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Digital gamification in EFL vocabulary learning: The effect of wordwall platform platform on students' vocabulary mastery

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ABSTRACT

This study investigates the effectiveness of the Wordwall platform as a digital learning tool in improving students' English vocabulary mastery and examines students' responses toward its implementation. The study was conducted in response to the need for more interactive and engaging instructional media in vocabulary learning. A quantitative approach employing a one-group pretest-posttest design was used. The participants were seventh-grade students, and the data were collected through vocabulary tests and a questionnaire. The pretest and posttest scores were analyzed using descriptive statistics and a paired-sample t-test, while students' responses were analyzed using percentages and mean scores. The results revealed a significant improvement in students' vocabulary mastery after the implementation of the Wordwall platform. In addition, the questionnaire findings indicated that students had positive perceptions of the Wordwall platform, viewing it as engaging, easy to use, and helpful for learning vocabulary. However, some challenges related to internet access were also identified. These findings suggest that the Wordwall platform can be an effective tool for enhancing vocabulary learning in EFL classrooms.

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INTRODUCTION

The rapid advancement of information technology has significantly transformed educational practices, particularly in English as a Foreign Language (EFL) classrooms, where digital tools are increasingly integrated to facilitate more interactive, engaging, and student-centered learning environments. Technology-enhanced language learning (TELL) has become a rapidly expanding field in English language education, reflecting the growing integration of digital tools in teaching and learning practices (Hasumi & Chiu, 2024). In this context, digital platforms have been widely recognized for their potential to support language acquisition by providing multimodal input, immediate feedback, and opportunities for active learner participation. As a result, the integration of digital instructional media has become an essential component of modern language teaching, especially in developing students' vocabulary knowledge, which serves as a foundation for overall language proficiency.

Vocabulary plays a crucial role in language learning, as it underpins learners' ability to comprehend and produce language across the four primary skills: listening, speaking, reading, and writing. Without adequate vocabulary, learners often struggle to understand texts and express their ideas effectively. As argued by (Adolphs & Schmitt, 2003), vocabulary acquisition is a central component of language competence and requires systematic exposure, meaningful practice, and repeated engagement. Nation (2022) adds that vocabulary knowledge is essential for learners to comprehend and produce language effectively across different communicative contexts. Therefore, effective vocabulary instruction should not only focus on memorization but also incorporate strategies that promote active use and retention of lexical items, particularly in EFL contexts where exposure to the target language is limited.

Despite its importance, vocabulary learning in many EFL classrooms remains a significant challenge. Preliminary observations in a seventh-grade classroom revealed that students demonstrated low vocabulary mastery, as reflected in their assessment results. The teaching process was largely teacher-centered, limiting opportunities for student interaction and resulting in passive learning, low motivation, and minimal engagement. The reliance on teacher-centered instruction limits students' opportunities to actively use vocabulary, which may hinder retention and long-term vocabulary acquisition. Such conditions undermine the effectiveness of vocabulary instruction and underscore the need for more innovative, interactive teaching approaches that actively engage learners in the learning process. Therefore, integrating technology into vocabulary mastery is necessary. It is due to the technology-enhanced learning environments that facilitate language acquisition by providing multimodal

input, interactive activities, and immediate feedback, which are essential for effective learning processes (Hasumi & Chiu, 2024).

Effective vocabulary learning requires repeated exposure and active engagement, which can be supported by digital tools that offer varied and interactive learning activities (Shadieff & Yang, 2020; Duong et al., 2021; Zhou et al., 2024). One promising approach to addressing these challenges is the integration of digital learning media that incorporate elements of interactivity and gamification. Gamified learning environments have been shown to increase students' motivation, engagement, and participation by creating a more enjoyable and competitive learning atmosphere. Wordwall platform, an online learning platform, enables teachers to design interactive vocabulary activities, such as quizzes, matching exercises, and game-based tasks, that support repeated exposure and meaningful practice. This interactive, web-based platform allows teachers to create customizable, game-based learning activities for classroom use. Through its interactive features and immediate feedback, the Wordwall platform has the potential to facilitate deeper vocabulary processing and improve students' learning outcomes.

Previous studies have shown that gamified digital tools can enhance students' motivation and vocabulary retention; however, findings remain limited and context-dependent. For instance, Truong and Dinh (2024) found that the use of Kahoot! creates a more interactive and enjoyable learning environment, encouraging active participation and repeated exposure to vocabulary items. In addition, such platforms provide immediate feedback, allowing students to identify and correct their mistakes during the learning process. As a result, vocabulary learning becomes less monotonous and more engaging compared to traditional teaching methods. However, some challenges have also been identified, including dependence on internet access and potential distractions during classroom activities. Similarly, platforms such as Quizizz have been found to improve vocabulary acquisition and increase student participation, even in contexts with limited educational resources (Liu et al., 2025). These findings suggest that game-based digital environments not only support cognitive learning outcomes but also foster positive learning attitudes. In addition, a quasi-experimental study by Darmawati and Nayla (2025) demonstrated that students who learned through the Wordwall platform showed significantly greater improvement in vocabulary mastery compared to those who received conventional instruction.

Although previous studies have explored digital tools in language learning, research on the effectiveness of Wordwall platform in improving vocabulary mastery among junior high school EFL learners, particularly in the Indonesian context, remains

limited. Furthermore, empirical evidence from Indonesian classrooms remains scarce, particularly regarding students' learning outcomes and perceptions. Therefore, further investigation is needed to determine the effectiveness of Wordwall platform in supporting vocabulary learning.

Based on these considerations, this study aims to examine the effectiveness of Wordwall platform as a digital learning tool in improving seventh-grade students' English vocabulary mastery. Furthermore, this study seeks to explore students' responses to the implementation of Wordwall platform for vocabulary learning, particularly regarding engagement, motivation, and perceived usefulness. This study is grounded in the principles of gamified learning and technology-enhanced language learning, which emphasize active engagement and interactive learning environments. This study is expected to contribute to the development of technology-integrated vocabulary instruction and provide practical insights for English teachers in EFL contexts.

METHOD

This study employed a pre-experimental one-group pretest–posttest design to examine the effectiveness of the Wordwall platform in improving students' vocabulary mastery. The research design involved administering a pre-test to measure students' initial vocabulary knowledge, followed by a treatment using Wordwall platform-based instruction, and a post-test to assess students' improvement after the intervention.

The study was conducted at Yunadilil Iman Junior High School, Lempuing Tugu Jaya, Ogan Komering Ilir Regency, which was selected based on its accessibility and the identification of learning problems observed during preliminary classroom observations. The observations revealed that students demonstrated limited vocabulary mastery and low engagement in English language learning, making the site an ideal setting for investigating the use of interactive digital media in vocabulary instruction.

The population of this study consisted of 30 seventh-grade students. From this population, 15 students were selected as the sample using purposive sampling. The selection was based on the teacher's recommendation and students' varying vocabulary levels to represent both higher- and lower-achieving learners. The sample size was determined based on practical considerations, including time constraints and the feasibility of implementing the treatment effectively in the classroom setting.

This study employed two main instruments: a vocabulary test and a

questionnaire. The vocabulary test was administered as both a pre-test and a post-test to measure students' vocabulary mastery before and after the implementation of Wordwall-based instruction. The test was designed to assess students' understanding of English vocabulary related to the learning materials taught during the treatment sessions. In addition, a questionnaire was distributed after the treatment to examine students' responses toward the use of Wordwall in vocabulary learning, particularly in terms of engagement, participation, and learning experience.

The treatment was conducted over several instructional meetings between the pre-test and post-test sessions. During the treatment, students participated in vocabulary learning activities using the Wordwall platform through interactive and game-based exercises. The collected data from the tests and questionnaire were then analyzed to determine the effectiveness of Wordwall in improving students' vocabulary mastery and to identify students' perceptions of its implementation in the classroom.

The independent variable (X) in this study was Wordwall platform-based vocabulary instruction, which served as the treatment implemented during the learning process. The dependent variable (Y) was students' vocabulary mastery, operationally defined as their scores on the vocabulary pre-test and post-test. This study examined whether implementing the Wordwall platform (X) led to a statistically significant improvement in students' vocabulary performance (Y).

To ensure instrument quality, validity, and reliability were established prior to data collection. Content validity was assessed through expert judgment to ensure that the test items were aligned with the learning objectives. Reliability was measured to assess the instrument's consistency in producing stable results. To address the first research question on the effectiveness of the Wordwall platform in improving students' vocabulary mastery, the pre-test and post-test scores were analyzed in SPSS. A paired-sample t-test was conducted to determine whether there was a statistically significant difference between students' scores before and after the implementation of the Wordwall platform, with the level of significance set at $\alpha = 0.05$. Before conducting the t-test, a Shapiro–Wilk normality test was performed to ensure that the data were normally distributed. To answer the second research question concerning students' responses to the use of the Wordwall platform, questionnaire data were analyzed using descriptive statistics, including frequency and percentage.

RESULTS

This section presents the study's findings on the effectiveness of the Wordwall platform in improving students' vocabulary mastery and their responses to its

implementation. The quantitative data were obtained from the pre-test and post-test scores, which were analyzed using descriptive statistics and a paired-sample t-test. Additionally, questionnaire data were analyzed to examine students' perceptions of using the Wordwall platform in vocabulary learning.

Before conducting the paired-sample t-test, a normality test was performed to ensure that the data met the assumption of normal distribution. The results of the normality test are presented in Table 1 below.

Table 1 : Result of Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Pretest	.258	15	.008	.882	15	.050
Posttest	.185	15	.180	.901	15	.097
A. Lilliefors Significance Correction						

Based on Table 1, the Shapiro–Wilk test indicates a significance value of 0.050 for the pre-test and 0.097 for the post-test. Since both significance values are at or above the significance level ($\alpha = 0.05$), the data can be considered normally distributed. Therefore, the assumption of normality was met, and the paired-sample t-test could be conducted to examine the difference between the pre-test and post-test scores. The improvement in students' vocabulary mastery is further reflected in the comparison of the mean scores between the pre-test and post-test.

The paired-sample t-test was conducted to examine whether there was a significant difference between students' vocabulary scores before and after the implementation of the Wordwall platform. The analysis showed that the mean gain score (Md) was 13.3, indicating a substantial improvement in students' vocabulary performance after the treatment. The calculated t-value was $t = 35.9$, with a degree of freedom (df) of 14. At the significance level of $\alpha = 0.05$, the critical value from the t-table is 1.761. Since the calculated t-value (35.9) is significantly higher than the critical t-value (1.761), the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted. This result indicates a statistically significant difference between the pre-test and post-test scores. In other words, the use of the Wordwall platform has a significant positive effect on improving students' vocabulary mastery.

Since the assumption of normality was met, a paired-sample t-test was conducted to examine the difference between pre-test and post-test scores. As shown in Table 2, the mean score increased from 12.46 in the pre-test to 25.80 in the post-test. The minimum and maximum scores also improved, indicating overall progress in students' vocabulary mastery following the implementation of the Wordwall platform.

The pre-test results indicate the initial level of students' vocabulary mastery before the implementation of the Wordwall platform. As shown in the table, the total score of all students was 187, with a mean score of 12.46 (≈ 12.5). This suggests that students' vocabulary knowledge at the beginning of the study was relatively low.

In terms of score distribution, the highest pre-test score was 15, achieved by three students (AK, AN, and PA), while the lowest was 11, achieved by two students (HJ and SA). The majority of students scored between 11 and 12, indicating that most learners had limited vocabulary mastery and performed at a similar level. Furthermore, the average score per indicator was approximately 1.6, indicating that students were able to answer only a limited number of vocabulary items correctly across the assessed components. This finding suggests that students had not yet developed sufficient vocabulary knowledge prior to the treatment. Overall, the pre-test results demonstrate that students' initial vocabulary mastery was relatively low and homogeneous, which provides a clear baseline for measuring improvement after the implementation of the Wordwall platform.

Furthermore, the mastery of students' vocabulary using the Wordwall platform in seventh-grade students of Yunadilil Iman can be obtained by analyzing the initial test (pre-test) and final test (post-test). The result of improving. Students' vocabulary mastery is evident in the table below.

Table 2 : Descriptive statistics of students' vocabulary scores (N=15)

Test	N	Mean	SD	Minimum	Maximum
Pre-test	15	12.46	1.25	11	15
Post-test	15	25.80	2.17	23	29

As shown in Table 2, the mean score increased from 12.46 in the pre-test to 25.80 in the post-test. The improvement in both minimum and maximum scores indicates overall progress in students' vocabulary mastery after the implementation of the Wordwall platform. Based on the pre-test results, 12 students were categorized as BB (Not Developed), and 3 students were categorized as MB (Starting to Develop). In contrast, the post-test results showed that 8 students reached the BSH (Developing as Expected) category, while 7 students achieved the BSB (Very Well Developed) category. These findings suggest that students demonstrated substantial improvement in vocabulary mastery following the treatment.

To determine whether the improvement in students' scores was statistically significant, a paired-sample t-test was conducted. The result of the t-test analysis is presented in Table 3.

Table 3 : Paired-Sample t-Test Result

Variable	Mean Difference	t	df	p
Pre-test – Post-test	13.34	35.90	14	< .001

The paired-sample t-test analysis showed that the mean difference between the pre-test and post-test scores was 13.34. The calculated t-value was 35.90 with a degree of freedom (df) of 14. At the significance level of $\alpha = 0.05$, the critical value of the t-table was 1.761. Since the calculated t-value (35.90) was higher than the critical t-value (1.761), the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_a) was accepted. This result indicates that there was a statistically significant difference between students' pre-test and post-test scores. Therefore, the implementation of the Wordwall platform had a significant positive effect on improving the vocabulary mastery of seventh-grade students of Yunadilil Iman.

In addition to the vocabulary test results, questionnaire data were collected to examine students' responses toward the use of the Wordwall platform in vocabulary learning. The questionnaire findings indicated that most students perceived the Wordwall platform as an engaging and enjoyable learning medium. Students reported that the platform helped them participate more actively during vocabulary learning activities and made the learning process less monotonous. However, several students also reported difficulties related to internet access and technical limitations during the implementation of the activities.

DISCUSSION

The findings of this study indicate that the implementation of the Wordwall platform significantly improved students' vocabulary mastery among seventh-grade students at Yunadilil Iman. The improvement in students' post-test performance suggests that the use of interactive digital media can positively support vocabulary learning in EFL classrooms. This finding confirms that technology-enhanced learning environments can facilitate language acquisition by creating more engaging, interactive, and student-centered learning experiences.

The effectiveness of the Wordwall platform in this study may be explained by its gamified and interactive features, which encouraged students to participate actively during the learning process. Wordwall platform provides various activity formats, such as matching exercises, quizzes, and game-based tasks, allowing students to repeatedly engage with vocabulary items in enjoyable ways. The visual and interactive elements embedded in Wordwall platform activities may help learners maintain attention and facilitate vocabulary retention through repeated exposure and meaningful interaction with lexical items. Similar findings were highlighted in [Maulya \(2025\)](#), which found that the Wordwall platform increased learner engagement and supported vocabulary retention through visually engaging activities. Repeated exposure and active engagement are important aspects of vocabulary acquisition, as vocabulary learning requires continuous practice and meaningful interaction with lexical items. This finding is consistent with the principles of technology-enhanced vocabulary learning, which emphasize that digital learning environments support vocabulary acquisition through multimodal input, repetition, and interactive activities ([Zhou et al., 2024](#)).

Furthermore, the improvement in students' vocabulary mastery aligns with previous studies on gamified learning platforms in EFL contexts. Research on Kahoot! has demonstrated that game-based digital tools can significantly improve students' vocabulary retention, motivation, and classroom participation ([Farhane, 2025](#)). Similarly, previous research by [Truong and Dinh \(2024\)](#) found that students perceived Kahoot! as an engaging and enjoyable learning medium that reduced boredom and increased classroom participation during vocabulary learning activities. Likewise, studies on Quizizz have demonstrated its effectiveness in improving vocabulary acquisition and student engagement through interactive and competitive learning experiences ([Liu et al., 2025](#)). The findings of this study are also consistent with the study conducted by [Pradini and Adnyayanti \(2022\)](#), which found that the implementation of the Wordwall platform significantly improved students' English vocabulary learning outcomes. Similar findings were reported by *Game-Based Learning Using Wordwall platform to Improve Students' Vocabulary in the EFL Classroom*, which found that Wordwall platform-based game activities improved students' vocabulary mastery, classroom motivation, and participation in EFL learning environments ([Pelangi et al., 2025](#)).

The significant improvement observed in this study may also be related to the transition characteristics of seventh-grade learners. At this stage, students are still adapting to the learning environment of junior high school and often require more engaging instructional approaches to maintain their attention and motivation. Traditional teacher-centered instruction may limit students' opportunities for active

participation, whereas interactive platforms such as the Wordwall platform encourage learners to become more involved in the learning process. [Pradini and Adnyayanti \(2022\)](#) further reported that the interactive features of the Wordwall platform increased students' motivation and participation during vocabulary learning activities, making the learning process more enjoyable and student-centered. The immediate feedback provided by the Wordwall platform also allowed students to recognize and correct their mistakes directly, which may have contributed to better vocabulary retention and understanding.

In addition to improving vocabulary mastery, the findings from the questionnaire indicated that students generally responded positively to the use of the Wordwall platform. This finding is also supported by Students' perceptions of vocabulary recall and engagement in Wordwall platform-based gamified learning, which reported that students perceived Wordwall platform as enjoyable, motivating, and helpful for vocabulary recall due to its interactive game features and immediate feedback ([Pelangi et al., 2025](#); [Ulya et al., 2025](#)). Most students considered the learning activities more enjoyable, interactive, and less monotonous compared to conventional classroom instruction. These findings are consistent with studies in technology-enhanced language learning, which highlight that learner engagement and motivation are important factors influencing vocabulary acquisition ([Hasumi & Chiu, 2024](#)). Increased engagement may encourage students to participate more actively and develop more positive attitudes toward English learning.

However, several challenges were also identified during the implementation of the Wordwall platform. Some students experienced difficulties related to internet access and technical limitations, which occasionally affected the smoothness of classroom activities. Similar technical challenges, including limited internet connectivity and device accessibility, were also reported in previous studies on Wordwall platform implementation in EFL classrooms. ([Maulya, 2025](#)). Despite these limitations, the overall findings suggest that the benefits of the Wordwall platform outweigh the challenges encountered during its implementation.

In summary, the findings of this study suggest that the Wordwall platform can serve as an effective digital learning medium for improving students' vocabulary mastery in EFL classrooms. By integrating interactive and gamified activities into vocabulary instruction, the Wordwall platform not only supports cognitive learning outcomes but also enhances students' motivation and engagement during the learning process. Gamified learning environments are considered effective because they increase learners' intrinsic motivation, autonomy, and engagement through game mechanics such as points, competition, and immediate feedback ([Fikri, 2024](#)).

CONCLUSION

This study aimed to examine the effectiveness of the Wordwall platform in improving seventh-grade students' vocabulary mastery and to identify students' responses toward its implementation in English learning. Based on the findings of the study, it can be concluded that the implementation of the Wordwall platform had a significant positive effect on students' vocabulary mastery at SMP Yunadilil Iman, Lempuing Tugu Jaya.

The findings of this study indicate that the implementation of the Wordwall platform contributed positively to students' vocabulary learning. The improvement in students' post-test performance suggests that interactive and gamified learning activities helped students understand and retain vocabulary more effectively than conventional classroom instruction. The statistical analysis further confirmed that the difference between students' vocabulary achievement before and after the treatment was significant, indicating that the use of the Wordwall platform had a meaningful effect on students' vocabulary mastery. These results imply that the Wordwall platform can serve as an effective digital learning medium to support vocabulary instruction in EFL classrooms by promoting active participation, engagement, and repeated exposure to vocabulary items.

The questionnaire results further demonstrated that students generally responded positively toward the use of the Wordwall platform in vocabulary learning. Most students perceived the learning activities as more engaging, interactive, and enjoyable compared to conventional classroom instruction. The interactive and gamified features of the Wordwall platform encouraged students to participate more actively during the learning process and helped reduce boredom in vocabulary learning activities. However, several challenges related to internet access and technical limitations were also identified during the implementation process.

Overall, this study suggests that the Wordwall platform can serve as an effective digital learning medium for vocabulary instruction in EFL classrooms. The findings of this study are expected to provide practical contributions for English teachers in integrating interactive digital platforms into classroom instruction to enhance students' vocabulary learning and engagement.

This study was limited to a small sample size and employed a pre-experimental design without a control group. Therefore, future studies are recommended to involve larger samples, apply more rigorous experimental designs, and investigate the long-term effects of the Wordwall platform on students' vocabulary retention and other language skills.

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