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THE IMPACT OF WORDWALL ONLINE GAMES ON ENGLISH VOCABULARY MASTERY IN READING

by

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Abstract:

This quantitative quasi-experimental study examines vocabulary mastery differences between students taught with Wordwall Online Games and students taught with traditional learning methods. Conducted with 58 junior high school 8th graders, participants were divided into control and experimental groups. Vocabulary proficiency was assessed via an updated vocabulary level test administered through Google Forms, with data analyzed using paired sample t-tests. Findings indicate significant vocabulary improvement in both groups from pre- to post-test. Effect size calculations using Cohen's d revealed large effect values for both groups, with Cohen's d = 2.19718 for the experimental group. Cohen's d = 1.52645 for the control group, reflecting a difference of 0.67073. Despite both methods being practical, this difference suggests a notably stronger impact of Wordwall Online Games on vocabulary mastery than traditional media. Thus, while Wordwall enhances vocabulary acquisition more substantially, traditional media also plays a valuable role in vocabulary development, supporting its continued use in language education. This research could enhance vocabulary mastery in students' reading skills, encourage interactive teaching methods, and serve as a valuable resource for future studies on using Wordwall Online Games to improve vocabulary in junior high school.

Keywords: recount text reading; vocabulary; vocabulary mastery; word wall online games

Abstrak:

Studi kuasi-eksperimental kuantitatif ini mengkaji perbedaan penguasaan kosakata antara siswa yang diajarkan dengan Wordwall Online Games dan siswa yang diajarkan dengan metode pembelajaran tradisional. Dilakukan dengan 58 siswa kelas 8 SMP, peserta dibagi menjadi kelompok kontrol dan kelompok eksperimen. Kemahiran kosakata dinilai melalui tes tingkat kosakata yang diperbarui yang dikelola melalui Google Formulir, dengan data dianalisis menggunakan uji-t sampel berpasangan. Temuan menunjukkan peningkatan kosakata yang signifikan pada kedua kelompok dari pra hingga pasca tes. Perhitungan ukuran efek, dilakukan dengan menggunakan d Cohen, mengungkapkan nilai efek yang besar untuk kedua kelompok, dengan Cohen d = 2,19718 untuk kelompok eksperimental dan Cohen d = 1,52645 untuk kelompok kontrol, mencerminkan perbedaan 0,67073. Perbedaan ini menunjukkan dampak yang jauh lebih kuat dari Game Online Wordwall pada penguasaan kosakata dibandingkan dengan media tradisional, meskipun kedua metode tersebut efektif. Dengan demikian, sementara Wordwall meningkatkan perolehan kosakata secara lebih substansial, media tradisional juga memainkan peran berharga dalam pengembangan kosakata, mendukung penggunaannya yang berkelanjutan dalam pendidikan bahasa. Penelitian ini dapat mendukung peningkatan penguasaan

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kosakata dalam keterampilan membaca siswa, mendorong metode pengajaran interaktif, dan berfungsi sebagai sumber daya yang berharga untuk studi masa depan tentang penggunaan Wordwall Online Games untuk meningkatkan kosakata di sekolah menengah pertama.

Kata kunci: *menghitung kembali bacaan teks ; kosakata; penguasaan kosakata; Wordwall Permainan Online*

INTRODUCTION

Significant technological advancements have improved global learning patterns, including language learning. Researchers and developers are improving their inventions, focusing on teaching and learning activities. Among the innovative tools currently being developed when discussing English language learning, gamified learning platforms have become very well-known to educators, especially in the vocabulary mastery process. Sadeghi et al. (2022) stated that gamified learning platforms as part of the Gamification learning design can increase student motivation and significantly improve their vocabulary mastery.

Gamification is one learning design that suits students' characteristics in this era in teaching and learning activities that use technology (Sadeghi et al., 2022). Asigigan and Samur (2021) stated in their research that one of the aims of developing gamification is to make students change their viewpoints and habits. Sadeghi et al. (2022) also suggest that applying gamification as a learning design makes students more proficient in using technology and opens up new potential for students to find ways of learning that suit their characteristics. It was supported by Panmei and Waluyo's research (2023), which tried to assess the influence of gamified vocabulary mastery by using the features of a mobile application known as Quizizz. The study conducted by Panmei and Waluyo (2023) compared the learning outcomes of control group and experimental group while also assessing the efficacy of gamification in enhancing student autonomy in vocabulary mastery. The research discovered that the incorporation of gamification applications into vocabulary mastery can enhance the process of vocabulary learning and promote the development of learner autonomy. With this explanation, it can be concluded that gamification can be implemented in educational activities in the classroom, especially in enhancing the mastery of vocabulary among students.

Several literatures also show that applications in language learning activities focusing on vocabulary mastery, such as Quizizz, Kahoot, and Duolingo, show success in educational settings (Guaqueta & Castro-Garces, 2018; Yasmine Liong, 2019). Yasmine Liong (2019) showed that learning designs that focused on gamification, such as Quizizz, were able to

improve 40 middle school student's understanding of English idioms in Malaysia. Then, a study by Guaqueta and Castro-Garces (2018) proved that Kahoot and Duolingo in Colombia has also shown positive results, with students increasing their vocabulary. Furthermore, research discussing Wordwall Online Games as a learning media in Indonesia shows positive results. For example, a study conducted by Shabrina and Wahyu Taufiq (2023) that using quantitative research with true-experimental design followed by 70 eight-grade students also proved that learning English using Wordwall Online Games as a learning media in one of the middle schools in Wonoayu shows that there has been an increase in vocabulary mastery among students.

Another example of gamified learning tools in schools to upgrade students' vocabulary mastery is Wordwall Online Games. Wordwall online games provide many features with various themes and activities that can be a learning tool to improve student's vocabulary mastery (Pradini & Adnyayanti, 2022). Wordwall Online Games is also considered very easy to use because it provides various templates for teachers to create activities such as anagrams, looking for matches between words, quizzes, matching, etc. Wordwall Online Games also has a score feature, which will make activities more competitive while making it easy for teachers to see student learning results directly. Furthermore, another advantage offered by Wordwall Online Games is the "show the correct answer feature," which allows teacher-student discussion and group discussion among students, thus increasing the exchange of information during learning activities (Hidayaty et al., 2022).

However, there are still a few discussions about using Wordwall Online Games as a platform that could implemented as a learning medium in Junior High School in Surabaya, Indonesia. This is supported by findings from previous research that discussed similar issues that took place outside Java. For example, research by Jannah et al. (2017) discussed students' points of view on using Wordwall Online Games as media to acquire new vocabulary at the senior high school in Bengkulu. This research's subjects were 29 senior high school students, where data was collected using a close-ended questionnaire and analyzed using a quantitative study with the survey research design. The result stated that Wordwall Online Games is viewed positively by students as vocabulary learning media, and they feel that Wordwall Online Games are fun and engaging media to use in learning activities. However, research

conducted by Jannah et al. (2017) only discusses students' perspectives regarding Wordwall Online Games and has not discussed in more depth the impact and effectiveness of Wordwall Online Games on students' achievement.

Another example is research conducted by Wati and Januartyin (2022), which discussed students' vocabulary achievement at one of the junior high schools in Makassar that used Wordwall Online Games. This research was followed by 35 junior high school students, where data was collected using vocabulary tests in the form of pre-tests and post-tests and then analyzed using a quantitative study with the pre-experimental research design. The results of the research done by Wati and Januarty (2022) stated that using Wordwall Online Games improved students' vocabulary. However, because the research conducted by Wati and Januarty (2022) used a pre-experimental research design, the discussion only focused on one class as the research subject. Consequently, the study's findings cannot be compared to those of other students who did not study using Wordwall Online Games and did not employ Wordwall Online Games as the learning media.

This research aims to compare vocabulary mastery and assess The notable contrast between students who receive instruction through Wordwall Online Games and those who receive instruction through conventional learning resources. In order to further promote interactive and enjoyable learning activities for students, especially in vocabulary mastery, research on the implementation of Wordwall Online Games for Junior High School students's vocabulary mastery improvement needs to be done. To be able to guide the discussion to be more focused, a research question has been prepared so that the research can be in line with the research objectives:

1. Do students taught using Wordwall Online Games have better vocabulary mastery than those taught using traditional learning media?
2. How significant is the difference between students taught using Wordwall Online Games and those taught using traditional learning media?

METHOD

Design

This research used a quantitative study with a quasi-experimental, non-equivalent

control group research design. The quasi-experimental with non-equivalent control group research design is used because this design allows the researcher to establish a causal relationship between an independent variable and a dependent variable (Gopalan et al., 2020). Furthermore, quasi-experimental design is a valuable methodology when implementing actual experiments, which is difficult due to ethical or practical limitations (Gopalan et al., 2020). The study also welcome the proposition of an Indonesian scholar (Sugiyono, 2017).

Table. Quasi-experimental design

Variable Type	***Variable***	***Description***
Independent Variable (X)	*Wordwall Online Games*	*Whether students use Wordwall Online Games in the vocabulary mastery learning process* *(Yes = Experimental Group, No = Control Group)*
Dependent Variable (Y)	*English Vocabulary Mastery in Reading*	*Improvement of students' vocabulary mastery measured through pre-test and post-test using updated level vocabulary test integrated with Google Form*

Participant

The subjects of this research are 58 grade 8 junior high school students in Surabaya, Indonesia. Purposive sampling was used in the selection of the research subjects. This study was conducted at one of the Surabaya junior high schools, which served as a representative sample of the 232 grade 8 students enrolled there. Based on CEFR, the English level of the subjects in this study was elementary level (A2).

Instrument

The instrument used by the researcher to collect data is the updated vocabulary level test developed by Webb et al. in 2017, which is integrated with Google Forms as the medium. During the process of this test, learners received five questions. Each question has three keywords, three distractor words, and three definitions. The students were required to connect

the word with its appropriate meaning. So, the model of test uses clues for students before executing their answers.

Data collecting technique

The data in this research was collected using a vocabulary test with Google Forms as the primary medium. Google Forms are used to ease accessing, creating, filling in, and processing data (Zaindanu & Taufik Ihsan, 2021). The researcher used the quiz mode in Google Forms to create questions that function as data collection instruments by adopting the updated vocabulary level test model Webb et al. developed in 2017. The class teacher and researcher closely monitored the test administration. The testing process is conducted inside the classroom. The class teacher and researcher serve as supervisors during the test administration to ensure that students follow the instructions and avoid engaging in any activities that may affect the validity of the test results.

Data analysis technique

This research used the Paired Sample T Test to analyze the data. Paired sample The T-test is a statistical technique employed to compare the means of two correlated datasets. The dataset consists of the subject's pre-treatment value and post-treatment value. A paired samples T-test was employed to determine whether there were statistically significant disparities between the subjects in this study before and after the treatment (Schimmel & Ness, 2017). Using the Paired Sample T Test, the researcher can get better information in the form of statistics about vocabulary mastery between students who are taught using Wordwall Online Games and those taught using traditional learning media. This calculation was carried out using IBM SPSS Version 27. Finally, the researchers also employed online automatic citation using Mendeley Cite (Turmudi, 2024). With this referencing tool, the in-text citation and list of refencing tool are synchrony.

RESULT AND DISCUSSION

Result

This study compares vocabulary mastery and evaluates the significant differences between students who receive instruction through Wordwall Online Games and those who receive instruction through more conventional learning resources. Researchers used the paired

sample T-test to evaluate the data. To demonstrate this, they determined the effect size of the treatments administered to the experimental and control groups.

a. Paired sample t-test for the control group

Paired sample statistics for the control group

Paired samples statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	3.5517	29	1.32520	.24608
	Post-Test	12.0690	29	.84223	.15640

It is evident from the above Paired Samples Statistics table that the control group's mean, which was 3.5517 at the Pre-Test, increased to 12.0690 in the Post-Test after the administration of traditional media treatment.

Paired sample test for the control group

Paired samples test									
		Paired Differences					*t*	*df*	*Sig. (2-tailed)*
		Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference* *Lower*	*Upper*			
Pair 1	Pre-Test - Post-Test	*-8.51724*	*1.52645*	*.28345*	*-9.09787*	*-7.93661*	*-30.048*	*28*	*.000*

According to the above table's outcomes from the Paired Samples T Test analysis, as is evident, the value of Sig. (2-Tailed) was 0.00, so it can be concluded

that there is a significant difference between the control group before and after being taught using traditional media in students' vocabulary mastery.

b. Paired sample t-test for the experimental group

Paired Sample Statistic for Experimental Group

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	3.4138	29	1.45202	.26963
	Post-Test	12.9655	29	1.37536	.25540

It is evident from the above Paired Samples Statistics table that the experimental group's mean, which was 3.4138 at the Pre-Test, increased to 12.9655 in the Post-Test after the administration of Wordwall Online Games.

Paired Sample Test for Control Group

Paired samples test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pre-Test - Post-Test	-9.55172	2.19718	.40801	-10.38749	-8.71596	-23.411	28	.000

According to the above table's outcomes from the Paired Samples T Test analysis, as is evident, the value of Sig. (2-Tailed) was 0.00, so it can be concluded that there is a significant difference between the experimental group before and after being taught using Wordwall Online Games in students' vocabulary mastery.

c. The effect size of treatment given for the control group

Paired Samples Effect Sizes (Control Group)

					95% Confidence Interval	
			Standardizer[a]	Point Estimate	Lower	Upper
Pair 1	Pre-Test - Post-Test	Cohen's d	1,52645	-5,580	-7,073	-4,078
		Hedges' correction	1,54728	-5,505	-6,978	-4,023

Based on the Paired Samples Effect Size table above, as is evident, the value of Cohen's d shows a result of 1,52645; therefore, it can be concluded that the treatment received by the control group using traditional learning media is considered as having a significant effect on student vocabulary mastery.

d. Effect Size of Treatment Given for Experimental Group

Paired Samples Effect Sizes (Control Group)

					95% Confidence Interval	
			Standardizer[a]	Point Estimate	Lower	Upper
Pair 1	Pre-Test - Post-Test	Cohen's d	2,19718	-4,347	-5,532	-3,154
		Hedges' correction	2,22716	-4,289	-5,457	-3,111

Based on the Paired Samples Effect Size table above, as is evident, the value of Cohen's d shows a result of 2,19718; therefore, it can be concluded that the treatment received by the experimental group using Wordwall Online Games is considered as having a significant effect on student vocabulary mastery.

Discussion

Do students taught using wordwall online games have better vocabulary mastery than those taught using traditional learning media?

The results of this study demonstrate that the following administration of the pre-test and post-test to the experimental group and control group, students' vocabulary mastery in both groups significantly increased. In the experimental group, the Pre-test mean (M = 3.4138) increased compared to the post-test mean (M = 12.9655), with the T-test (Sig. ≤ 0.05, 0.000) confirming the effectiveness of Wordwall Online Games. Surprisingly, in the control group, the Pre-test mean (M = 3.5517) increased compared to the post-test mean (M = 12.0690), with the T-test (Sig. ≤ 0.05, 0.000), which confirms the effectiveness of traditional media.

Based on the explanation above, the data shows that Wordwall Online Games significantly increased the experimental group students' vocabulary mastery. However, using traditional learning media also significantly improved students' vocabulary mastery in the control group. The results of paired sample statistics after being given treatment in both groups show insignificant differences. From this data, it can be concluded that students taught using Wordwall Online Games showed slightly higher improvement in vocabulary mastery compared to those taught using traditional learning media. However, it is not enough to say that it is better.

The current study's findings showed similar results to earlier research but with several advantages. For example, a study conducted by Panmei and Waluyo (2023) and the current research used two groups as subjects of the study where the experimental group used new tools to improve vocabulary mastery and the control group used traditional methods. In this case, Panmei and Waluyo (2023) used Quizizz as a learning tool that helps students become more independent in learning, while the current research used Wordwall Online Games as a learning tool and compared it with traditional media and tried to figure out which one that shows more significant impact to the student. Even though the findings of the research that was done by Panmei and Waluyo (2023) and the current study showed significant results in improving students' vocabulary mastery using gamified learning tools, the current study showed that traditional methods were also able to improve students' vocabulary mastery very well, almost matching the results of the group using Wordwall Online Games. These results show that although using gamified learning platforms such as Quizizz and Wordwall Online

Games in the classroom is highly recommended, traditional media still plays an important role in student learning activities.

Then, the research of Jannah et al. (2017)and the current study on Wordwall Online Games offer distinct perspectives on vocabulary acquisition. The study by Jannah et al. (2017) examined the perspectives of 29 senior high school students in Bengkulu regarding the use of Wordwall Online Games for vocabulary learning. According to the data they gathered via a questionnaire, students liked Wordwall because it was entertaining and engaging for learning. However, the effectiveness of Wordwall Online Games in assisting students in developing their vocabulary was not thoroughly examined in the study conducted by Jannah et al.. The present study, however, contrasts Wordwall Online Games with conventional teaching techniques. It highlights Wordwall's effectiveness by providing precise data regarding students' vocabulary mastery before and after using it. Although Jannah et al. talk about how students feel about Wordwall, the current study provides more details about its effectiveness in teaching them new words through the statistical results.

Furthermore, both Wati and Januarty's (2022) study and the present study on Wordwall Online Games look at how this technology improves vocabulary mastery with the 35 junior high school students in Makassar that were examined by Wati and Januarty, who employed assessments to compare the vocabulary learning outcomes before and after using Wordwall Online Games. According to their findings, Wordwall Online Games can assist students in developing and improving their vocabulary. However, their research only involved one class, so comparing these results with other students who did not use Wordwall is difficult. On the other hand, the current study evaluates Wordwall Online Games and compares it to traditional learning methods. It includes a larger group of students and provides clear information on vocabulary learning before and after using Wordwall, making it easier to compare results.

How significant is the difference between students taught using Wordwall Online Games and those taught using traditional learning media?

The effect size calculation in this study was done using Cohen's d, which was processed using SPSS version 27. The effect size results in the control group using Cohen's d showed a value of 1.52645. Based on the explanation of J. Cohen (1992), Téllez et al. (2015),

Burch et al. (2019), and Reddy et al. (2023), if the results of Cohen's d show a value > 0.80, then the effect size can be categorized as having a significant effect. Similar results also emerged in the effect size in the experimental group. In the experimental group, the results of Cohen's d showed a value of 2.19718. Based on the explanation of J. Cohen (1992), Téllez et al. (2015), Burch et al. (2019), and Reddy et al. (2023), the results of Cohen's d in the experimental group showed a value > 0.80, so the effect size was also categorized as having a significant effect.

Based on the explanation above, the effect size results using Cohen's d in both groups show a value that is categorized as having a significant effect on increasing students' vocabulary mastery. However, the results shown by the experimental group (Cohen's d = 2.19718) and the control group (Cohen's d = 1.52645) had a difference of 0.67073. From this difference, it can be concluded that although the effect size values of both groups are categorized as having a significant effect, the effect size values in the experimental group, where students were given treatment using Wordwall Online Games, showed a more significant influence than students who received treatment using conventional learning media.

CONCLUSION AND IMPLICATION

Conclusion

The primary goals of this research are to (1) Compare the vocabulary mastery of students taught using Wordwall Online Games and those who are taught using traditional learning media and (2) Assess significant differences between students who are taught using Wordwall Online Games and those who are taught using traditional learning media. The findings of this research show that both the control group that received treatment using traditional learning media and the experimental group that received treatment using Wordwall Online Games showed a significant increase in vocabulary mastery from pre-test to post-test. Based on findings in current research, the mean of the control group increased from 3.5517 to 12.0690, and the mean of the experimental group also increased from 3.4138 to 12.9655. Even though both groups showed significant vocabulary mastery, the experimental group displayed higher vocabulary mastery than the other group, with a difference in the post-test of 0.8965. However, this score was insufficient to conclude that students who utilized Wordwall

Online Games for treatment in the experimental group had a better increase in the mastey of vocabulary compared to pupils who received treatment using conventional learning media.

This research also revealed that the value of both the experimental and control groups' effect sizes, as determined by Cohen's d, can be classified as having a significant effect. The Cohen's d results in the control group show an effect size value of 1.52645, and the Cohen's d results in the experimental group show an effect size value of 2.19178. These findings allow for the conclusion that there is a difference in effect size of 0.67073, where the experimental group has a more significant impact than the control group in increasing students' vocabulary mastery.

Limitation

The quasi-experimental design with a non-equivalent control group in this study is one of the limitations experienced by the researcher. This design prevents researchers from thoroughly investigating the impact of Wordwall Online Games on students' vocabulary mastery because researchers have to adjust the research to the institution's activities schedule. In addition, at the time of data collection, multiple research subjects lacked the necessary devices to conduct the test. Consequently, the researcher had to supply the devices, which delayed the research process promptly.

Implication

The results of this research can help contribute to the implementation of improving vocabulary mastery in reading skills for students, open the opportunity to develop a more interactive learning style in order to improve language skills for teachers and become a source of data and literature that provide many benefits in the future for other researchers who wish to discuss in more depth the same topics, especially the impact of integrating Wordwall Online Games in vocabulary mastery in the reading skills in teaching and learning activities for junior high school students.

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