate fun and engaging teaching methods to make learning enjoyable. This can be achieved by using appropriate media, strategies, or methodologies to teach vocabulary to young learners. The initial findings from students reinforce this theory, as students exhibited higher motivation levels when exposed to engaging instructional methods compared to traditional approaches.

Game-based learning (GBL) is an instructional approach that integrates educational content with game elements to create a more engaging and interactive learning experience. It has gained significant attention in the field of education due to its ability to enhance motivation, improve cognitive skills, and create meaningful learning experiences. According to Wazeer (2023), games are characterized as "a structured activity governed by rules, aimed at attaining a specific objective, and incorporating an aspect of enjoyment." This structured

nature of games ensures that learning remains goal-oriented while maintaining an element of enjoyment, which is crucial for sustaining learners' interest in vocabulary acquisition. Furthermore, Ruisi (2023) posits that these fundamental components play a significant role in fulfilling the objectives associated with vocabulary instruction. The structured yet flexible nature of game-based learning allows students to experiment, make mistakes, and learn from them without the fear of failure, fostering a growth mindset in language learning.

Game-based learning has been widely recognized as an effective pedagogical approach for language education, providing an immersive and interactive environment that facilitates language acquisition. Unlike conventional methods, game-based learning fosters motivation, encourages active participation, and enhances knowledge retention through playful yet structured activities (Wibowo & Felnando, 2022). Research suggests that when students engage in game-based activities, they tend to exhibit higher levels of intrinsic motivation, which leads to improved learning outcomes (Aida et al., 2024). Games also provide immediate feedback, allowing learners to assess their progress in real time and adjust their strategies accordingly, further reinforcing vocabulary retention and comprehension.

The effectiveness of Game-Based Learning (GBL) is especially pronounced in the domain of language acquisition, as it promotes iterative practice, engagement, and the practical utilization of vocabulary, all of which are critical for effective retention and proficiency (Aida et al., 2024). Games present vocabulary in meaningful contexts rather than isolated lists, making it easier for students to recall and apply new words in real-world scenarios. Additionally, the interactive nature of games allows learners to engage in problem-solving activities that require them to apply their vocabulary knowledge actively, thereby reinforcing retention and comprehension. Ruisi (2023) argues that interactive games enhance the educational experience by integrating obstacles and incentives, thereby fostering sustained motivation among learners. By incorporating challenges, rewards, and competition, game-based learning keeps students engaged and motivated to continue learning, thus preventing the common issue of vocabulary attrition.

According to Alotaibi (2024), children's problem-solving abilities, memory, attention, and processing speed can all be improved through game-based learning. The incorporation of gamification elements such as points, levels, and leaderboards can further enhance students' motivation and engagement, making learning a more enjoyable experience. Game-based learning has the ability to improve students' proficiency because it provides a variety of eye-catching graphics and engaging activities that allow students to participate in material learning with little instructional effort (Tram et al., 2023). Furthermore, digital and non-digital game-based learning platforms provide opportunities for differentiated instruction, allowing students to progress at their own pace and catering to diverse learning needs.

Moreover, games inherently facilitate social interaction and foster collaborative engagement among peers, thereby rendering the educational experience both more pleasurable and conducive to cooperation. Multiplayer and

team-based game formats encourage students to communicate in the target language, negotiate meaning, and collaborate towards shared goals, thereby reinforcing their language skills in an authentic and meaningful manner. Considering the previously discussed advantages, the application of game-based educational methodologies within vocabulary teaching provides a contemporary model to address students' academic obstacles while also improving both participation and effectiveness of the learning experience. As the field of education continues to evolve, integrating game-based learning into language instruction represents a promising strategy for creating more dynamic, engaging, and effective learning environments for young learners.

The novelty of this research lies in the integration of a unique game-based learning model. Unlike previous studies that focused on digital games or standard board games, this study introduces a hybrid approach by combining the traditional snake and ladder game with flashcards. The inclusion of flashcards, which contain vocabulary related to daily activities, adds an instructional component to the game, reinforcing students' learning while maintaining an element of fun and excitement. This innovative approach aligns with Ludo pedagogy, which emphasizes the use of structured gameplay to support learning objectives. While previous research has explored board games in language learning, limited studies have specifically investigated the impact of combining interactive flashcards with traditional board games, making this study a valuable contribution to the existing literature.

This study aims to evaluate the effectiveness of Game-based learning in improving vocabulary acquisition among fourth-grade students at one of Elementary school in Jepara. By utilizing a game-based approach, the research seeks to enhance students' engagement, motivation, and vocabulary retention. Through a pre-experimental research design involving pretests, posttests, and multiple treatment sessions, this study aims to provide empirical evidence regarding the impact of game-based learning on vocabulary acquisition. The findings of this study are expected to contribute to the development of innovative teaching strategies that support young learners in acquiring English vocabulary more effectively and enjoyably. Ultimately, this research aspires to provide educators with an alternative instructional method that not only improves vocabulary retention but also fosters a positive and interactive language learning environment.

## **RESEARCH METHOD**

### **Research Design**

This study employs a pre-experimental design with a one-group pretest-posttest approach. Pre-experimental design is a type of research design that lacks a control group and random assignment, making it suitable for exploratory studies or preliminary investigations. In this approach, a single group is tested before (pretest) and after (posttest) the implementation of an intervention to measure its effectiveness. The selection of this design is based on the need to explore in-depth the effectiveness of Game-based learning in improving students' vocabulary acquisition. The absence of a control group allows for a focused investigation into

how the treatment influences the selected group. This study measures students' vocabulary proficiency before and after four treatment sessions using the game-based learning approach, allowing for a comparative analysis of their progress.

The absence of a control group enables an intensive analysis of the treatment's impact on the selected cohort, devoid of external factors. Through the execution of a pretest and posttest, this research evaluates the vocabulary proficiency of students prior to and subsequent to four treatment sessions employing the game-based learning methodology. Such an approach offers a comparative assessment of students' advancement, elucidating the degree to which game-based learning promotes vocabulary acquisition. The organized game structure engages students in repeated encounters with the target vocabulary, thereby reinforcing retention and enabling significant learning experiences.

### **Participants of The Research**

The research was conducted at one of Elementary school in Jepara, involving one fourth-grade class as the study participants. A total of 24 students aged 9 to 10 years were selected through purposive sampling. The rationale for choosing only one class was to gain a deeper understanding of how game-based learning affects vocabulary retention within a controlled group, ensuring a detailed observation of student engagement, learning behaviors, and performance.

The justification for selecting a singular class was to obtain a more profound comprehension of the effects of game-based learning on vocabulary retention within a meticulously controlled setting. Analyzing a solitary group facilitated an in-depth examination of student engagement, learning behaviors, and overall academic performance throughout the duration of the intervention. This focused methodology provided significant insights into the distinct learning trajectories of individuals while effectively reducing extraneous variables that could potentially distort the findings. Furthermore, restricting the study to one class guaranteed uniformity in the delivery of instruction, thereby enhancing the assessment of the direct influence of the game-based learning intervention on vocabulary acquisition.

### **Research Instruments**

To ensure focused and efficient data collection, this study utilized a pre-test and post-test as the primary research instruments. Both tests consisted of 25 multiple-choice vocabulary questions designed to assess students' vocabulary acquisition before and after the treatment sessions. The test questions were adapted from the Cambridge Young Learners English (YLE) Tests, a standardized assessment tool for young learners, ensuring their validity and reliability in measuring vocabulary proficiency. By relying solely on pre-test and post-test data, this study aimed to quantitatively measure the impact of game-based learning on vocabulary acquisition, providing clear and comparable results.

In conjunction with the assessments, this research incorporated a treatment phase, wherein students engaged in four sessions of game-based learning utilizing the game-based learning methodology. These sessions afforded students with recurrent exposure to specific vocabulary terms within a stimulating and

interactive framework. By integrating quantitative pretest and posttest evaluations with systematically organized treatment sessions, this research sought to rigorously assess the influence of game-based learning on vocabulary acquisition.

### **Data Collection Procedures**

Data collection was carried out in several stages to ensure a systematic and accurate assessment of students' vocabulary development. The study began with the administration of a pretest, which measured students' initial vocabulary proficiency. Following this, four treatment sessions were conducted over two weeks, during which students engaged in Game-based learning, where they answered vocabulary-related questions presented on flashcards as part of the gameplay. Throughout these sessions, student engagement and participation were carefully observed and recorded.

After the completion of the treatment sessions, a posttest was administered to evaluate improvements in vocabulary acquisition. The posttest contained the same set of questions as the pretest to measure learning gains accurately. The comparison of pretest and posttest results provided quantitative evidence of the effectiveness of game-based learning in enhancing students' vocabulary knowledge. This structured approach allowed for a clear assessment of progress, demonstrating whether the game-based learning intervention had a significant impact on vocabulary development.

### **Data Analysis**

The collected data were analyzed using quantitative methods to provide a comprehensive evaluation of the study's findings. Descriptive statistical analysis was conducted by calculating the mean, median, standard deviation, and range of pretest and posttest scores to summarize students' vocabulary performance. Inferential analysis was performed using a paired t-test to determine whether there was a statistically significant difference between pretest and posttest scores, with SPSS software used to ensure accuracy, and a significance level set at  $p < 0.05$ . By integrating this statistical analysis, this study provides a well-rounded assessment of how Game-based learning influences vocabulary acquisition among young learners.

## **FINDING AND DISCUSSION**

### **Finding**

#### *Improvement Vocabulary Acquisition*

The findings of this study indicate a significant improvement in students' vocabulary acquisition following the implementation of Game-based learning: Vocabulary Adventure. As presented in Table 1, the mean score of the pretest was 66.18, with a standard deviation of 14.62. After four treatment sessions utilizing the game, the posttest mean increased to 76.12, with a reduced standard deviation of 8.26. This 9.94-point increase demonstrates that the game effectively enhanced the students' vocabulary skills, reducing variability in their performance. The improvement in mean scores suggests that Game-based learning not only helped

students acquire new vocabulary but also contributed to a more consistent level of performance across the group.

The reduction in standard deviation from 14.62 in the pretest to 8.26 in the posttest is particularly noteworthy. This indicates that the game helped bridge the gap between higher- and lower-performing students, creating a more equitable learning environment. The structured yet playful nature of Game-based learning likely provided all students, regardless of their initial proficiency levels, with opportunities to engage with the material and improve their vocabulary skills. This finding aligns with previous research that highlights the ability of game-based learning to cater to diverse learning needs and promote inclusive education (Musa et al., 2022).

**Table 1. Descriptive Statistics of Pretest and Posttest Result**

	Kelas	N	Mean	Std. Deviation	Std. Error Mean
<b>Hasil</b>	Pre Test	24	66.179	14.6169	2.9837
	Post Test	24	76.121	8.2649	1.6871

#### *Validity and Reliability of the Instrument*

The instruments used in this study, including the pretest and posttest, were rigorously validated to ensure their accuracy and appropriateness for measuring vocabulary acquisition. Validity refers to the extent to which an instrument measures what it is intended to measure. In this study, the validation process involved expert reviews and statistical analysis to confirm that the test items aligned with the learning objectives and adequately assessed students' vocabulary knowledge. Most items achieved a validity coefficient of 0.343, which indicates a moderate to strong correlation between the test items and the construct being measured (vocabulary acquisition). This level of validity is considered acceptable for educational research, particularly in studies involving young learners (Aedo & Millafilo, 2022). The validation process also ensured that the test items were clear, relevant, and free from bias, thereby enhancing the overall quality of the data collected.

In addition to validity, the reliability of the instruments was also assessed to ensure consistency and stability in the measurement of vocabulary acquisition. Reliability refers to the degree to which an instrument produces consistent results over time and across different administrations. In this study, the reliability test yielded a Cronbach's Alpha value of 0.706, which is above the commonly accepted threshold of 0.70 for demonstrating high internal consistency (Field, 2018). This result indicates that the test items were highly consistent in measuring the same construct, thereby reducing the likelihood of random errors influencing the results. The high reliability of the instruments underscores their suitability for use in this study and provides confidence in the accuracy of the findings.

The strong validity and reliability of the instruments used in this study have important implications for the interpretation of the results. First, the validity of the test items ensures that the improvements observed in students' vocabulary acquisition can be confidently attributed to the intervention (i.e., the use of Lingo Climb: Vocabulary Adventure) rather than to external factors or measurement errors. Second, the high reliability of the instruments suggests that the results are



consistent and reproducible, which enhances the credibility of the study. These findings are particularly significant given the challenges associated with measuring vocabulary acquisition in young learners, who may exhibit variability in their performance due to factors such as attention span and test-taking skills.

The validity and reliability results of this study are consistent with those reported in previous research on vocabulary assessment tools. For instance, Cuc & Cuong (2023) found that vocabulary tests with validity coefficients above 0.30 and Cronbach's Alpha values above 0.70 were effective in capturing students' vocabulary growth. Similarly, Sukaton et al. (2023) emphasized the importance of using validated and reliable instruments in game-based learning studies to ensure accurate measurement of learning outcomes. The alignment of this study's results with existing literature further supports the robustness of the instruments used and the validity of the findings.

**Table 2. Case Processing Summary**

		N	%
Case	Valid	24	100.0
	Excluded <sup>a</sup>	0	.0
	Total	24	100.0

**Table 3. Reliability Statistics**

Cronbach's Alpha	N of Items
.706	27

#### *Normality and Homogeneity of Data*

The normality of the data distribution was assessed using two statistical tests: the Kolmogorov-Smirnov test and the Shapiro-Wilk test. These tests are commonly used to determine whether a dataset follows a normal distribution, which is a key assumption for many parametric statistical analyses, including the paired t-test. The results of both tests confirmed that the pretest and posttest scores were normally distributed, with p-values greater than the significance level of 0.05. This indicates that the data met the assumption of normality, allowing for the use of parametric tests to analyze the results. The normal distribution of the scores suggests that the sample was representative of the population and that the findings can be generalized with greater confidence (Prastiwi & Saktiono, 2023).

The confirmation of normality is significant because it validates the use of the paired t-test, which is a robust statistical method for comparing means from the same group at different time points. A normal distribution ensures that the results are not skewed by outliers or extreme values, thereby enhancing the accuracy and reliability of the statistical analysis. Furthermore, the normality of the data supports the assumption that the observed improvements in vocabulary acquisition are likely due to the intervention (i.e., the use of Game-based learning) rather than random variations or anomalies in the data.

In addition to normality, the homogeneity of variance between the pretest and posttest groups was also assessed. Homogeneity of variance refers to the assumption that the variances of the groups being compared are approximately equal. This assumption is critical for ensuring the validity of the paired t-test, as unequal variances can lead to inaccurate conclusions. The homogeneity test conducted in this study indicated that the variances between the pretest and

posttest groups were homogeneous, with p-values greater than the significance level of 0.05. This result confirms that the data met the assumption of homogeneity, further supporting the appropriateness of the paired t-test for analyzing the results.

The homogeneity of variance is important because it ensures that the comparison between the pretest and posttest scores is fair and unbiased. When variances are equal, the statistical analysis is more likely to detect true differences between the groups, rather than differences caused by variability in the data. In this study, the homogeneity of variance reinforces the conclusion that the observed improvements in vocabulary acquisition are statistically significant and can be attributed to the effectiveness of the game-based learning intervention.

The findings of the normality and homogeneity tests in this study are consistent with those reported in previous research on vocabulary acquisition and game-based learning. For example, Cuc & Cuong (2023) found that normality and homogeneity assumptions were met in their study on the effectiveness of vocabulary notebooks, which allowed them to use parametric tests with confidence. Similarly, Musdalifah & Romdaniya (2022) emphasized the importance of checking these assumptions in game-based learning studies to ensure the validity of the statistical analysis. The alignment of this study's results with existing literature further supports the robustness of the findings and the appropriateness of the statistical methods used.

**Table 4. Test of Normality**

	Kelas	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Hasil	Pre Test	.143	24	.200*	.972	24	.727
	Post Test	.139	24	.200*	.942	24	.178

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Table 5. Test of Homogeneity of Variance**

		Levene Statistic	df1	df2	Sig.
Hasil	Based on Mean	8.408	1	46	.571
	Based on Median	7.046	1	46	.011
	Based on Median and with adjusted df	7.046	1	34.736	.012
	Based on trimmed mean	8.365	1	46	.006

**Table 6. Paired Sample Test**

					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre Test – Post Test	-9.942	17.098	3.490	-17.161	-2.722	-2.849	23	.009

The results of the dependent t-test indicate a statistically significant improvement in students' vocabulary acquisition following the implementation of game-based learning. The mean pretest score was 66.18, while the mean posttest

score increased to 76.12, reflecting a difference of 9.94 points. This substantial increase in scores demonstrates that the game-based learning approach, specifically Lingo Climb: Vocabulary Adventure, was highly effective in enhancing students' vocabulary skills. The t-test revealed a statistically significant difference, with a p-value (Sig. 2-tailed) of less than 0.05, which is the conventional threshold for statistical significance in educational research (Cuc & Cuong, 2023). This result confirms that the observed improvement in vocabulary acquisition is unlikely to have occurred by chance and can be attributed to the intervention.

### **Discussion**

The study aimed to assess the effectiveness of game-based learning in enhancing the vocabulary acquisition of fourth-grade students at an elementary school in Jepara. The results demonstrated a statistically significant improvement in students' vocabulary skills, as evidenced by a mean score increase of 9.94 points from pretest to posttest. The significant improvement suggests that the game successfully addressed the challenges of traditional rote memorization methods by providing an engaging and interactive alternative. Additionally, the reduced variability in posttest scores indicates that game-based learning not only enhanced overall vocabulary acquisition but also minimized learning disparities among students, ensuring more equitable learning outcomes.

The findings can be interpreted through the lens of game-based learning theory, which posits that the implementation of game-based learning methods, particularly in English language teaching, offers several benefits. The most common benefits are that it makes studying English more enjoyable and attracts the interest of students (Ningsih, 2023). Game-based learning's integration of Ludo pedagogy provided students with a structured yet playful environment, promoting active participation and knowledge retention. The consistent engagement observed during treatment sessions supports this interpretation, as students were motivated to interact with the material in a meaningful way. Furthermore, the hands-on nature of the board game allowed learners to manipulate physical objects, which may have contributed to improved retention and cognitive processing. Studies indicate that kinesthetic learning approaches are particularly effective for young learners, as they enhance engagement and reinforce memory through multisensory experiences.

Moreover, the alignment of the game's content with students' daily activities likely contributed to its effectiveness. By incorporating questions about daily routines, game-based learning made vocabulary acquisition relevant and contextually meaningful, which is crucial for young learners. Constructivist theories emphasize that students learn best when new knowledge is connected to their existing experiences, making game-based learning a natural fit for vocabulary instruction (Tram et al., 2023). The interactivity of the game allowed students to practice vocabulary in a low-pressure environment, reducing anxiety associated with language learning and fostering greater confidence in using English in everyday conversations. In particular, almost every student

demonstrated improved results when using game-based learning activities, reinforcing the idea that active engagement leads to higher retention rates.

The results of this study are consistent with previous research on the effectiveness of game-based learning. For instance, Halim & Lee (2022) and Wibowo & Felnando (2022) reported that incorporating games in the classroom is an excellent strategy for encouraging active learning. Similarly, Uyen (2023) found that game-based learning is highly engaging and offers a fun experience for EFL primary students, which enhances their willingness to participate in vocabulary tasks. These findings align with those of Xiao & He (2023), who observed that students in an experimental group exposed to game-based learning outperformed their peers in vocabulary acquisition, oral expression, and emotional engagement. Furthermore, research by Alotaibi (2024) highlights the effectiveness of game-based learning in improving various language skills, reinforcing the broader applicability of this pedagogical approach across different learning contexts.

However, this study expands upon existing literature by specifically applying Ludo pedagogy to a customized board game designed for vocabulary acquisition. Unlike general board games, this study's game-based learning approach incorporates tailored content that directly aligns with the learning objectives of young English learners. This targeted approach addresses the gap in previous studies, which often focus on general game mechanics without emphasizing content relevance. The physical interaction with the board and cards may have provided an additional layer of engagement, particularly for young learners who benefit from tangible, hands-on activities. The integration of structured gameplay with educational content ensures that students not only learn vocabulary but also practice its application in real-world scenarios, further solidifying their language skills.

The results underscore the importance of designing learner-centered materials that combine educational objectives with engaging activities. Game-based learning's success illustrates how traditional pedagogical methods, such as board games, can be revitalized through innovative designs and content alignment. As stated by Huriyah (2022), students can better understand the subject matter if the media is designed creatively and innovatively. The findings also suggest that Ludo pedagogy is a scalable and adaptable framework for various educational contexts, particularly in settings where digital resources may be limited. Additionally, game-based learning has the potential to support differentiated instruction, allowing teachers to cater to students with varying learning preferences and proficiency levels. By adjusting game mechanics and difficulty levels, educators can create a more inclusive learning environment that accommodates diverse student needs.

Despite its promising results, this study has several limitations that warrant further investigation. First, the sample size was relatively small, which may limit the generalizability of the findings. Future studies should consider expanding the sample to include students from different educational backgrounds and linguistic proficiencies to validate the effectiveness of game-based learning across broader contexts. Second, the short duration of the intervention (four sessions) may not

fully capture the long-term effects of game-based learning on vocabulary retention. Conducting longitudinal studies would provide deeper insights into how sustained exposure to game-based learning influences vocabulary retention over time.

Future research could explore the long-term effects of game-based learning on vocabulary retention and its applicability to different age groups and language proficiency levels. Additionally, comparative studies involving digital and non-digital game-based tools could provide deeper insights into the relative effectiveness of these approaches. Exploring the role of teacher facilitation in game-based learning settings could also yield valuable findings, as instructor guidance and scaffolding play crucial roles in maximizing student engagement and learning outcomes.

This study contributes to the growing body of literature on game-based learning by demonstrating the effectiveness of game-based learning in enhancing vocabulary acquisition among young learners. By bridging theoretical frameworks with practical applications, the findings highlight the potential of innovative educational tools to transform language learning experiences. The results not only validate the use of Ludo pedagogy but also offer valuable insights for educators seeking to create engaging and impactful learning environments. Given the increasing emphasis on interactive and experiential learning in modern pedagogy, game-based learning presents a viable solution for improving student motivation, participation, and overall language proficiency.

## **CONCLUSION AND SUGGESTION**

This research aimed to explore the influence of Game-based learning on enhancing English vocabulary development in fourth-grade students at one of Elementary school in Jepara. Utilizing an engaging game-based learning strategy via Ludo pedagogy, the study created a vibrant and interactive educational atmosphere that promoted vocabulary retention and heightened enthusiasm. The outcomes indicated a remarkable enhancement in students' vocabulary acquisition, evidenced by the rise in post-test scores in contrast to pre-test scores. The findings imply that game-based learning, especially through methodically designed board games with educational elements, can act as a powerful teaching instrument for vocabulary growth among young learners.

The study's findings have several important implications. Pedagogically, the research supports the integration of interactive and student-centered learning methods to enhance vocabulary instruction. The success of Game-based learning highlights the need for teachers to incorporate gamified learning materials into their lesson plans to improve student engagement and knowledge retention. Theoretically, this study contributes to the existing literature on game-based learning and Ludo pedagogy, demonstrating their applicability in primary school language education. Furthermore, the study reinforces the principles of constructivist learning theory, emphasizing the importance of active participation and meaningful interaction in language acquisition.

Although this study showcases intriguing outcomes, it possesses limitations that warrant recognition. The study was conducted on a rather limited

sample size within a single classroom, potentially hindering the wider relevance of the findings. Furthermore, the research predominantly concentrated on immediate vocabulary recall, neglecting to explore the enduring impacts. Future research endeavors should aspire to expand the horizons of the study by embracing a broader and more diverse array of student demographics to further validate the findings. In addition, examining the lasting influence of game-based learning on vocabulary retention and its efficacy across diverse educational settings would unveil richer understanding of its advantages and possible hurdles. In conclusion, this assessment underscores the distinct advantages of Game-based learning as a trailblazing educational game that empowers learners in their quest for vocabulary excellence. The findings emphasize the promise of intertwining structured play with language instruction to forge a more captivating and impactful learning journey. By tackling the recognized shortcomings and delving into additional uses of game-based learning, forthcoming inquiries can persist in amplifying the significance of educational games in nurturing language growth among youthful learners.

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