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The Impact of Wordwall.net on Vocabulary Achievement of Junior High School Students

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ABSTRACT

This study aims to assess the effectiveness of Wordwall.net in improving seventh-grade students' vocabulary in junior high school. Vocabulary is an essential element of language learning because it helps students understand and express ideas in English. However, many students still struggle to master vocabulary due to limited practice and less engaging learning materials. Therefore, the use of interactive digital tools such as Wordwall.net is expected to help create a more interesting learning environment and support students' vocabulary development. This study employed a quantitative quasi-experimental design with two groups: the experimental and control groups. The research samples consisted of class VII B (35 students) as the experimental group, which learned vocabulary using Wordwall.net, and class VII A (33 students) as the control group, which learned without using Wordwall.net. The instruments used to collect the data were a pre-test and a post-test with different questions but based on the same test grid to ensure consistency in measurement. The data were analyzed using SPSS 29. The results show a significant difference in post-test scores between the experimental group (79.29) and the control group (56.97). The significance value (Sig. 2-tailed) was < 0.001, which is lower than 0.05, and the effect size was 1.45, indicating a strong effect. Thus, Wordwall.net significantly improved seventh-grade students' vocabulary.

Introduction

Currently, many English learning activities remain monotonous and boring, largely due to the use of conventional learning methods and inappropriate use of media (Maryati, 2023). Hence, it can be combined with appropriate learning media to make the learning process more varied, and these media greatly influence students' understanding in class, especially in learning English. Through media use, students' senses can be optimally engaged, thereby increasing student learning outcomes (Hidayati, 2016). Thus, media, which encompasses many aspects such as text, images, animation, and multimedia presentations, can enhance student learning outcomes.

Additionally, according to Suhardiana (2019), the 21st century is an era of globalization. In this era, understanding English as a foreign language is important. Its significance has continued to grow over many years, partly due to the influence of the Internet. Hence, learning English is essential for students seeking success in their chosen fields, as it facilitates effective communication and helps fulfill ambitions, desires, and goals. However, many still lack proficiency in English due to limited practice and vocabulary. A solid understanding of vocabulary is essential for anyone looking to delve into the English language (Novitasari, 2023). Further, Rachmawati, (2017) points out vocabulary refers to the complete set of words that an individual possesses and use when engaging in discussions pertaining to a specific book, subject, or language, also students lacking extensive vocabulary abilities may struggle to understand the content presented by their teacher, particularly in the English language, and may misinterpret the messages conveyed by others in both oral and written form, especially because they will have difficulty communicating.

The success of education is partly influenced by teachers' roles in the teaching and learning process (Anggraeni & Yusnita, 2017). Learning media can increase students' motivation and, as a result, also increase their vocabulary. One web-based language-learning platform that stimulates students' vocabulary learning is Wordwall.net. Wordwall.net is a website platform that allows teachers to generate various online learning activities, including random wheel, group sort, find the match, missing word, matching pairs, labelled diagram, game show quiz, true or false, flip tiles, match up, quiz, word search, open the box, and many more (Khoirunnisa et al., 2023). Wordwall.net provides a variety of interactive vocabulary practice games as part of its educational games collection. This website allows teachers not only to build their own games using the provided templates but also to access games created by other teachers. Wordwall.net already has a game feature that can be used for educational purposes with fairly easy steps to use (Çil, 2021). Hence, Wordwall.net is a practical learning platform that helps make learning English more meaningful and fun by providing a platform to create and share educational content and interactive activities.

There are shortcomings in previous research with a similar study area. First, the researchers contain several applications that need to be downloaded, thereby consuming time and memory capacity on smartphones in English classes (Matiini et al., 2021). Thus, the researcher aims to make a difference by using a free website platform as a learning medium without requiring additional applications. Most previous research examines applications that are only intended for personal use as a learning medium. The differences in this research application are that it provides features to create various types of interactive learning, customize them to needs and learning topics, and share educational content with other users (Çil, 2021). Lastly, other researchers conducted research on the use of word wall media as a traditional strategy that successfully improved learners' vocabulary acquisition. Whereas in this study, the researcher used online learning where the teacher can use the word wall media strategy, replaced by a website, wordwall.net (Ar-Rahmah, 2021). Besides that, compared to previous studies that used different media, objectives, and focus. Therefore, the focus of this study is to examine the effectiveness of a modern platform that is simpler and more efficient than traditional media on students' vocabulary by using Wordwall.net in

English language learning. In addition, other differences are methods, subjects, learning situations, time, and place, for which there is still no research on wordwall.net in English classes in Cirebon, West Java.

Based on the researcher's preliminary observation at a junior high school in Cirebon, where students are permitted to bring mobile phones to school, several problems were identified in English learning, particularly in vocabulary mastery. The students showed limited vocabulary knowledge, fear of making mistakes, low interest in learning English, and boredom during the learning process. To address these issues, the researcher implemented Wordwall.net as a learning medium. The study employed a pre-test, treatment, and post-test design to collect the data. In the experimental class, Wordwall.net was used as the primary learning medium, while the control class relied on conventional learning without using the platform. This study aimed to investigate students' vocabulary achievement before and after the implementation of Wordwall.net and to examine its significant positive effect on students' vocabulary mastery in the experimental class. The hypotheses of this study were formulated as follows: the null hypothesis (H_0) stated that Wordwall.net is not effective in improving students' vocabulary, while the alternative hypothesis (H_a) stated that Wordwall.net is effective in improving students' vocabulary.

Research Methods

This study employed quantitative research. According to Sugiyono (2015), quantitative research is an approach to empirical studies to collect and analyze data, and the data is presented in numerical form rather than narrative. The research design used in this study is a quantitative quasi-experimental approach with two groups: experimental and control. The experimental group received treatment with Wordwall.net, while the control group did not.

The research samples were class VII B, which amounted to 35 students for the experimental group, and class VII A, which amounted to 33 students for the control group, from the entire seventh-grade population. The primary data for this research consisted of test forms completed by student respondents, and pre-test and post-test outcomes for students in the experimental group were used in the study. The researcher collected secondary data from various sources such as books, journals, and articles. Pre-test, treatment, and post-test measures to collect data. A vocabulary test was administered to students in written form, consisting of 20 valid questions, with a Cronbach's Alpha of 0.751, indicating high reliability.

The researcher analyzed the data using the pre-test and post-test results, applying appropriate techniques to determine the effect of implementing Wordwall.net. The researcher will use the t-test formula. Normality and homogeneity were measured first before the researcher analyzes the data using the t-test. The researcher used t-test procedures to assess the data collected. In data analysis activities, the type of data is quantitative data, and the information obtained from data analysis is numerical (Sugiyono, 2015).

Findings

This research was a quasi-experimental study conducted in class VII of Junior High School, Cirebon, in the English subject, with class VII B as the experimental class and class VII A as the control class. The implementation of the research for each class was conducted 6 times. The researcher obtained students' vocabulary data from pre- and post-tests in both classes. The test assessments were performed in the control and experimental classes. Furthermore, the test results in the following section show that students' vocabulary changed significantly after using Wordwall.net. So that the results of the students' vocabulary could be known. The data from the experimental and control classes were calculated using IBM SPSS version 29.

The table below presents students' vocabulary before and after using the wordwall.net platform.

Table 1 The Score of Pre-test and Post-Test of the Experimental Class

Participants	Pre-test	Post-test
Student 1	50	75
Student 2	55	80
Student 3	25	70
Student 4	50	80
Student 5	70	95
Student 6	80	100
Student 7	65	85
Student 8	70	90
Student 9	25	60
Student 10	50	80
Student 11	65	85
Student 12	70	95
Student 13	60	85
Student 14	40	70
Student 15	20	65
Student 16	30	70
Student 17	45	75
Student 18	35	65
Student 19	75	95
Student 20	65	90
Student 21	10	55
Student 22	55	80
Student 23	40	70
Student 24	60	90
Student 25	35	70
Student 26	75	100
Student 27	45	80
Student 28	40	75
Student 29	55	90
Student 30	25	70
Student 31	30	75
Student 32	40	80
Student 33	55	85
Student 34	45	80
Student 35	30	65
Sum	**1.685**	**2.775**
Minimum Score	**10**	**50**
Maximum Score	**80**	**100**
Average Score	**48.14**	**79.29**

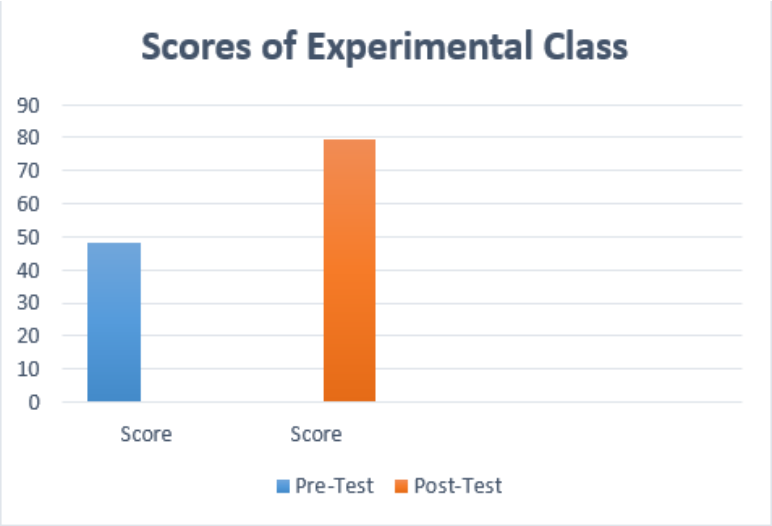

Figure 1 The Difference Between Students' Scores in Experimental Class

Based on the data in Table 1 and Figure 1, the pre-test scores in the experimental group ranged from 10 to 80, with an average of 48.14, while the post-test scores ranged from 50 to 100, with an average of 79.29. Additionally, a graph shows the experimental group's progress, indicating an increase in students' vocabulary scores before and after using Wordwall.net.

The table below shows students' vocabulary before and after using conventional learning (without using wordwall.net).

Table 2 The Score of Pre-test and Post-Test of the Control Class

Participants	Pre-test	Post-test
Student 1	55	60
Student 2	60	65
Student 3	10	30
Student 4	25	40
Student 5	20	30
Student 6	35	50
Student 7	45	55
Student 8	35	50
Student 9	55	75
Student 10	45	60
Student 11	40	65
Student 12	70	75
Student 13	15	30
Student 14	35	60
Student 15	25	40
Student 16	50	65
Student 17	70	75
Student 18	35	60
Student 19	30	45
Student 20	75	80
Student 21	70	65
Student 22	50	60
Student 23	25	40
Student 24	35	45
Student 25	50	65
Student 26	70	75

Student 27	30	50
Student 28	50	75
Student 29	35	45
Student 30	45	70
Student 31	40	60
Student 32	35	55
Student 33	45	65
Sum	**1410**	**1880**
Minimum Score	**10**	**30**
Maximum Score	**75**	**80**
Average Score	**42.73**	**56.97**

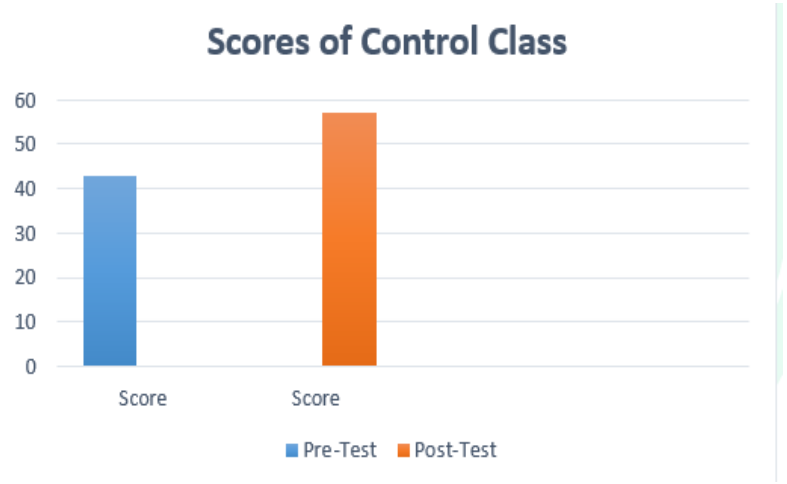

Figure 2 The Difference Between Students' Scores in the Control Class

Based on the data in Table 2 and Figure 2, the pre-test scores in the control group ranged from 10 to 75, with an average of 42.73, while the post-test scores ranged from 30 to 80, with an average of 56.97. Additionally, a graphical representation illustrated the progress of scores in the control group. Thus, there was a noticeable increase in students' vocabulary scores before and after using conventional learning.

The table below presents a significant positive effect of using the wordwall.net platform on students' vocabulary in class VII B.

Table 3 Output of Statistics

Statistics

		PreEx	PostEx	PreControl	PostControl
N	Valid	35	35	33	33
	Missing	0	0	2	2
Mean		48.14	79.29	42.73	56.97
Std. Error of Mean		2.999	1.913	2.904	2.461
Median		50.00	80.00	40.00	60.00
Mode		40[a]	80	35	60[a]
Std. Deviation		17.744	11.320	16.681	14.139
Variance		314.832	128.151	278.267	199.905
Range		70	45	65	50
Minimum		10	55	10	30
Maximum		80	100	75	80
Sum		1685	2775	1410	1880

a. Multiple modes exist. The smallest value is shown

Based on the SPSS results provided, it could be inferred that within the experimental class, Pre-test the average (mean) was 48.14, and Post-test the average (mean) was 79.29. Meanwhile, in the control class, the pre-test average (mean) was 42.73, and the Post-test average (mean) was 56.97. Hence, it can be concluded that students' pre-test scores were lower than their post-test scores, which were conducted after the treatment, indicating that Wordwall.net increased students' vocabulary.

Table 4 Output Test of Normality

		Shapiro-Wilk		
	KELAS	Statistic	df	Sig.
HASIL	Pre-Ex	.976	35	.629
	Post-Ex	.973	35	.523
	Pre-Control	.963	33	.319
	Post-Control	.941	33	.070

Table 4 indicates that the experimental class pre-test results were sig. was 0.629 > 0.05, and similarly, the control class pre-test results were also sig. was 0.319 > 0.05. Conversely, the experimental class post-test results showed sig. 0.523, and the control class post-test results sig. 0.070. So, the significance values for both sets of data are normally distributed.

Table 5 Output Test of Homogeneity of Variance

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
HasilBelajar	Based on Mean	2.203	1	66	.143
	Based on Median	1.341	1	66	.251
	Based on Median and with adjusted df	1.341	1	61.276	.251
	Based on trimmed mean	2.107	1	66	.151

Based on the data in Table 5, the significance level was 0.143 > 0.05; therefore, the data were homogeneous, as the values for both groups were above 0.05.

Table 6 Output of Paired Samples Statistics

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreEx	48.14	35	17.744	2.999
	PostEx	79.29	35	11.320	1.913
Pair 2	PreControl	42.73	33	16.681	2.904
	PostControl	56.97	33	14.139	2.461

Table 7 Output of Paired Samples Test

Paired Samples Test

		Paired Differences					t	df	Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			One-Sided p	Two-Sided p
Pair 1	PreEx - PostEx	-31.143	7.960	1.345	-33.877	-28.409	-23.146	34	<,001	<,001
Pair 2	PreControl - PostControl	-14.242	7.408	1.290	-16.869	-11.616	-11.045	32	<,001	<,001

Based on the table above, the results of the paired sample t-test < 0.001 were lower than 0.05. In statistical analysis, this indicates that the value was very small and almost close to zero (0.000), which was considered highly significant. There were significant differences between before and after being taught by Wordwall.net. So, Wordwall.net was effective on students' vocabulary.

Table 8 Output test of Group Statistics

Group Statistics

	Kelas	N	Mean	Std. Deviation	Std. Error Mean
HasilBelajar	PostEx	35	79.29	11.320	1.913
	PostControl	33	56.97	14.139	2.461

Table 9 Output of the Independent Samples Test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
HasilBelajar	Equal variances assumed	2.203	.143	7.205	66	<,001	<,001	22.316	3.097	16.132	28.500
	Equal variances not assumed			7.158	61.297	<,001	<,001	22.316	3.118	16.083	28.549

Based on the post-test data from both the experimental and control classes, which showed homogeneity, the researcher focused on the results assuming equal variances and referenced the sig. level of α = 0.05 (5%). The results of the independent sample t-test revealed a sig. value of < 0.001, which was below 0.05. As a result, the null hypothesis (Ho) was rejected, and the alternative hypothesis (Ha) was accepted, indicating significant differences in the effectiveness of wordwall.net in increasing students' vocabulary. This conclusion was supported by a chart illustrating the progress of both experimental and control classes, along with a score table:

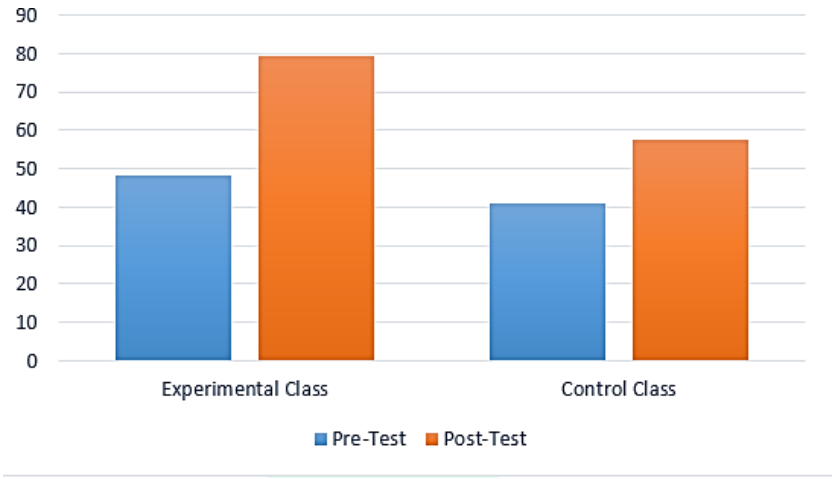

Figure 3 The Difference Between Students' Scores in Both Classes

The students in the experimental class achieved higher vocabulary scores, as presented in Figure 3. The figure shows that the mean post-test score of the experimental class increased significantly compared to its pre-test score. In contrast, the control class showed only a slight improvement between the pre-test and post-test scores. In the experimental class, the students were taught using Wordwall.net through discussion and exercise-based activities, while the control class was taught using conventional discussion and exercise methods without using the platform. These findings indicate that Wordwall.net had a significant positive effect on improving students' vocabulary mastery.

Effect Size Test

M_1 (The experimental class's mean score) = 79.29
M_2 (The controlled class's mean score) = 56.97
Mean of Exp – Mean of Con class score = 79.29 – 56.97
= 22.32
The experimental class's standard deviation = 7.96
Controlled class standard deviation = 7.40
Population standard deviation = 7.96 + 7.40
= 15.36

$$d = \frac{\text{M1} - \text{M2}}{\text{population standard deviation}}$$

$$= \frac{22.32}{15.36}$$

$$= \mathbf{1.45}$$

The criteria for the level of effect size by Adnan (2020):

Table 10 Effect Size Level Criteria

0.00 – 0.20	Small Effect
0.21 – 0.50	Medium Effect
0.51 – ≥ 1.00	Strong Effect

Based on the calculations, this research's effect size was 1.45, which means this research had a strong effect. Thus, using Wordwall.net had a strong effect on students' vocabulary.

Discussion

In this discussion, in accordance with the formulated problem, the focus was on examining students' vocabulary before and after using the Wordwall.net platform during learning in an experimental class. This focus aligns with previous studies that emphasize vocabulary mastery as a core component of EFL learning and a key indicator of language proficiency gains (Alfares, 2025). The treatment measured how much students understood in increasing vocabulary. Learning took place in four meetings, each lasting 2 x 40 minutes or 1 hour 20 minutes. During the treatment, students studied the lesson "Culinary and Me" on the Wordwall.net platform, which assisted in the learning process. This material was selected based on the English teacher's instructions to continue the material outlined in the "Alur Tujuan Pembelajaran" of the Merdeka curriculum for seventh grade of junior high school. At each meeting, students were prepared to engage in quiz game-based exercises involving answering, guessing, matching, listening, and categorizing questions related to the material. Through these exercises, students were expected to enhance their ability to add new vocabulary, improve pronunciation, spelling, and memory, thereby facilitating the acquisition of English vocabulary for academic and daily activities.

The descriptive statistical results of the experimental class are in Table 1. A total of 35 students participated in both the pre-test and post-test. Before receiving treatment with Wordwall.net, pre-test results indicated a sum (total score) of 1.685, a minimum score of 10, a maximum score of 80, and an average score of 48.14. These relatively low pre-test results suggest that students initially had limited vocabulary mastery, a condition commonly reported in EFL contexts prior to the integration of digital game-based learning media (Sakkir et al., 2023). Following the instruction provided by the researcher using the Wordwall.net treatment, students' scores on the post-test were higher than before. This finding aligns with previous studies indicating that Wordwall, as a digital game-based learning platform, effectively enhances learners' engagement and vocabulary acquisition through interactive and repetitive practice (Nurammida et al., 2024). The descriptive data analysis reveals that the sum (total score) was 2.775, with a minimum score of 50, a maximum score of 100, and an average score of 79.29. Hence, this indicates that students' vocabulary scores increased both before and after using the Wordwall.net platform.

There was a difference in learning outcomes in students' vocabulary before and after using the Wordwall.net platform. This finding is consistent with previous studies showing that Wordwall-based game learning significantly improves students' learning outcomes by creating an interactive and enjoyable learning environment that promotes active participation (Ulandari et al., 2023). This occurred because students in the experimental class who used the Wordwall.net platform were more active and enthusiastic about learning, finding a new and fun atmosphere. Febrianti & Baidullah (2025) found that Wordwall increases students' motivation and engagement during learning activities. Additionally, students' vocabulary gains result from their earnest efforts in the exercises as game-based learning encourages repeated practice and deeper cognitive involvement, leading to better retention of new vocabulary (Nurjiah & Marna, 2025). Students did not need to open the dictionary before playing the game, as they learned some new vocabulary during the game,

which supports findings that Wordwall facilitates contextual vocabulary acquisition and enhances students' vocabulary mastery through meaningful exposure (Aisiyah et al., 2024). Even though students found the game difficult at first, they remain interested in finishing and winning the game. The normality test, as indicated in Table 4, reveals that the sig. value for the experimental class pre- test was 0.629 > 0.05. Similarly, the post-test also had the sig. value of 0.523 > 0.05. So, the result shows that the sig. The value was greater than 0.05, indicating that the data distribution is normal.

Furthermore, the homogeneity test results, as indicated in Table 4.5, reveal that the Sig. value was 0.143 > 0.05. Therefore, the data are homogeneous, as the p-values for both groups exceed 0.05, which meets the prerequisite assumption for conducting parametric statistical tests such as the t-test (Salsabila & Tsurayya, 2024). In addition, a hypothesis test was conducted to determine whether Wordwall.net had a significant positive effect on students' vocabulary in class VII B, which served as the experimental group. The paired sample t-test result, as shown in Table 7, was <0.001, indicating it was highly significant. This finding is consistent with previous studies that reported significant vocabulary gains after using Wordwall-based learning activities (Hasram et al., 2021; Firdaus & Rahmawati, 2024). Thus, there were significant differences before and after instruction using Wordwall.net, indicating that Wordwall.net was effective in improving students' vocabulary (Safitri et al., 2024).

Secondly, the independent sample t-test showed a significant result, as indicated by the Sig. value of < 0.001, which is smaller than 0.05. The null hypothesis (Ho) was rejected, and the alternative hypothesis (Ha) was accepted due to the sig. value being less than 0.05. As a result, there were significant differences in the effect of using Wordwall.net to increase students' vocabulary. This result aligns with prior quasi-experimental studies by Firdaus & Rahmawati (2024 that found Wordwall-based instruction to outperform traditional media in improving students' learning outcomes. Lastly, the effect size reported in Table 10 was 1.45, indicating a strong effect. Thus, using Wordwall.net has a strong effect on increasing students' vocabulary, consistent with previous findings by Susilawati et al. (2025), who showed that Wordwall-based instruction significantly improves students' vocabulary mastery compared to conventional teaching methods.

Therefore, learning media stimulated students and, by facilitating teachers to be more creative and effective, helped achieve learning objectives well. The learning media used was Wordwall.net, which increased students' vocabulary, as evidenced by the post-test results for the experimental class using Wordwall.net and the control class using conventional learning. Finally, based on the discussion, the researcher found that using Wordwall.net effectively increased students' vocabulary in the seventh grade, especially in class VII B in the English learning process.

Conclusion

The results showed a measurable difference between students who received treatment using Wordwall.net and those who did not. The effectiveness of Wordwall.net was demonstrated by post-test results for students in the experimental class, who averaged

79.29, compared with the control class, which averaged 56.97. The results showed that the independent t-test was significant (Sig. 2-tailed < 0.001), indicating that the difference between the groups was significant. The effect size of this research was 1.45, indicating a considerable effect. Therefore, the use of Wordwall.net had a significant positive effect on increasing students' vocabulary. Based on the research results, the hypothesis was rejected (Ho), and the alternative hypothesis (Ha) was accepted. Therefore, Wordwall.net's learning media increased students' vocabulary in seventh grade in Junior High School, Cirebon.

Additionally, future studies should explore the potential uses of wordwall.net in many English abilities beyond the scope of this study, and with the hope that future researchers will explore the wide range of unlimited templates, besides match up, multiple choice, matching pair, group short templates, that provide different and compelling learning opportunities. Furthermore, it is essential for future research to incorporate a questionnaire to further explore how students are motivated while using WordWall.net.

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