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The Effect of Educational Game-Based Learning Media Using Wordwall on Students' Social Studies Learning Outcomes in Grade V

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Abstract**—***Quality educationmust be supported by the use of appropriate learning media. However, there are several problems in the learning process, namely the lack of use of learning media during the learning process which causes low student learning outcomes. This study aims to determine the effect of the use of educational Game-Based learning media Using wordwalls on student learning outcomes in social studies subjects in grade V of elementary schools in the even semester. The research method used is quantitative with the type of Quasi Experimental research. The population of this study was all students of grade V of SDN Kebonagung 02 with a research sample of class VA (39 students) and class VB (41 students) selected based on saturated sampling techniques. The instrument was in the form of learning outcome test questions, data collected through pretest and posttest. Data analysis techniques were carried out through normality, Homogeneity and Hypothesis testing using SPSS version 26. Hypothesis testing using independent sample t-test to see the differences in learning outcomes of the two groups. The results of the value in the control class were 72.50 and in the experimental class were 83.00. Based on the test results, the significant value (2-tailed) was 0.048 <0.05. The results of the study showed that the use of educational game learning media using Wordwall for class V on the material My Indonesia is Rich in Nature had an effect on student learning outcomes.*

Keywords**—***Media, educational games, wordwall, learning outcomes, social studies*

INTRODUCTION

As modern technology develops rapidly, the world of education is increasingly advanced and developing. There are many technologies in the modern era that increasingly facilitate the world of education.However, there are still many teachers who rarely use learning media in the teaching and learning process. Munir (2019) stated that this is due to a lack of self-confidence or habits in using digital media. In addition, the use of inappropriate media also has an impact on low student participation and learning outcomes (Rahmawati, 2021). Teachers have an important role in the success of learning. According to Nurhasanah et al. (2022), learning media functions as a communication tool between teachers and students to facilitate understanding of the material.

Research resultKasriman et al., (2022)shows that there is a significant influence on the use of*Wordwall on the social studies learning outcomes of grade IV students,*Saputra, S. et al.,(2022)shows that there is a significant influence onThe effect of using educational wordwall games on students' motivation and mathematics learning outcomes, Desyandri2 et al., (2020)The influence of wordwall learning media on student learning outcomes, Taofik4 et al., (2022) The influence of educational game learning media on student learning interest in science learning educational game learning media has a positive effect on student learning outcomes. Based on the results of the hypothesis test, the $t0$ value of 2.50 is greater than the significance level of 5% (2.09) and 1% (2.86), so the hypothesis is rejected and the alternative hypothesis is accepted.This study has a novelty in the use of educational game-based learning media Wordwall as an innovative approach to improve student learning outcomes. Wordwall allows teachers to present material in the form of interactive quizzes that are designed to be interesting and systematic, thereby increasing student attention and engagement. With a variety of customizable games, this media creates a fun learning experience and encourages active participation. In addition to being effective as a learning medium, Wordwall also supports the design and review of assessments (Warmi et al., 2023). According to Sulthoni & Ulfa (2019), games are interesting for children so they can increase their enthusiasm for learning.

Social Studies (IPS) learning in elementary schools is important to be introduced early so that students understand their social environment. The main objective of IPS education in elementary schools is to form citizens who are knowledgeable, have the skills, attitudes, and values to solve problems, make decisions, and play an active role in society. However, according to Nurhayati (2021), the achievement of IPS learning objectives is still low, only around 45%, with many students not yet achieving the KKM score. The negative perception of IPS as a difficult subject causes a lack of motivation to learn. Therefore, interesting and appropriate learning media are needed. Tafonao (2018) stated that choosing interesting media can increase interest in learning. Media also helps make the delivery of material more enjoyable (Ghofur, 2020). Along with the development of technology, learning media has also developed and is able to stimulate the intellectual activity of students. Educational games, such as Wordwall, are interactive media that combine games and learning, and are suitable for evaluation (Hardiningrum et al., 2024; Tambunan et al., 2023).

Observations that have been made at SDN Kebonagung 02 during the learning process, teachers only use the lecture method and do not use enough learning media. While at SDN Kebonagung 02, the facilities and infrastructure are very adequate, such as the LCD, but they are still underutilized. So teachers only use the lecture method so that students get bored easily because the learning is monotonous. As a result, student learning outcomes decline. Around 30-40% of students have scores below the KKM, the KKM standard is 75%.The problems that have been described to overcome it, the researcher offers a solution, namely implementing the right learning media so that the IPS learning process makes students more active and also creative, namely by using educational game-based media using Wordwall. Educational game-based media using Wordwall is an application which contains questions in the form of quizzes.Wherelearning media that can be used to support learning activities using educational games (Clarisa, 2021).Wordwall educational game media is a website that allows students to play various interesting games and quizzes while learning. This is one of the educational games used in learning media both in classor at home this ceiling is ideal for learning evaluation(Tambunan et al., 2023).

Statements supported by research results Firdaus et al. (2020) stated that technological developments can be utilized as learning media. However, the learning outcomes of students in several schools such as MI Hasyim Asy'ari, MI Thoriqussalam, and SDN Sidodadi still do not meet the Minimum Completion Criteria (KKM). Based on this, the use of educational game-based learning media in social studies learning is seen as the right solution because it is able to overcome various problems, both from the perspective of students, teachers, and learning media. Therefore, this study aims to determine the effect of using educational game-based learning media Wordwall in social studies learning on improving the learning outcomes of grade V students of SDN Kebonagung 02 on the material Indonesiaku Kaya Alamnya.

METHOD

Quantitative research is a type of research based on the philosophy of positivism and aims to test hypotheses through statistical data analysis (Sugiyono, 2017). In quasi-experimental research, there are two groups, namely the experimental class and the control class (Rukminingsih et al., 2020). The population in this study consisted of all fifth-grade students at SDN Kebonagung 02 Malang, totaling 80 students, with 39 students in class VA and 41 students in class VB (Sugiyono, 2022). The researcher determined class VA as the control class which received conventional learning methods, while class VB was designated as the experimental class that received treatment using the Wordwall educational game media. The data collection techniques used in this study include observation, documentation, and tests. The test consists of a pre-test and a post-test, both in the form of multiple-choice questions, with the pre-test given before the learning process and the post-test after the treatment to measure student learning outcomes. A research instrument is a tool used to measure natural and social phenomena (Sugiyono, 2021:148), which in this study is divided into treatment instruments and measuring instruments. The measuring instruments include validity and reliability tests, where the validity test ensures that the instrument accurately measures learning outcomes, while the reliability test examines the consistency of the instrument when used repeatedly (Sugiyono, 2016). According to Sugiyono (2022:147), data analysis involves grouping, summarizing, calculating, and drawing conclusions to answer research questions and test hypotheses. The data analysis in this study included prerequisite tests (normality and homogeneity) and

hypothesis testing using the t-test through SPSS Version 26. The normality test used the Shapiro-Wilk method, where data is considered normally distributed if the significance value is greater than 0.05 (Sarwoko, 2018), while the homogeneity test used the Test of Homogeneity of Variances, and the data is declared homogeneous if the significance value is greater than 0.05 (Munir, 2016). Hypothesis testing used the t-test, and according to Sugiyono (2016), if the significance value is less than 0.05, then Ha is accepted and Ho is rejected, indicating an influence. Statistically, Ho states that there is no influence of the use of Wordwall media on learning outcomes, while Ha states that there is an influence, and the final decision is based on comparing the calculated t-value with the t-table; if the calculated t is greater than the t-table, then Ha is accepted (Priyatno, 2017:164).

RESULT AND DISCUSSION

The purpose of the question validity test is to ensure that an instrument or test actually measures what it should measure. To test the validity of the questions, the researcher conducted a validity test at SDN Gadang 02 Malang. The researcher prepared 20 questions that were given to 15 fifth grade students at SDN Gadang 02. Based on the validity test with the help of SPSS 26 For Windows, out of 20 questions, there were 10 valid questions or there were 10 questions with a sig. <0.05. The results of the question validity are arranged in the following table:

Table 1. Validity Test

Question Number	Number of Categories
2,4,6,7,9,10,11,12,19,20	10 Valid
1,3,5,8,13,14,15,16,17,18	10 Invalid

Reliability testing aims to ensure that an instrument or test can provide consistent and stable results when used repeatedly under the same conditions. Researchers tested the reliability of the test instrument using the SPSS Version 26 For Windows program. With the criteria according to Sarwoko (2018) as follows:
If the Cronbach Alpha (α) value > 0.60, then the instrument is reliable.
If the Crobanch Alpha (α) value is < 0.60, then the instrument is not reliable.
The questions are calculated using the Cronbach Alpha test with the help of SPSS 26 For Windows and can be arranged in the following table:

Table 2. Reliability Test

Reliability Statistics

Cronbach's Alpha	N of Items
.953	10

Based on the table above, the values obtained are:*Cronbach Alpha 0.953.*Because of the value*Cronbach Alpha 0.665<0.60*then it can be said that the instrument is reliable.

Data normality test is conducted with the aim of assessing the distribution of data in a group of data or variables, whether the data distribution is normal or not. Data normality test for two classes presented experimental class VA class, namely by using educational Game media using Wordwall and control class VB, namely without educational Game using Wordwall or conventional which is calculated using the Shapiro Wilk test with the help of SPSS 26 For Windows can be arranged in the following table:

Table 3. Normality Test

Tests of Normality

		Kolmogorov-Smirnova			Shapiro Wilk		
	Class	Statistics	df	Sig.	Statistics	df	Sig.
Results	Pretest A (Control)	.165	20	.157	.932	20	.166
	Posttest A (Control)	.119	20	.200*	.942	20	.260
	Pretest B (Experiment)	.183	20	.079	.919	20	.095
	Posttest B(Experiment)	.161	20	.188	.916	20	.081

a. Lilliefors Significance Correction

Based on the results of the normality test using Shapiro-Wilk from the table above, it can be seen that the results of the pretest normality test for the control class are 0.166 and the pretest for the experimental class is 0.095. The results of the posttest normality test for the control class are 0.260 and the results of the posttest normality test for the experimental class are 0.081.

Based on the criteria for the normality test, it shows that the pretest and posttest values for the control class and the experimental class are >0.05. Based on these results, it shows that the test scores taken by students are normally distributed.

The homogeneity test in this study is used to determine whether or not there is the same variance from samples taken from a population. The homogeneity test in this study uses the Test Of Homogenity Of Variances with the help of the SPSS Version 26 For Windows application with the Levene statistics test. The homogeneity test criteria are as follows:

If the significance > α, then the sample comes from the same variant (Homogeneous)

If significance < α, then the sample does not come from the same variant (not homogeneous) where α = 0.05

The homogeneity test of the results of social studies learning with the material My Indonesia is rich in nature carried out by students can be seen in the following table:

Table 4. Homogeneity Test

Test of Homogeneity of Variance

		Levene Statistics	df1	df2	Sig.
Social Studies Learning Outcomes	Based on Mean	1,972	3	76	.125
	Based on Median	1,751	3	76	.164
	Based on Median and with adjusted df	1,751	3	69,358	.165
	Based on trimmed mean	1,980	3	76	.124

Based on the table above, it can be seen that the results of the homogeneity test for the pretest and posttest of social studies learningHistory of Tradition or Culture in Indonesiaof 0.125. Based on the criteria in the homogeneity test that 0.125>0.05, then based on these results it can be concluded that the pretest and posttest are homogeneous.

After conducting both prerequisite tests, the researcher can conduct a hypothesis test. Hypothesis testing is used to determine the hypothesis. The hypothesis in this study is accepted or rejected. To test the hypothesis, the researcher uses the t-test with the help of the SPSS Version 26 For Windows application. Statistical testing is formulated as follows:

Ho: There is no influence of educational game-based learning media Wordwall on students' learning outcomes in the Social Studies subject of class V SDN Kebonagung 02 on the material My Indonesia is Rich in Nature.

Ha: There is an influence of educational game-based learning media Wordwall on students' learning outcomes in the Social Studies subject of class V SDN Kebonagung 02 on the material My Indonesia is Rich in Nature.

The test is done by comparing the calculated t value with the t table at a significance level of 5%. If the calculated t < t table, then Ho is accepted. Conversely, if the calculated t > t table, then Ha is accepted (Priyatno, 2017:164).

The researcher used an independent sample test with the help of SPSS version 26 for Windows to simplify the calculation process. The criteria for hypothesis testing are if the significance value (sig) <α, then Ho is rejected. The results of the independent sample test on the IPS test scores for the Indonesiaku Kaya Alamnya material are presented in the following table.

Table 5. Hypothesis Testing

Independent Samples Test

		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Mark	Equal variances assumed	-2,047	38	.048	-10,500	5.129	-20,882	-118
	Equal variances not assumed	-2,047	32,856	.049	-10,500	5.129	-20,936	-064

Based on the independent sample test in the table above, the results of the significance value can be seen as 0.048. So based on the criteria in the independent sample test, it shows that 0.048 <0.05, then Ho is rejected and Ha is accepted, which means there is a difference in the average results of the pretest and posttest carried out by students. Therefore, educational game-based learning media using Wordwall can be said to be effective for use in social studies learning with the material Indonesiaku kaya Alamnya.

DISCUSSION

This research was conducted at SDN Kebonagung 02 Malang 2024/2025 even semester in class VA as the Control class and class VB as the experimental class before conducting the research, the researcher had first conducted a trial of the question instrument to students in class V which was carried out at SDN Gadang 02 Malang. Then the researcher conducted a validation test of the students' questions. After conducting the validity test, there were 10 valid questions and 10 invalid ones out of 20 questions. When viewed from Sugiyono's theory (2016), valid means that the instrument can be used to measure what should be measured, with the validity criteria if the sig. <0.05. 10 questions are said to be valid because their sig. <0.05 and the other 15 questions are said to be invalid because the sig.>0.05. After that, the researcher tested the reliability of the questions to find out whether this test instrument produces the same data every time it is used and got a value of 0.953. Adjusted to the criteria

according to Sarwoko (2018) Because the Cronbach Alpha value is 0.953 <0.60, it can be said that the instrument is reliable. After knowing the number of valid questions, and testing their reliability, the researcher can then rearrange the valid questions into a research instrument. After carrying out learning in both classes, the researcher gave pretest and posttest questions to students. After that, the students' pretest and posttest score data were processed. The Normality Test was carried out with the help of SPSS Version 26 using the Shapiro Wilk method. Shapiro Wilk is a method used to test data normality. This test is very effective on samples and measures the suitability of data to a normal distribution (Nurhaswinda et al., 2025). With the provision that the sig value> 0.05, the data can be said to be normally distributed and vice versa if the sig value <0.05 the data is declared not normally distributed. This statement is in line withPriyatno (2020) emphasized that the normality test facility, where Shapiro-Wilk can be selected to find out whether the data is normally distributed, which is indicated by a significance value greater than 0.05. Pallant, Julie (2020) also stated the use of Shapiro-Wilk, and suggested an interpretation based on the significance value (Sig.) With a limit of 0.05 to determine data normality.From the analysis results obtained the results of the pre-test value of the experimental class 0.095>0.05, the post-test value of the experimental class 0.081>0.05, the pre-test value of the control class 0.166>0.05, the post-test value of the control class 0.260>0.05 then the data is declared normally distributed then continued with the data homogeneity test. Data homogeneity test if the results of the homogeneity test show that the level of significance>0.05 then it can be said that the variance of the sample in question is not much different, then the sample is declared homogeneous (Nurhaswinda et al., 2025). with the provision that the sig value>0.05 then the data is declared homogeneous and vice versa if the sig value <0.05 the data is declared not homogeneous. This statement is in line withSugiyono (2019) stated that the homogeneity requirement is met if the test results show a significance value greater than 0.05, so that the data group is considered to have the same variance. Where this statement is also in line with Priyatno, Duwi (2020) stated that in the homogeneity test using SPSS, the sig result> 0.05 indicates that the homogeneity assumption is met and the data is suitable for further analysis.from the analysis results obtained0.125>0.05, then based on these results it can be concluded that the pretest and posttest are homogeneous. then the researcher conducted a hypothesis test using the T test and obtained the results Based on the independent sample test in the table above, the results of the significance value of 0.048 can be seen. So based on the criteria in the independent sample test, it shows that 0.048 <0.05, then Ho is rejected and Ha is accepted, which means there is a difference in the average results of the pretest and posttest carried out by students.

CONCLUSION

Based on data analysis and testing of research hypotheses conducted in class V SDN Kebonagung 02 Malang 2024/2025. It can be concluded as follows:

Student learning outcomes in social studies subject materialMy Indonesia is Rich in Nature by using educational game media using Wordwall for class VB students obtained an average value (mean) of 83.00 in the good category. While the learning outcomes of students in the IPS subject of the material My Indonesia is Rich in Nature without using educational game media using Wordwall for class IIIA students obtained an average value (mean) of 72.50 in the fairly good category.

SUGGESTION

Based on the research results, it is suggestedThe use of interactive learning media such as Wordwall can be an innovative alternative in delivering lesson materials. Teachers are advised to use this platform creatively to make learning more interesting and increase student participation. Students are expected to be able to use Wordwall media not only during classroom learning, but also independently outside the classroom to deepen their understanding of the material through fun educational games.

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