

The Effect of Wordwall Game-Based Learning on Eighth-Grade Students' Vocabulary Achievement in Descriptive Texts

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ABSTRACT

Although previous studies have examined Wordwall in vocabulary learning, limited classroom-based evidence is available regarding its use for teaching adjective vocabulary in descriptive text among grade VIII.B EFL students. To address this gap, this study investigated adjective vocabulary achievement in descriptive text improved after the implementation of Wordwall game-based learning. The study involved 23 students of class VIII.B at MTs Mannilingi Bulu-Bulu and used a quantitative pre-experimental one-group pre-test and post-test design. The instrument was a 25-item multiple-choice vocabulary test focusing on adjectives used in descriptive texts. The test items were aligned with the learning indicators and classroom vocabulary focus; however, formal item validity, item difficulty, and reliability coefficients were not available and are acknowledged as methodological limitations. The treatment was implemented in four teaching sessions through Wordwall-based quizzes, matching tasks, adjective identification, categorization activities, and feedback discussion. Data were analyzed using descriptive statistics, the Shapiro–Wilk normality test, and a paired-samples t-test with IBM SPSS Statistics 24. The mean score increased from 50.0870 in the pre-test to 71.1304 in the post-test. The paired-samples t-test indicated a statistically significant difference between pre-test and post-test scores, $t(22) = -3.891$, $p = .001$. These findings suggest that students' adjective vocabulary achievement improved after the Wordwall-based treatment. Because the study used one class without a control group, the results should be interpreted cautiously and should not be treated as conclusive evidence that Wordwall alone caused the improvement.

Keywords: Wordwall, game-based learning, EFL vocabulary, adjective vocabulary, quantitative pre-experimental.

INTRODUCTION

Game-based learning has attracted increasing attention in educational contexts because it can encourage student focus, participation, and active involvement in

classroom activities. Rather than positioning students only as passive recipients of teacher explanation, game-based learning creates opportunities for learners to participate through challenges, feedback, repetition, and interaction. Dahalan et al. (2024) explain that gamification and game-based learning can make learning experiences more participatory and meaningful, while Bashir and Bramastia (2023) emphasize that digital game-based learning is relevant to current educational development because technology increasingly shapes teaching and learning practices. In addition, Vnucko and Klimova (2023) highlight that digital game-based vocabulary learning has potential to support vocabulary development because it allows students to experience vocabulary practice in a more engaging and motivating environment.

In Indonesian junior high schools, game-based learning may help reduce passive learning and create a more engaging classroom environment. Subroto et al. (2024) argue that game-based learning has potential for improving classroom interaction because it encourages students to learn through activities and challenges. Similarly, Waluyo and Tran (2023) show that gamified vocabulary learning can support students' learning outcomes when vocabulary practice is organized through digital and interactive activities. This is particularly relevant in English learning, where students often need repeated practice and meaningful exposure to vocabulary items. Preliminary classroom observation at Mts Mannilingi Bulu-Bulu revealed several problems in English vocabulary learning. Only a few students participated actively in the classroom, and these students generally had relatively better English language skills. In contrast, many other students remained passive because they had difficulty understanding English lessons. The students also demonstrated limited ability to retain and recall English vocabulary, and many of them had difficulty identifying adjectives. In fact, some students were unable to distinguish among nouns, verbs, and adjectives. Their vocabulary achievement was generally low, while interactive learning media had not yet been integrated into classroom instruction. These conditions indicated the need for a more engaging and interactive learning medium to encourage students' participation and support their vocabulary development.

Vocabulary mastery is a fundamental component of English learning because students need vocabulary to understand texts, express ideas, and participate in communication. Septiana and Hanafi (2022) emphasize that vocabulary plays an important role in reading comprehension. In descriptive texts, adjective vocabulary is particularly important because students need adjectives to describe people, places, animals, and objects clearly. Students with limited adjective vocabulary may have difficulty understanding descriptive passages and producing accurate descriptions in English. In relation to vocabulary learning, Panmei and Waluyo (2023) also indicate that gamification can support English vocabulary training because it provides students with structured, repeated, and engaging learning experiences.

Wordwall is a digital platform that can support interactive vocabulary learning. Fitria (2023) describes Wordwall as an online educational game platform that

allows teachers to create interactive quizzes and learning activities. Through Wordwall, teachers can design matching exercises, quizzes, word games, and other vocabulary tasks that encourage students to interact directly with learning materials. Previous studies have reported that Wordwall can support students' vocabulary learning and classroom engagement (Mazelin et al., 2022; Nurammida et al., 2024; Rofi et al., 2024). This is also supported by Paksi et al. (2023), who found that Wordwall.net can be perceived as a useful English vocabulary learning medium, and by Pradini and Adnyayanti (2022), who showed that Wordwall application could support English vocabulary learning for young learners in different educational contexts.

More recent studies also strengthen the relevance of Wordwall in vocabulary instruction. Widyaningsih et al. (2023) found that Wordwall could function as interactive learning media for mastering English vocabulary at the elementary level, while Rattri and Rachman (2024) reported that digital Wordwall games supported students' English vocabulary mastery. In a similar direction, Safitri et al. (2024) found that Wordwall.net had an effect on students' vocabulary mastery in reading narrative texts. Al Firdaus and Rahmawati (2024) also reported that Wordwall online games improved English vocabulary mastery in reading among junior high school students. Moreover, Aisiyah et al. (2024) found that the Wordwall game enhanced students' vocabulary mastery and motivation in narrative text learning. Rubykania et al. (2025) also reported that Wordwall games improved students' vocabulary acquisition, vocabulary retention, and classroom participation.

Although previous studies have examined Wordwall in relation to vocabulary learning, student engagement, and game-based activities, more classroom-based evidence is still needed regarding its use for specific vocabulary targets in specific text types. This study focuses on adjective vocabulary in descriptive texts among eighth-grade students at MTs Mannilingi Bulo-Bulo. The study does not claim to provide broad causal evidence because it uses a one-group pre-test and post-test design. Instead, it examines whether students' vocabulary scores improved after four sessions of Wordwall Game-Based Learning. Based on this focus, the research question was: Did eighth-grade students' vocabulary achievement in descriptive texts improve after the implementation of Wordwall Game-Based Learning?

LITERATURE REVIEW

Game-based learning refers to the integration of game elements, rules, challenges, feedback, and interaction into the teaching and learning process. In language learning, this approach can help students engage with vocabulary and language forms through repeated practice in a more enjoyable learning environment. Sakkir et al. (2023) found that using digital game-based Wordwall media could enhance EFL students' vocabulary mastery. In line with this, Arif (2025) explains that gamification in online vocabulary learning can support vocabulary retention, learner engagement, and motivation. Tuanany et al. (2025) also found that gamification-based media could improve students' English vocabulary

achievement. Similarly, Nurmansyah et al. (2024) found that Wordle as a gamified digital learning medium supported students' vocabulary acquisition, indicating that game-based vocabulary practice can help students learn words in a more engaging and interactive way. These findings indicate that game-based and gamified learning activities can support students' vocabulary development when they are designed as interactive and meaningful learning experiences.

Wordwall is a web-based educational platform that enables teachers to create interactive learning activities. In English learning, Wordwall can be used for vocabulary quizzes, matching activities, word recognition tasks, and other game-like exercises. Nur et al. (2022) reported that Wordwall media could enrich students' vocabulary size in EFL classes and make vocabulary learning more interesting. Similarly, Syamsidar et al. (2023) found that Wordwall was effective in supporting vocabulary mastery in English learning. Shabrina and Taufiq (2023) also showed that Wordwall.net could improve junior high school students' English vocabulary. In addition, Wandari et al. (2024) found that Wordwall.net as an ICT-based learning medium improved students' vocabulary mastery. In relation to media-based vocabulary learning, Umar et al. (2023) reported that the use of the "UP" movie improved students' vocabulary mastery in noun, adjective, and verb categories. Although the medium was different from Wordwall, the study supports the idea that engaging instructional media can help students develop vocabulary knowledge.

Several previous studies have shown positive findings regarding Wordwall use in English learning. Ilahiyati et al. (2023) showed that Wordwall games could support vocabulary learning through activities such as matching, word construction, and other game-based tasks. Hayati et al. (2025) found that Wordwall.net increased students' vocabulary mastery and showed improvement in adjective-related vocabulary. Atikah et al. (2025) also reported that Wordwall was effective in improving students' vocabulary, especially adjective vocabulary, through a one-group pre-test and post-test design. In another study, Darmawati and Nayla (2025) found that the Wordwall website significantly improved students' vocabulary mastery compared to conventional instruction. Arsyad (2024) further indicated that Wordwall could enhance vocabulary acquisition and student engagement through interactive digital features. These findings suggest that Wordwall can support vocabulary learning when activities are aligned with learning objectives.

Vocabulary learning requires more than memorizing isolated words. Rashid et al. (2022) emphasize that vocabulary is important in English teaching and learning because it supports students' ability to understand and use language meaningfully. Nation (2022) also emphasizes that knowing a word includes understanding its form, meaning, and use. In descriptive texts, adjective vocabulary is essential because adjectives are used to describe characteristics and qualities. Therefore, students need opportunities to recognize, recall, and apply adjectives in meaningful contexts. Sadeghi et al. (2022) found that gamified instruction could positively influence students' motivation in vocabulary learning, while Gortaire Díaz et al.

(2022) showed that gamification could increase students' motivation, participation, and engagement in vocabulary learning.

In this study, Wordwall Game-Based Learning was used to support students' practice of adjective vocabulary in descriptive texts. The platform was expected to provide repeated exposure, interactive practice, and immediate feedback. The feedback loop provided by Wordwall may support vocabulary retention because students receive immediate information about whether their responses are correct. This allows them to recognize errors, review target words, and repeatedly retrieve the same vocabulary, which may strengthen the connection between adjective forms and their meanings. However, because the study did not include a comparison group, the theoretical expectation should be interpreted together with the limitations of the research design.

METHOD

Design and Samples

This study employed a quantitative pre-experimental design using a one-group pre-test and post-test model. This design was selected because the study aimed to examine students' vocabulary achievement before and after the implementation of Wordwall Game-Based Learning in one available class. The design is appropriate for a small-scale classroom study, but it is weaker than a quasi-experimental design because it does not include a control group. Therefore, the results are interpreted as improvement after treatment rather than as definitive causal evidence that Wordwall alone caused the improvement.

To minimize maturation threats, the study was conducted within a relatively short period consisting of four Wordwall treatment sessions. To reduce possible testing effects, the correct answers to the pre-test were neither disclosed nor discussed with the students. In addition, the pre-test and post-test used different but comparable sets of 25 multiple-choice items. Both tests measured the same adjective-vocabulary indicators, used four answer options for each item, followed the same scoring procedure, and were designed based on similar learning objectives and levels of difficulty. Nevertheless, because the study did not include a control group, the possible effects of maturation, repeated testing, and regular classroom learning could not be completely eliminated. Therefore, the results were interpreted as improvement following the Wordwall-based treatment rather than definitive evidence that Wordwall alone caused the improvement. The participants were 23 students of class VIII.B at MTs Mannilingi Bulu-Bulu, Arungkeke District, Jeneponto Regency. The class was selected because it was available for the implementation of the treatment and because students were learning descriptive texts in the English subject. The study focused on eighth-grade students' adjective vocabulary achievement in descriptive texts. Because the study involved only one class from one school, the findings should not be generalized to all junior high school students.

Instrument and Procedure

The instrument was a vocabulary achievement test consisting of 25 multiple-choice items. Each item had four answer options. The test focused on adjective vocabulary used in descriptive texts, including adjectives for describing people, animals, objects, and places. Each correct answer was scored 4 points, so the maximum score was 100. The same test format was used in the pre-test and post-test to measure students' vocabulary achievement before and after treatment.

Table 1. Post-Test Item Specification for Adjective Vocabulary in Descriptive Texts

No.	Learning indicator	Content focus	Item numbers	Number of items
1	Identifying appropriate adjectives based on clearly stated characteristics	Identification of adjective vocabulary describing pets	1-5	5
2	Selecting adjectives that describe physical characteristics	Physical description of pets	6-10	5
3	Identifying adjectives that describe physical characteristics	Personality and behavioral characteristics of pets	11-15	5
4	Selecting vocabulary describing activities, habits, and sensory characteristics	Activities, habits, and qualities of pets	16-20	5
5	Applying the appropriate order of adjectives in noun phrases	Adjective order: opinion, size, color, and noun	21-25	5
Total			1-25	25

The test items were prepared based on the learning indicators for descriptive texts and the target focus on adjective vocabulary. The item content was aligned with classroom learning objectives, the descriptive-text topic, and the vocabulary focus taught during the treatment. This alignment provided basic content relevance for the classroom study. However, the manuscript does not report formal expert validation, pilot testing, item difficulty analysis, discrimination index, or reliability coefficient. This is the main methodological limitation of the instrument. Future studies should report expert review, item analysis, and reliability evidence before using the test for stronger inferential claims.

The treatment was implemented in four teaching sessions using Wordwall Game-Based Learning. The activities were designed to introduce, practice, review, and reinforce adjective vocabulary in descriptive texts. The treatment was implemented

in four instructional sessions using Wordwall Game-Based Learning, with each session lasting 80 minutes (2×40 -minute lesson periods), resulting in a total treatment duration of 320 minutes. Each session consisted of approximately 10 minutes of initial activities, 60 minutes of core Wordwall-based learning activities, and 10 minutes of closing activities. The general treatment procedure is summarized in Table 2.

Table 2. The general treatment procedure is summarized

Session	Learning focus	Wordwall activity	Learning purpose
1	Introduction to descriptive texts and adjective vocabulary	Wordwall quiz on basic adjectives	To activate prior knowledge and introduce target adjectives
2	Adjectives for describing people and animals	Matching activity and vocabulary recognition task	To help students connect adjectives with meanings and examples
3	Adjectives for describing places and objects	Quiz and categorization task	To strengthen recognition and contextual use of adjectives
4	Review of adjective vocabulary in descriptive texts	Mixed vocabulary challenge and feedback discussion	To reinforce vocabulary retention and prepare students for the post-test

During the treatment, the researcher introduced the target vocabulary, guided students in using Wordwall activities, provided feedback after each activity, and encouraged students to participate actively. The Wordwall tasks were used as vocabulary learning practice rather than entertainment only. After the four sessions, the post-test was administered to measure students' vocabulary achievement after the treatment.

Data Analysis

Data were collected through a pre-test and a post-test. The pre-test was administered before the Wordwall treatment to identify students' initial adjective vocabulary achievement. The post-test was administered after the treatment using the same scoring procedure. The data were analyzed using IBM SPSS Statistics 24. Descriptive statistics were used to calculate the mean and standard deviation. The Shapiro–Wilk test was used to examine normality because the sample size was below 50 students. After the data met the normality assumption, a paired-samples

t-test was used to examine whether the difference between pre-test and post-test scores was statistically significant. The significance level was set at .05. SPSS output showing .000 was reported as $p = .001$.

RESULT AND DISCUSSION

This section presents the results of the pre-test and post-test after the implementation of Wordwall Game-Based Learning in learning adjective vocabulary in descriptive texts. The data were obtained from 23 eighth-grade students at MTs Mannilingi Bulu-Bulu.

Table 3. Descriptive Statistics of Students' Pre-test and Post-test Scores

Test	Mean	N	Std. Deviation
Pre-test	50.0870	23	19.62816
Post-test	71.1304	23	19.39846

(Data from SPSS Version 24)

Table 3 shows that the students' mean score increased from 50.0870 in the pre-test to 71.1304 in the post-test. The mean difference was 21.04 points. This indicates that students obtained higher scores after learning adjective vocabulary through Wordwall Game-Based Learning. The pre-test standard deviation was 19.62816, while the post-test standard deviation was 19.39846. The post-test standard deviation was slightly lower than the pre-test standard deviation, indicating that students' scores remained varied but became slightly more consistent after the treatment.

Table 4. Normality Test of Students' Pre-test and Post-test Scores

Test	Shapiro-Wilk Sig.	Criteria	Interpretation
Pre-test	0.051	Sig. > 0.05	Normal
Post-test	0.070	Sig. > 0.05	Normal

(Data from SPSS Version 24)

Table 4 shows that the significance value for the pre-test was 0.051 and the significance value for the post-test was 0.070. Because both values were higher than 0.05, the pre-test and post-test scores were normally distributed. Therefore, the data met the assumption for using the paired-samples t-test.

Table 5. Paired-Samples t-test of Students' Pre-test and Post-test Scores

Pair	Mean Difference	t	df	Sig. (2-tailed)
Pre-test – Post-test	-21.04348	-3.891	22	P = .001

(Data from SPSS Version 24)

Table 5 shows that the paired-samples t-test produced $t(22) = -3.891$ with $p = .001$. This result indicates a statistically significant difference between students' pre-test and post-test scores. The negative mean difference occurred because the difference was calculated by subtracting the post-test score from the pre-test score. In practical terms, students' post-test scores were higher than their pre-test scores. Therefore, students' adjective vocabulary achievement improved after the Wordwall-based treatment.

The results show that students' vocabulary achievement improved after four sessions of Wordwall Game-Based Learning. The increase in the mean score from 50.0870 to 71.1304 suggests that students performed better after receiving interactive vocabulary practice through Wordwall. This improvement may be related to repeated exposure, immediate feedback, and active participation during the Wordwall activities. Wordwall may support vocabulary learning because it allows students to engage with target words through quizzes, matching tasks, categorization tasks, and vocabulary challenges. These activities provide repeated encounters with adjective vocabulary, which is important for vocabulary retention. Webb and Nation (2017) argue that learners need repeated exposure and meaningful processing to acquire vocabulary. In this study, students did not only memorize adjectives; they encountered them through interactive tasks related to descriptive texts.

The findings are consistent with Nurammida et al. (2024), who reported that Wordwall was useful for teaching English vocabulary to eighth-grade students. They also support Mazelin et al. (2022), who found that Wordwall could increase student engagement in the ESL classroom. The present study contributes more specifically by focusing on adjective vocabulary in descriptive texts among eighth-grade students at MTs Mannilingi Bulu-Bulu. The post-test standard deviation was slightly lower than the pre-test standard deviation. This indicates that students' scores remained varied, but the distribution became slightly more consistent after the treatment. At the same time, the substantial increase in the class mean suggests that students generally achieved better vocabulary performance after participating in the Wordwall-based activities. The relatively similar standard deviations also indicate that the overall spread of students' scores did not change considerably between the pre-test and post-test. Therefore, although individual differences in students' vocabulary performance remained, the class as a whole showed improved achievement after the Wordwall-based treatment.

Although the overall class mean increased after the Wordwall-based treatment, the degree of improvement may have differed among individual students. This variation may have been related to differences in students' prior vocabulary knowledge, digital familiarity, classroom participation, and the amount of support they needed during the learning activities. Students who were more familiar with digital tools may have adapted more quickly to the Wordwall activities, while students with limited digital experience may have required more time and guidance.

In addition, the time limits used in game-based activities may have affected students who needed more time to process vocabulary items. Students may also have responded differently to competitive elements, as some learners may have been motivated by competition while others may have felt less comfortable with it. However, these factors were not specifically measured in this study therefore, they should be interpreted only as possible explanations for differences in students' improvement rather than as confirmed causes.

Nevertheless, the interpretation must remain cautious. The study used a one-group pre-test and post-test design, so the improvement cannot be attributed exclusively to Wordwall. Other factors may have contributed to the higher post-test scores, such as repeated practice, teacher explanation, students' familiarity with the test format, and normal classroom learning progress. Therefore, the results are best interpreted as evidence that students' scores improved after Wordwall-based instruction, not as definitive proof that Wordwall alone caused the improvement. The findings also show the importance of aligning digital games with clear learning objectives. Wordwall can be useful when the activities are designed to support specific vocabulary targets, such as adjectives in descriptive texts. If Wordwall is used only as entertainment, its pedagogical contribution may be limited. Teachers should therefore select appropriate templates, prepare target vocabulary carefully, provide feedback after each activity, and connect the game tasks with the language objectives of the lesson.

Several limitations should be noted. First, the study involved only one class with 23 students from one school, so the findings are context-specific and should not be generalized broadly. Second, the study did not include a control group; therefore, it cannot fully establish that Wordwall was the only factor causing the improvement. Third, the vocabulary test was aligned with learning indicators, but formal item validity, item difficulty, discrimination index, and reliability coefficients were not available. Fourth, the treatment was limited to four teaching sessions. Future studies should use a quasi-experimental design with a control group, involve a larger sample, report stronger instrument validation and reliability, and examine whether Wordwall supports long-term vocabulary retention.

CONCLUSION

This study examined eighth-grade students' adjective vocabulary achievement before and after the implementation of Wordwall Game-Based Learning in descriptive text learning. The results showed that students' mean score increased from 50.0870 in the pre-test to 71.1304 in the post-test. The paired-samples t-test indicated a statistically significant difference between the two scores, $t(22) = -3.891$, $p = .001$. Wordwall can be considered a useful digital medium for supporting vocabulary practice because it provides interactive activities, repeated exposure, and immediate feedback. For classroom practice, English teachers may integrate short Wordwall activities into regular vocabulary instruction as review or reinforcement activities. Matching, categorization, and quiz templates can be

aligned with specific adjective vocabulary targets, while immediate feedback can help students identify and correct vocabulary errors. However, because this study used a one-group pre-test and post-test design without a control group and involved only 23 students, the findings should be interpreted carefully. Therefore, future studies are recommended to employ a quasi-experimental design involving both experimental and control groups to provide stronger evidence regarding the effect of Wordwall on students' vocabulary achievement. Future research should also involve larger samples from more than one school, implement the treatment over a longer period, report stronger evidence of instrument validity and reliability, and consider using a delayed post-test to examine whether students can retain their adjective vocabulary achievement over time.

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