

GAMIFYING THE CLASSROOM: THE EFFECT OF QUIZIZZ ON VOCABULARY RETENTION AMONG INDONESIAN JUNIOR HIGH SCHOOL STUDENTS

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ABSTRACT

Vocabulary is a key element of English language learning upon which it builds learners' ability to communicate successfully and improve their overall levels of proficiency in the language. Gamification-based learning platforms have recently garnered a lot of attention in the context of English as a Foreign Language (EFL), as they may potentially enhance student engagement and ultimately lead to better learning outcomes. Even though Quizizz is more widely used in language classrooms, there have been very few pieces of empirical evidence in the literature that state its effectiveness for improving vocabulary mastery among Indonesian junior high school students (in studies using an experimental design). The research sought to determine if Quizizz based gamification significantly enhances students' vocabulary mastery over conventional instructional approaches. In total, a quantitative quasi-experimental design with 62 ninth-grade students at the public junior high school in Indonesia (experimental group $n = 32$; control group $n = 30$) was conducted. Data were collected and analyzed using pre-test and post-test a 50-item vocabulary test, descriptive statistics, paired-sample t-tests, and effect size calculation. Results indicated a large gain for the experimental group (mean scores improved from 59.94 to 84.07) compared with the control group, whose means increased from 60.33 to 67.07. Statistical analysis showed significant difference between the pre-test and post-test scores ($p < .001$), which indicate that Quizizz is a good tool to improve the students' master of vocabulary. These findings elucidate the pedagogical potentials of gamified learning environments in vocabulary instruction and advocate the infusion of digital gamification instruments with a view to enhancing EFL learning experience for greater motivation, engagement and effectiveness.

Keywords: EFL Learners; Gamification; Quasi-Experimental Study; Quizizz; Vocabulary Mastery

INTRODUCTION

Vocabulary knowledge is acknowledged as one of the most essential aspects influencing second and foreign language learning, since it serves to facilitate learners' understanding of texts, their communicative competence and thus the development of proficiency in all four skills (reading comprehension, listening comprehension speaking skills and writing skills). An issue that challenges English as a Foreign Language (EFL) learning contexts is the lack of required vocabulary to articulate ideas and get the meaning of spoken or written discourse (Z. Zhang & Crawford, 2024). While English is still a dominant

language across the globe, especially in high-stakes contexts of communication, education and employment, effective word learning has become a focus of many education systems internationally. Vocabulary has long been considered a major challenge in Indonesia, especially for junior high school students who were exposed limited real English input but then have to learn the target language primarily through rote memorization. Therefore, it is increasingly urged that teachers take up technology-based pedagogies to increase learning outcomes and student motivation. Studies have found that digital learning environments can offer less passive and more engaging learning than traditional instruction methods (Luo, 2023).

Vocabulary mastery is when learners can recall, relate to, and use words in meaningful contexts during communication. In particular, in language education the notion that vocabulary learning consists solely of memorizing lists has changed into a process characterized by gradual exposure, retrieval opportunities, context-based understanding and meaningful engagement with language. A highly evaluated teaching method has been gamification, a term used to indicate the use of game characteristics as points, rewards, leaderboard and challenge in non-game contexts (Waluyo & Tran, 2023). One of the most well-known examples is when students respond to vocabulary questions on a digital platform that gives instant feedback, scores and classification in order to motivate further participation. These characteristics exist to enhance motivation, continue engagement and assist memory retention. In educational settings, gamification is linked to increases in learner engagement, motivation and academic performance, especially in the context of language-learning environments (Z. Zhang & Crawford, 2024).

Vocabulary knowledge involves more than the number of words learners know. It includes breadth, or vocabulary size, and depth, or how well learners understand pronunciation, spelling, meaning, grammatical behavior, collocation, register, and use. From this perspective, vocabulary is a cognitive resource that supports comprehension and a communicative resource that enables learners to participate in spoken and written interaction. Learners with limited lexical knowledge often struggle to understand texts, follow classroom instruction, express ideas, and participate in communication (Husnaini et al., 2026).

According to some junior high school students in Palopo, learning English is a challenging subject, particularly when it comes to vocabulary and word recall. Because of their poor vocabulary knowledge and the fact that many teachers assign memorization of vocabulary by having students search for it in dictionaries, students find it difficult to communicate in English. As a result, they lack the ambition to study English and require strong motivation to acquire the language (Langi et al., 2024).

Therefore, this study aims to fill these gaps by examining the use of rehearsal, encoding, and activation strategies among junior high school EFL learners in a structured vocabulary-learning routine. By focusing on memory strategies within a daily password-class activity, this study provides empirical evidence on how learners process vocabulary cognitively. The findings contribute to understanding vocabulary learning behavior among younger learners and offer pedagogical implications for improving vocabulary instruction. Specifically, the study examines (1) the level of use of each strategy, and (2) whether significant differences

exist among the three strategy types. Understanding students' strategy preferences is important for designing effective vocabulary instruction. Based on previous literature, it is expected that learners will rely more on encoding and activation strategies than rehearsal strategies, as deeper processing leads to stronger vocabulary retention (Fakhruddin et al., 2026).

Quizizz is a gamification platform that has become one of the most popular tools for language education due to its accessibility and the incorporation of game mechanics into interactive formats. Quizizz-With Quizizz, teachers create digital quizzes which can include multimedia content along with instant feedback and leaderboards. As an example, Waluyo & Tran, 2023 studied the effectiveness of asynchronous gamified vocabulary learning by using Quizizz to assist university students in developing their vocabulary. Through a longitudinal design of 300 learners, they discovered that frequent utilization of Quizizz-centered vocabulary pursuits were the strongest academic predictor of learners' word wisdom success. These insights can indicate how gamified learning environments may provide conditions for prolonged engagement and more effective vocabulary acquisition. In a related investigation, (Z. Zhang & Crawford, 2024) investigated the motivation of EFL learners in Quizizz-based formative assessment, reporting that gamification features fostered learner motivation, engagement, and participation in English learning tasks. With these results, it can be assumed that the gamified assessment will enhance a more supportive and motivational learning environment.

It provides a strong rationale for using gamification in vocabulary instruction and that empirical evidence on the same topic has recently begun to emerge. This research is important because it addresses the challenges faced by rural elementary students in acquiring English vocabulary. This study evaluated the use of Quizizz as a pedagogical tool, in hopes of providing unique and affordable teaching methods that will improve vocabulary acquisition in rural classrooms. Moreover, it seeks to address practical issues, such as the need for engaging learning solutions that can operate effectively despite potential limitations like internet connectivity or access to digital devices. By highlighting both asynchronous and synchronous features, the study emphasizes how Quizizz can be adapted to varying resource conditions, enabling independent learning when internet connectivity is unstable and promoting real-time engagement when stable access is available. By investigating Quizizz in a context where its adoption remains relatively limited, this study not only contributes novel insights to the Taiwanese educational technology literature but also provides practical implications for expanding the platform's implementation in under-resourced educational settings. The findings of this research will offer valuable insights for teachers, policymakers, and curriculum designers, enabling them to create effective online learning approaches to enhance the rural English learning environment. Ultimately, this project can improve students' future learning opportunities and competitiveness (Liu et al., 2025).

Several studies have suggested positive effects of gamification in language learning, and other, more general reviews of the research support this idea. This evidence has been drawn from a systematic review of gamified tools for foreign language learning by Luo, 2023 which found use across different educational contexts, but reported relatively consistent findings over the benefits of gamification on learner engagement, motivation and academic

performance On a similar note, in a systematic review of gamified learning platforms published lately it was found that Quizizz, Kahoot, Quizlet and Wordwall became helpful tools to enhance vocabulary because they offered chances for repetition, feedback and rewards that positively impact retention of what has been learnt. Nevertheless, prior reviews have emphasized that the effectiveness of gamification is influenced by learner characteristics, instructional design, and contextual factors. While considerable empirical evidence supports the pedagogical value of gamification, further investigation is necessary to understand its effectiveness across different contexts and learner populations.

In sum, past studies indicate that gamification is effective to promote motivation and engagement, participation, vocabulary learning and academic performance. There is also evidence to back the hypotheses that Quizizz has some good pedagogical qualities, such as interactive learning experience, immediate feedback, a competitive nature and multiple rounds of practice on vocabulary. In addition, positive perceived student perception is reported across the majority of studies conducted in a gamified learning environment. In conclusion, it can be said that the body of evidence in the literature generally provides support for the idea that technology-enhanced gamification has positive contributions in language learning processes and outcomes.

Although these findings are promising, many limitations can be identified in the existing literature. To start with, a wide range of studies have only targeted learner perceptions, motivation or engagement without using randomized and experimental designs to estimate vocabulary gains. Second, empirical studies on Quizizz in the context of Indonesian junior high school EFL learners remain relatively scarce although it has been widely used in their educational contexts. Third, previous studies frequently employ university student or mixed education designs limiting the ability to generalize findings from older learners to younger learners who may respond differently. Lastly, there is still the question of whether Quizizz offers an improvement on what could be achieved through traditional classroom instruction in terms of measurable vocabulary outcome. Resolving these deficiencies is necessary since vocabulary mastery is an integral base of language skills and education success in EFL environments.

As a result, this research was to explore the effectiveness of gamification Quizizz in vocabulary mastery of Indonesian junior high school EFL learners. The research question this study sought to answer was the following: Does Quizizz have a significant effect on vocabulary mastery compared to conventional approaches in students? The study hypothesized, based on prior theoretical and empirical findings that Quizizz provided vocabulary instruction with a significantly higher posttest score for students than those taught through conventional approaches.

As an answer to this question, a quasi-experiment design with both experimental and control groups was used. Students in the experimental group practiced vocabulary learning activities through Quizizz, whereas students in the control group learnt vocabulary through traditional ways. Vocabulary achievement results were evaluated via both pre-test and post-test assessments, followed by statistical analyses assessing for between-group differences. Based on gamification theory and previous evidence about the motivational and cognitive benefits of active participatory learning environments, greater vocabulary improvement

was expected for the Quizizz experimental intervention compared to conventional instruction.

This study adds to the limited research of gamified language learning by presenting empirical evidence from the Indonesian junior high school EFL context, which is still low represented in international literature. In contrast to many past studies focusing mainly on perceptions or motivation, a quasi-experimental approach was implemented to compare vocabulary learning outcomes. In particular, the results are hoped to provide theoretical insights into gamification in language learning and practical value for English teachers on how to apply digital technologies to make vocabulary instruction more exciting, motivating, and effective.

The literature emphasizes that vocabulary learning for young students must involve multi-sensory input through dual coding theory, explains that a combination of verbal and visual representations strengthens the memory process who found that pictorial media significantly improved vocabulary retention in elementary school students (Hartina & Muin, 2026).

METHODS

Research Design

A quasi-experimental pretest–posttest control group design was adopted in this study to examine the effectiveness of Quizizz-based gamification on students' vocabulary mastery. The researcher worked with intact classroom groups so a quasi-experimental design was chosen where subjects cannot randomly assigned to experimental conditions. The design of this study allows the students who took vocabulary instruction through Quizizz to be compared with those who received traditional vocabulary instruction.

The independent variable was the instruction through gamified learning using Quizizz, which we operationally defined as vocabulary instruction delivered through the Quizizz platform infused with gaming elements (points, leaderboards, timers, rankings, avatars and instant feedback). The dependent variable was the students' vocabulary mastery which was operationally defined as students could recognize, understand and use English vocabulary correctly measured with a score on vocabulary test before treatment (pretest) and after treatment (post-test).

Participants and Setting

The research was held at SMP Negeri 4 Palopo in the academic year of 2024/2025. Target Population: All ninth-grade students attending the school. The sampling technique used was total sampling, as the researcher took intact classes according to research needs. The research involved two classes already created. The experimental group involved the experimental class was Class IX-A which consisted of 32 students, while the control group included a control class that was Class IX-C which also consisted of 30 students. As a result, the total number of subjects included in the study was 62 students. Participants were included as study subjects if they were officially registered in the ninth class at SMP Negeri 4 Palopo, attended during the research period, and met pre- and post-test requirements. The

final analysis excluded students who were absent in either testing session or did not engage with the treatment activities. All of the participants had already been formally taught English in a school context (as part of national curriculum) and came from similar backgrounds in terms of education, socio economic status etc. as well as level of prior experience learning English. In addition, the same content of curriculum, learning objectives and instruction materials were used in both groups during the intervention period to ensure comparability and control for potential confounding variables.

Instruments and Materials

Vocabulary Achievement Test

Data were gathered by conducting a researcher-made Vocabulary Achievement Test in the form of pre-test and post-test. The instrument was intended to assess students' knowledge of high-school Basic English vocabulary in nouns, verbs and adjectives. The vocabulary test included 50 items and tested a range of task types. They asked multiple-choice questions, fill-in-the-blank items, image identifying tasks, meaning-matching exercises, plus synonym/antonym matching activities. A variety of item type were used because we sought to tap into both receptive and productive vocabulary skills.

A point was awarded for each question answered correctly; a score of zero was given for an incorrect answer. The overall raw score was then scaled to a range from zero to 100, where 100 is the best possible score. This study used a pretest-posttest design; pre- and post-intervention versions of the same instrument were administered in order to measure students' vocabulary achievement and the degree of change resulting from the instructional treatment. The same criteria were used to assess students in the two testing times so that students' vocabulary growth could be compared across both testing periods.

To establish content validities, the instrument was reviewed by two English language education experts before administration to ensure it satisfy with the objectives of curriculum. Student characteristics of the participating sample were similar, thus a pilot test was undertaken to assess item clarity and reliability. The analysis of reliability produced a decent Cronbach's alpha coefficient, suggesting that the tool was already accepted reasonably with reliable to measure students' vocabulary achievement.

Learning Platform

The experimental group employed Quizizz, an online gamification framework that integrates educational content into an interactive game-based learning experience. Quizizz includes several gamification elements which may help get students engaged and involved during the learning activities. Features such as leaderboards, points and reward systems, quizzes with timer option, instant feedback mechanisms (with images audio inputs), performance reports etc. These functionalities allow students to engage actively with their learning tasks while also getting immediate feedback about their performance and progress.

For the treatment sessions, Quizizz was used as the main teaching tool in this study. Data was used to offer vocabulary learning activities that provide interactive quiz items (containing the target vocabulary items) for students who are aligned with learning

objectives. Gamification elements of the platform were incorporated in each session to make the learning space more enjoyable and stimulating. Immediate feedback allowed students to immediately correct mistakes, and leader boards and point systems promoted competition among learners. Furthermore, the supplementary use of multimedia components bolstered vocabulary understanding through visual and verbal representations of target lexis. Performance reporting capacity provided teachers and students the ability to track learning success during the period of intervention. These features were anticipated to support vocabulary learning by improving student engagement, participation and substantial repetitions.

Procedure and Data Collection

The study was conducted over approximately six weeks and followed a structured sequence of four phases.

Phase 1: Preparation

Prior to data collection, informed consent was obtained from the school administration and the English teacher. The researchers developed, validated, and prepared a vocabulary test for administration. In addition, Quizizz-based learning materials were designed based on vocabulary topics included in the junior high school English curriculum.

Phase 2: Pre-Test Administration

At the beginning of the study, all participants from both the experimental and control groups completed a vocabulary pre-test. The pre-test aimed to assess students' initial level of vocabulary mastery and ensure the comparability of both groups prior to the intervention. To maintain consistency, the test was administered under standardized classroom conditions and completed within approximately 60 minutes.

Phase 3: Treatment Implementation

The intervention consisted of five instructional sessions conducted over four weeks.

Experimental Group Treatment

Students in the experimental group participated in gamified vocabulary learning activities using Quizizz throughout the intervention period. During each instructional session, students accessed the Quizizz platform using smartphones or computers and engaged in a variety of interactive vocabulary quizzes designed to reinforce target vocabulary items. The instructional content focused primarily on nouns, verbs, and adjectives commonly included in the junior high school English curriculum.

The platform provided immediate feedback during quiz activities, enabling students to recognize and correct mistakes in real time. Additionally, the leaderboard feature displayed students' rankings and scores in comparison with their peers, fostering healthy competition and encouraging active participation.

Following each quiz session, students participated in classroom discussions and follow-up exercises focusing on target vocabulary to explore word meanings, pronunciation,

and contextual use. Various vocabulary recognition, comprehension, and application activities were incorporated to ensure that students not only memorized vocabulary items but also learned to use them appropriately in authentic communicative contexts.

The instructional activities integrated gamification elements with teacher-facilitated learning to enhance learner engagement, motivation, and vocabulary mastery.

Control Group Treatment

Students in the control group received conventional vocabulary instruction commonly implemented in English language classrooms. The teacher introduced target vocabulary items, explained their meanings, and demonstrated their use in sentences. Students then completed vocabulary memorization exercises, translation activities, textbook-based practice tasks, and classroom discussions to reinforce learning.

Unlike the experimental group, the control group did not engage with gamification elements or digital learning platforms. Instruction was delivered primarily through traditional teacher-centered approaches, including face-to-face explanations, guided exercises, and feedback sessions.

To ensure a valid comparison, both groups were taught the same vocabulary content and followed identical learning objectives. The primary difference between the two groups was the mode of instruction: the experimental group received Quizizz-based gamified vocabulary instruction, whereas the control group received conventional vocabulary teaching. This design enabled the researchers to examine the effects of Quizizz-based gamification on students' vocabulary mastery while controlling for variations in instructional content and learning objectives.

Phase 4: Post-Test Administration

Following the completion of the treatment sessions, a post-test was administered to both groups using the same instrument format and testing procedures employed during the pre-test. The post-test aimed to assess students' improvement in vocabulary mastery after the intervention and to measure the effectiveness of Quizizz-based gamification in vocabulary learning.

Data Analysis

The collected data were analyzed using IBM SPSS Statistics Version 26. Prior to hypothesis testing, descriptive statistical analyses were conducted to summarize students' vocabulary performance in both the experimental and control groups. Measures including the mean, standard deviation, minimum score, and maximum score were calculated to describe participants' performance before and after the intervention.

Before conducting inferential analyses, the assumptions underlying parametric testing were examined. The Shapiro-Wilk test was employed to assess data normality and determine whether score distributions approximated a normal distribution. In addition, Levene's Test of Homogeneity of Variance was conducted to examine the equality of variances between groups. The results of these preliminary analyses indicated that the data met the assumptions required for subsequent parametric testing.

To evaluate changes in students' vocabulary mastery within each group, paired-samples *t*-tests were conducted to compare pre-test and post-test scores. Furthermore, an independent-samples *t*-test was performed to compare post-test vocabulary scores between the experimental and control groups following the intervention. Statistical significance was determined at the 0.05 alpha level, with results considered statistically significant when $p < .05$.

In addition to significance testing, the magnitude of the treatment effect was assessed using Cohen's *d* to determine the practical significance of the intervention (Cohen, 1988). Effect size values of 0.20, 0.50, and 0.80 were interpreted as indicating small, medium, and large effects, respectively. The inclusion of effect size analysis provided a more comprehensive understanding of the impact of Quizizz-based gamification on students' vocabulary mastery.

RESULTS

This section presents the findings obtained from the vocabulary pre-test and post-test administered to the experimental and control groups. The analyses include descriptive statistics, hypothesis testing, and effect size calculations to address the research question concerning the effectiveness of Quizizz-based gamification in improving students' vocabulary mastery.

Descriptive Statistics of Vocabulary Achievement

Figure 1 presents the descriptive statistics of students' vocabulary scores in the experimental and control groups before and after the intervention.

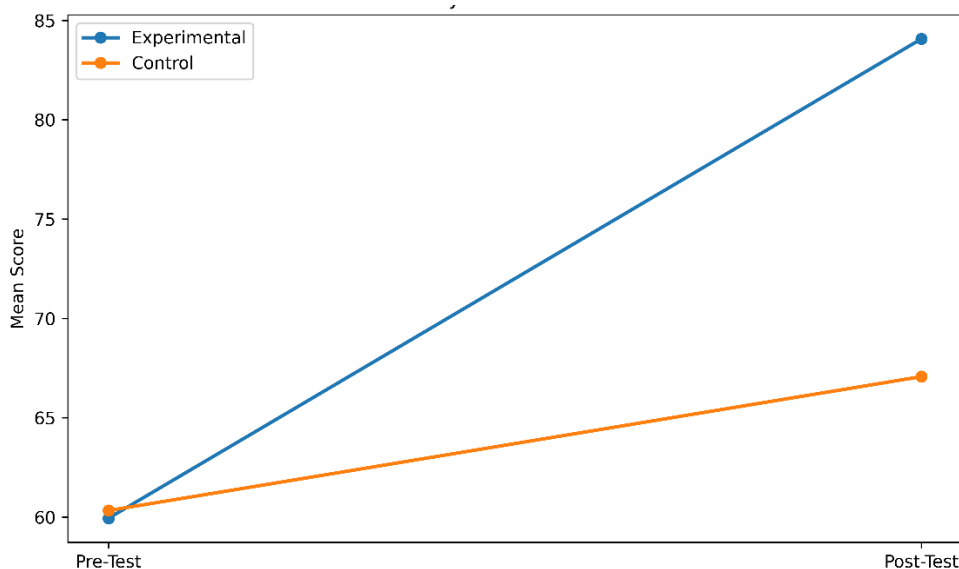


Figure 1. Vocabulary achievement growth

As can be seen from Figure 1, experimental and control groups succeeded in a recurrent way for vocabulary success from pre-test to post-test. It is clearly seen that there

are two distinct growth patterns that reveal an absolute phenomenon beneath the tangible surface of this intervention. The groups were very similar in terms of vocabulary mastery at the start of the study with both showing a mean score just above 59 points. The similarity implies that the groups were equivalent in comparison prior to the instructional treatments.

In this graph, the most defining aspect of the figure is that there was a sharp increase upwards in their experimental group. The mean score increased dramatically from 59.94 to 84.07, suggesting that a great deal of vocabulary knowledge was gained during the intervention period. Conversely, the control group showed only a modest increase of 60.33 to 67.07. Both groups showed improvement, but the slope of the experimental group is more steep by a large margin showing not only learning took place but also that Quizizz-based learning activities have larger growth.

The visual separation of those two lines expands at the post-test stage. This difference indicates that the intervention was associated with his widening of the achievement gap to the advantage of students in experimental group. It is also possible to see from the chart that progress in vocabulary did not only represent a small step forward but rather a medium milestone overall impact in learning outcomes. This pattern would be in line with the idea that gamified learning environments provide extra motivational and cognitive encouragement to promote vocabulary acquisition. Taken together, the visual representation in Figure 1 reinforces evidence of improved vocabulary gains from Quizizz compared to traditional approaches.

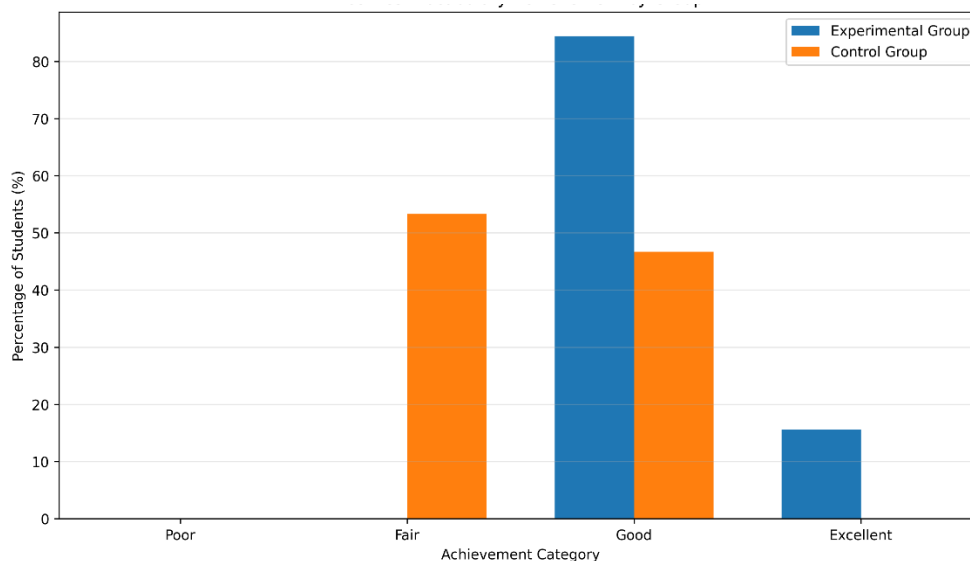


Figure 2. Post-test achievement classification by group

As shown in Figure 2, this was a large effect on vocabulary performance according to the group assignment. The experimental group performed exceptionally well, with 84.4% of students meeting the good category and 15.6% showing up under excellent category. Nothing was more fundamental than that no students were categorized as fair or poor achievers. For the control group, however, a less favorable result was found: 53.3% of

students were still in the fair range and only 46.7% achieved good status after training. None of the control group students managed to excel. These findings indicate that the learning assisted by Quizizz greatly improved students vocabulary mastery and achievements.

Paired-Samples t-Test Results

A paired-samples t-test was conducted to examine differences between the pre-test and post-test scores of students who received instruction through Quizizz.

Table 1. Paired sample t-test and effect size result

Variable	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Difference	t	p	Cohen's d
Vocabulary Achievement	60.33 (4.90)	84.07 (3.85)	23.67	-20.92	<.001	3.82

The paired-samples t-test results reporting the difference between students pre-test and post-test vocabulary achievement scores following instructional intervention can be seen in Table 1. The analysis revealed that after being treated, students had average increases of 23.67 points on their vocabulary performance. Statistical testing revealed that the difference between both measures was highly significant, $t(29) = -20.92, p < .001$, so this improvement is unlikely by chance. Moreover, the 95% confidence interval varied between -25.98 and -21.36 ; which reinforces the stability of the improvement exhibited by most participants. More importantly, the measured effect size was extraordinarily high ($d = 3.82$), which represented a real-world effect as an extremely substantial impact of the method on students' vocabulary mastery level. Cumulatively, these results show the instructional treatment was very effective in improving learners' vocabulary achievement and yielded practical educational effects above statistical significance.

The results of this study were obtained from the pre-test and post-test scores of the experimental and control classes. The experimental class was taught using Quizizz, while the control class was taught using conventional learning methods. The data were analyzed using descriptive statistics and paired sample t-test analysis.

DISCUSSION

This study was to investigate the effectiveness of Quizizz-based gamification towards vocabulary mastery among Indonesian junior high school EFL Learners. The results indicated that students who experienced Quizizz-mediated vocabulary learning outperformed students in the control condition on assessments of vocabulary knowledge. This, correspondingly led the alternative hypothesis to be accepted that Quizizz-based gamification model can be a possible effective way to use as an instructional format in vocabulary acquiring. Although previous studies have largely focused on learner motivation and perceptions toward gamified learning environments, the current results indicate that Quizizz positively enhances vocabulary gain. These findings indicate that gamification is more than just an interesting instructional strategy, but it may even become a pedagogically

effective means of promoting self-word learning in EFL classrooms (Waluyo & Tran, 2023; Z. Zhang & Crawford, 2024).

This is improvement, of course, but I think we should be careful about attributing the improvement solely to additional exposure to vocabulary tasks. Instead, results suggest that Quizizz may facilitate various cognitive and motivation processes related to successful vocabulary learning. Learners need to perceive, recall and respond to lexical items in meaningful contexts (piggy back no1). Quizizz also seems to enable them by turning vocabulary practice into an active and even more enjoyable link. As a result, students might be more motivated to engage in active learning tasks and work harder at learning target vocabulary. It is consistent with research on gamified learning environment that not only involve learner achievements but also generates higher learner engagement results (Zainuddin, 2024; R. Zhang et al., 2025).

The instant feedback feature of Quizizz could contribute towards its efficacy. Feedback makes it possible for language learners to notice errors, raise awareness about their progress and inform learning strategies. In contrast to traditional paper-based exercises, Quizizz provides immediate information about correct and incorrect answers so that when a student completes an exercise they can see their mistakes immediately, allowing them to identify misconceptions. Immediate corrective feedback in the form of forced response may enable greater number of processing and lessen the chances that a misunderstanding will persist. (Zainuddin, 2024) found that gamified formative assessment systems improve learning by assisting continual monitoring and self-regulated learning. The real-time feedback provided by Quizizz has been reported to provide motivation that encourages learners to stay engaged and participate in the learning process (Z. Zhang & Crawford, 2024). Thus, the increase in verbal output shown in this study may be due partly to feedback mechanisms found in the platform.

Another explanation has to do with retrieval practice. Over decades of research on vocabulary acquisition, it has been shown again and again that memory is strengthened through active retrieval and better retention over time. In contrast to reviewing lists of vocabulary, students in Quizizz had to retrieve meanings, provide correct answers, and repeatedly recall lexical information from memory. According to Ngoc & Phuong, 2022, Quizizz games are an effective tool for helping students remember their vocabulary words because they are interactive and fun, making the process of learning much more efficient. Additionally, Quizizz supports the development of ESL learning abilities, as found by Yunus et al., 2021. From this research, it can be inferred that Quizizz is more than just a formative assessment tool; it is also a platform where students can practice, self-assess, and reflect on their improvement, which in turn helps to improve their long-term retention of vocabulary. Learners tend to enjoy Quizizz, and it could become a valuable component of online ESL learning. Along the same lines, (Barclay & Schmitt, 2007) astutely remarked that vocabulary acquisition is reinforced by retrieval and active handling of target words. In fact, as all learned items are required to be recalled multiple times during quizzes, Quizizz was possibly a better way to encourage retention of vocabulary than the traditional quiz method, which more would likely clarify the significant difference in the achievement of vocabulary between experimental and control groups.

The findings may also be explained by the principle of repeated exposure. Vocabulary learning rarely occurs through a single encounter with a word; instead, learners typically require multiple exposures before lexical knowledge becomes stable. Quizizz allows teachers to recycle vocabulary items through successive quizzes and review activities, increasing the frequency with which learners encounter target words. Such repeated exposure creates additional opportunities for reinforcement and consolidation. Previous research has demonstrated that digital game-based vocabulary learning environments are particularly effective because they combine repetition, interaction, and meaningful engagement in a single instructional framework (R. Zhang et al., 2025). Consequently, the repeated encounters facilitated by Quizizz may have contributed significantly to the vocabulary gains identified in this study.

In addition to cognitive factors, motivational factors likely played an important role in influencing learning outcomes. One of the defining characteristics of Quizizz is its incorporation of game elements such as points, rankings, leaderboards, avatars, and timed challenges. These features transform routine vocabulary exercises into interactive learning experiences that encourage participation and persistence. According to (Hamari et al., 2014) gamification works by applying game-design elements to educational contexts in ways that increase motivation and encourage desired learning behaviors. Similarly, Seaborn & Fels, 2015 argued that gamification enhances engagement by creating opportunities for achievement, competition, and social recognition. Within the present study, students may have perceived vocabulary learning activities as enjoyable challenges rather than obligatory academic tasks, thereby increasing their willingness to participate actively and consistently.

The results of the present study are in line with the increasing literature you can find on gamified language learning. For instance, (Waluyo & Tran, 2023) found that gamified vocabulary activities played an important role in promoting vocabulary development, as well as sustained learner involvement. In the same vein (Z. Zhang & Crawford, 2024) reported that Quizizz-based formative assessment improved learners motivation and engagement with learning English. These current findings confirm and extend these conclusions by showing that Quizizz enhances vocabulary mastery among junior high school students in the Indonesian EFL context. These studies are consistent with each other to indicate that Quizizz educational benefits can generalize across different learning environments and learner populations.

The results are also consistent with the conclusions of R. Zhang et al., 2025, which emphasized the effectiveness of digital game-based learning for vocabulary development. The review highlighted that effective vocabulary learning environments allow repeated practice, meaningful interaction and active involvement of learners. All these features are obviously embedded in the design of Quizizz and can shed some light on why, as pointed out previously, students were shown to score higher when using it compared to their counterparts who received conventional instruction. Moreover, the results were consistent with the larger systematic review done by Zainuddin et al., 2020 and found that gamification has a positive effect on achievement, motivation, and learning engagement across educational contexts.

It is important to note that despite these similarities, the current study differs from many of the previous studies in at least three important ways. For instance, many studies of Quizizz have reported on students' perceptions, attitudes or motivation to work in gamified learning environments. Although these studies shed light on learner experiences, they do not show the actual learning outcome improvement. By contrast, the current study utilized a quasi-experimental design and measured quantifiable vocabulary success with pre-test and post-test measurements. Therefore, the current study adds more empirical evidence towards the effectiveness of Quizizz as a scaffolding tool that support actual vocabulary acquisition. Second, while most prior studies recruited college or adult learners, the current study involved junior high school students. The results contribute significant evidence for the relevance of Quizizz in secondary school contexts as younger learners may offer a more distinct response to gamification efforts.

The results have some theoretical implications as well. Theoretically, this study supports previous rationales derived from gamification theory (Hamari et al., 2014; Seaborn & Fels, 2015) that propose game elements may enhance learning as a result of their ability to engage and motivate learners. This lends further support to theories of vocabulary acquisition which identify retrieval practice, repeated exposure, and active processing as key mechanisms for promoting vocabulary development (Barclay & Schmitt, 2007). The study also contributes to the exploration of the existing implementation of these principles through Quizizz, aiming to understand the extent to which digital gamification tools can foster or facilitate language-centered learning processes.

The findings of the study will also have some practical implications but only in the context of English language education. For teachers, findings imply the potential utility of Quizizz as a beneficial supplemental resource supporting vocabulary instruction and formative assessment. It also provides them with opportunities for instant feedback, practice you can repeat many times without having taken fans and drives your students to the field while-less refined technology know-how. The results will provide schools and institutions a considerable impression of gamification possibilities in language education. With expansion of digital learning set to continue across systems, platforms like Quizizz may be a way to build environments that are more interactive and learner-centric. Additionally, policymakers with stakes in educational technology initiatives might view it as an avenue for supporting the adoption and use of gamified learning mechanisms in connection with other efforts to improve English language-learning outcomes.

However, several limitations should be recognized despite these contributions. There are also several limitations in this study. First, it was conducted at one junior high school and the sample size is relatively small which may restrict the extrapolation of results. Second, the intervention was conducted in a limited timeframe, making it challenging to ascertain if the improvements witnessed would persist over an extended timeframe. Third, the study was limited to examining (i) vocabulary achievement only and did not address other possibly critical learner variables (e.g., motivation, engagement, and self-efficacy) or vocabulary retention. Lastly, the study was centered on Quizizz only and did not compare quiz effectiveness with other gamified learning platforms like Kahoot, Quizlet or Word wall.

These limitations can be addressed in the future, with larger, more diverse groups of participants across a variety of educational situations. Further longitudinal study is needed to see if Quizizz breathes life into long-term retention of vocabulary mastery or are these gains limited to performance in immediate post-test? Even further, comparative studies analyzing how different gamified platforms work for positive language learning outcomes could lead to an even deeper understanding of which game elements contribute most to video game success. Also, the future studies could use the mixed-methods research design based on interviews, observations and learner reflections for an instrument which great understanding of how students undergo gamified vocabulary learning and what mechanisms that play a key role in achieving successful.

Thus, in conclusion, this current study gives empirical evidence that Quizizz-based gamification is effective as an alternative sophisticated pedagogical approach for vocabulary teaching practices in the Indonesian EFL classrooms. These results indicate that using Quizizz not only improves test performance, but also promotes vocabulary learning through broader cognitive and motivational processes. With combinations of immediate feedback, retrieval practice, known repetitions and gamification elements working together in unison, Quizizz not only encourages engagement but provides the perfect space for higher vocabulary development through active participation. Thus, the research adds to the current body of literature on gamified language learning and at the same time provides pedagogical insights for teachers looking for new strategies to teach vocabulary in today's EFL settings.

These research findings are also in line with Fan's study in his article *Review on the Application of Universal Design for Learning in Classroom Instruction*, which emphasizes that the application of UDL encourages student engagement by providing learning choices, flexibility in participation, and recognition of the diversity of ways students interact with learning materials (Fan, 2024). Fan highlights that student engagement will increase when teachers do not limit participation to verbal or written responses but also accommodate nonverbal forms of participation that suit the characteristics of the students. In the context of inclusive classrooms, this approach is particularly relevant because it allows all students to be meaningfully involved without the pressure to conform to a single standard of participation. Additionally, teachers' sensitivity to students' emotional and physical conditions plays an important role in maintaining student (Fithriani, 2026).

CONCLUSION

The purpose of this study was to examine whether gamification using Quizizz needed to improve vocabulary mastery among Indonesian junior high school EFL learners. It sought to identify in particular whether students using Quizizz would have better vocabulary outcomes than those receiving traditional vocabulary instruction.

The results revealed that gamification using Quizizz is beneficial in students' vocabulary acquisition. The first finding is students in the experimental group got better mastery in their vocabulary than those who join control-group. Secondly, favorable outcome supported the hypothesized statement that gamification can be successful in enhancing vocabulary learning implementations in EFL classrooms. The last finding of this meta-analysis demonstrated that game elements (e.g., instant feedback, points and ranking,

interactive challenges) were positively associated with active involvement in the vocabulary learning process. Fourth, these findings indicate the role that Quizizz plays in providing opportunities for repeated exposure and retrieval practice: two key processes involved in vocabulary acquisition. Lastly, the study validated that technology-enhanced vocabulary instruction can be more effective than traditional pedagogies to support students in achieving a better knowledge of vocabulary acquisition.

The present study adds empirical evidence ✓ for the expanding literature on gamification in language education, specifically in Indonesian junior high school EFL context. These findings provide a new perspective on how gamification can aid vocabulary acquisition alongside implications regarding the educational value of digital learning tools. At a practical level, standard English teachers are implored not just to hope that the students will like games but must instead include Quizizz and other similar gamified tools in their strategy for teaching vocabulary if they want and expect more memorable learning environments. When it comes to educational institutions and policymakers, supporting the implementation of gamified learning technologies can also be beneficial in efforts to further develop English language education more generally.

This study contributes to our understanding of and develops methods for digital monitoring, but the study is limited by sample, research setting, and intervention duration. Future research should involve larger, between-population samples, longitudinal designs to investigate the long-term retention of vocabulary knowledge and employ motivational and engagement-related variables as predictors of vocabulary learning success. Comparative studies which compare the different gamification platforms can also shed precise light on which mechanism really drives effective language learning.

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