

THE EFFECT OF WORDWALL BASED EDUGAMES MEDIA ON STUDENTS LEARNING MOTIVATION IN MATHEMATICS LEARNING

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ABSTRACT

Low student motivation in learning mathematics is a common challenge in mathematics learning. The use of Wordwall-based edugames media is an alternative solution to increase student motivation. This study aims to analyze the effect of using Wordwall-based edugames media on student learning motivation in mathematics learning for grade VII. This study uses a quantitative approach with a pre-experimental method. The design used in this study is a one-shot case study. This design is used to observe the effects of treatment directly after learning without a pre-test. The population in this study were all grade VII students at SMPN 3 Cikarang Selatan. The sample in this study was class VII.5 totaling 38 students who were taken using a purposive sampling technique. The instruments used in this study were a questionnaire on the use of Wordwall-based edugames media and a questionnaire on student learning motivation. Data were collected through a student learning motivation questionnaire given after learning using Wordwall-based edugames media and analyzed using a simple linear regression test with the help of SPSS Statistics software version 25. The results showed that there was a positive effect of Wordwall-based edugames media on student learning motivation in mathematics learning by 31.8%.

Keywords: mathematics; motivation; wordwall

ABSTRAK

Rendahnya motivasi siswa dalam mempelajari matematika menjadi suatu tantangan yang sering terjadi dalam pembelajaran matematika. Penggunaan media edugames berbasis Wordwall menjadi alternatif solusi untuk meningkatkan motivasi siswa. Penelitian ini bertujuan untuk menganalisis pengaruh penggunaan media edugames berbasis Wordwall terhadap motivasi belajar siswa dalam pembelajaran matematika kelas VII. Penelitian ini menggunakan pendekatan kuantitatif dengan metode pre-eksperimen. Desain yang digunakan dalam penelitian ini adalah one-shot case study. Desain ini digunakan untuk mengamati efek perlakuan secara langsung setelah pembelajaran tanpa dilakukan pre-test. Populasi pada penelitian ini adalah seluruh siswa kelas VII di SMPN 3 Cikarang Selatan. Sampel pada penelitian ini adalah 38 siswa kelas VII.5 yang diambil menggunakan teknik purposive sampling. Instrumen yang digunakan dalam penelitian ini, yaitu angket penggunaan media edugames berbasis Wordwall dan angket motivasi belajar siswa. Data dikumpulkan melalui angket motivasi belajar siswa yang diberikan setelah pembelajaran menggunakan media edugames berbasis Wordwall dan dianalisis menggunakan uji regresi linear sederhana dengan bantuan Software SPSS Statistics versi 25. Hasil penelitian menunjukkan bahwa terdapat pengaruh positif dari media edugames berbasis Wordwall terhadap motivasi belajar siswa dalam pembelajaran matematika sebesar 31,8%.

Kata kunci: matematika; motivasi; wordwall



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Introduction

Low student motivation in learning mathematics remains a significant problem in education, especially at the secondary school level. According to Prasanna et al. (2023), most students often feel sleepy, bored, and lack interest in mathematics lessons. This is consistent with data from the OECD (2023) which states that the average PISA mathematics score for Indonesian students in 2022 was recorded at only 366 points, a decrease from 379 points in 2018 and far below the OECD average of 472 points. This indicates that not only are students' mathematical abilities low, but also that students may experience obstacles such as a lack of interest and motivation in learning mathematics.

To address the challenge of low student motivation in mathematics learning, utilizing technology can be a promising approach. Nowadays, the use of technology is no longer uncommon in the learning process (A. Akbar & Noviani, 2019). Technological advancements have created a comprehensive learning experience for students, as technology has the capability to present information on a very broad scale, serving as an unlimited learning resource for students in the learning process (Trisnawati et al., 2022).

The use of technology in the form of learning media in the learning process, especially in mathematics (Perienen, 2020). Mathematics is a field of science whose applications are widely found in everyday life (Susanti, 2020). This makes mathematics a compulsory subject in schools. However, the reality is that many students still consider mathematics difficult, unpleasant, boring, and frightening (Wilianggi et al., 2023). This can result in students lacking interest in mathematics, resulting in low motivation to learn mathematics.

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After observing a junior high school in Cikarang, it was discovered that students tend to be confused when learning mathematics. This is evident in the learning outcomes of four seventh-grade students, which are still far below the school's Minimum Competency (KKM) of 75, with average scores ranging from 26.22 to 37.03. This condition reflects students' poor mathematical understanding, resulting in a lack of interest in learning mathematics. Based on research by Wahyuni & Netti (2021), most students often laze around during math lessons and are more interested in playing with their gadgets than studying mathematics. This finding is further supported by research by Akbar & Hadi (2023), who stated that students often feel sleepy and bored when learning mathematics, which gradually reduces their motivation to learn mathematics. Therefore, innovative solutions are needed to address these problems. One possible solution is to utilize digital technology as a medium for mathematics learning.

Engaging and interactive learning media are expected to facilitate students in increasing their motivation to learn mathematics (Rachmavita, 2020). Currently, there are many types of applications and websites that can be used as media in

mathematics learning, one of which is Wordwall. Wordwall is software used as an interactive, game-based learning medium in online learning (Triyani, 2023). Users can use Wordwall to create quizzes, crosswords, and other engaging educational games. According to Zulfah (2023), Wordwall has the advantage of being very easily accessible for free on any browser. Furthermore, there are also various types of game templates available for free or paid use, such as quizzes, word scrambles, anagrams, matching games, word searches, and others (Dewi et al., 2025). Links to created games can be shared directly through other social media applications. Games on Wordwall can also be downloaded in PDF format and can be printed on paper (Azizah et al., 2023). Using Wordwall can be used as an alternative that can support mathematics learning. This is because the use of Wordwall is very appropriate to the characteristics of students in the current digital era who will never be separated from the application of technology in their daily lives (Walidah et al., 2022).

The use of Wordwall allows for comprehensive student engagement in mathematics learning. Students' enthusiasm and motivation will increase, creating beneficial learning interactions between teachers and students in mathematics (Utami et al., 2023). Furthermore, the use of Wordwall provides a fun and engaging learning experience for students. This aligns with research conducted by Triyani (2023) that found that Wordwalls can encourage students to be more active in learning mathematics and help them understand the material presented by the teacher. This suggests that the use of Wordwalls has the potential to positively influence both teachers and students in mathematics learning. Although various studies demonstrate the potential of Wordwalls in learning, research on their impact on student learning motivation in the context of mathematics learning is still limited, particularly at the junior high school level.

Based on the description above, it can be seen that Wordwalls can be used as an engaging learning medium that can support students' motivation to learn mathematics. Therefore, this study aims to analyze the effect of using Wordwall-based edugames on student learning motivation in seventh-grade mathematics.

Research Methods

The research approach used was a quantitative approach with a pre-experimental method. According to Sugiyono (2016), the pre-experimental method is an experiment that is considered not yet serious because it is still influenced by external variables in the formation of the independent variable. The design used in this study was a one-shot case study. Although the one-shot case study design does not allow for comparisons before and after the treatment, this design was chosen due to time and resource constraints. However, the interpretation of the results is limited to correlational relationships, not causal ones. This research was conducted at SMPN 3 Cikarang Selatan, located in Bekasi Regency, in the even semester of the 2023/2024 academic year. The sample in this study was 38 students of class VII.5 who were selected using a purposive sampling technique. Purposive sampling is a sampling technique that is adjusted to certain considerations Sugiyono (2016). Class VII.5 was chosen because of its active participation level in the use of learning media and the willingness of subject teachers to collaborate.

The instruments used were a questionnaire on the use of Wordwall-based edugames media and a questionnaire on student learning motivation. The questionnaire on the use of Wordwall-based edugames media has been validated by an expert validator and the questionnaire on student learning motivation has been validated using the product moment test and the reliability test using the Alpha Cronbach test. Data were obtained by administering the questionnaire to students after learning using Wordwall. In the questionnaire on the use of Wordwall-based edugames media, there are 16 statement items containing student responses to Wordwall. The questionnaire on the use of Wordwall-based edugames media has 4 indicators, namely (1) Achievement of learning objectives, (2) Student involvement, (3) Motivation and interest in learning, (4) Knowledge retention. In the student learning motivation questionnaire, there are 19 statement items to explore information about student learning motivation after using Wordwall. The questionnaire uses indicators put forward by Uno (2017), namely (1) Having a desire and wish to succeed, (2) Having encouragement and a need to learn, (3) Having hopes and aspirations for the future, (4) Having appreciation for learning, (5) Having interesting activities in learning, (6) Having a conducive learning environment.

The data collection technique in this study was carried out through the use of a closed questionnaire that provided five alternative answers, namely Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. The score assessment of both questionnaires was measured using a Likert scale as can be seen in Table 1 below:

Table 1. Questionnaire Score Assessment

Alternative Answers	Positive Item (+)	Negative Item (-)
Strongly Agree	5	1
Agree	4	2
Neutral	3	3
Disagree	2	4
Strongly Disagree	1	5

The data analysis technique used in this study was a simple linear regression test. The simple linear regression test was used to determine the effect of Wordwall-based edugames media on students' learning motivation in mathematics learning. Before conducting the simple linear regression test, a normality test was conducted to determine whether the data were normally distributed or not and a linearity test to see the linear relationship between the Wordwall-based edugames media variables and the student learning motivation variables. All data analysis techniques in this study were conducted using SPSS Statistics software version 25.

Results and Discussion

Based on the results of the questionnaire on the use of Wordwall-based edugames media and the student learning motivation questionnaire, the following research results were obtained.

Normality Test

The results of the normality test of the Wordwall-based edugames media data and student learning motivation are presented in Table 2:

Table 2. Normality Test

N	Statistics	Asymp. Sig. (2-tailed)
38	0.098	0.200

Based on the results of the normality test in Table 2, the significance value obtained is 0.200. When compared to the 0.05 significance level, $0.200 > 0.05$ is obtained, which means the data is normally distributed.

Linearity Test

The results of the linearity test of the independent and dependent variables are presented in Table 3:

Table 3. Linearity Test

	Sum of Squares	Df	Mean Square	F	Sig.
Combined	1048.535	19	55.186	1.712	0.130
Linearity	517.552	1	517.552	16.053	0.001
Deviation from Linearity	530.983	18	29.499	0.915	0.574

Based on Table 3, it can be seen that the significance value of Deviation from Linearity is 0.574, so that the Wordwall-based edugames media variable and the student learning motivation variable have a linear relationship because the significance value of Deviation from Linearity > 0.05 .

Simple Linear Regression Test

After determining that the data is normally distributed and has a significant linear relationship, the next step is to perform a simple linear regression test. The following in Table 4 are the results of the simple linear regression test using SPSS Statistics version 25.

Table 4. Summary Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.564	0.318	0.299	5.556

In Table 4, the correlation or relationship value (R) obtained was 0.564 and the coefficient of determination (R^2) value was 0.318. This indicates that the Wordwall-based edugames media had a 31.8% effect on student learning motivation in mathematics learning, while the remaining 68.2% was influenced by other variables not included in this study. Furthermore, the regression test using ANOVA can be seen in Table 5:

Table 5. Regression Test (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	517.552	1	517.552	16.766	0.000
Residual	1111.316	36	30.870		

Table 5 shows the results of the regression analysis (ANOVA) with a significance value of 0.000. When compared to a significance level of 0.05, the obtained $0.000 < 0.05$, which means there is an influence of the Wordwall-based edugames media variable on student learning motivation in mathematics learning. Furthermore, the results of the simple linear regression test calculation are shown in Table 6 below:

Table 6. Simple Linear Regression Test

Model	B	Std. Error	Beta	T	Sig.
Constant	30.776	11.626		2.647	0.012
Wordwall	0.734	0.179	0.564	4.095	0.000

Based on Table 6, the significance value is $0.000 < 0.05$. This indicates that the independent variable influences the dependent variable. Furthermore, the constant value (a) is 30.776 and the regression coefficient (b) is 0.734. Thus, the regression equation is $Y = 30.776 + 0.734X$, indicating that:

1. The constant value (a) of 30.776 means that if there were no Wordwall-based edugames media variables, the constant value of the student learning motivation variable would be 30.776.
2. The regression coefficient of 0.734 means that every 1 point increase in the use of Wordwall-based edugames media will increase student learning motivation by 0.734.

Discussion

Based on the research results above, it was found that Wordwall-based edugames media has an effect on student learning motivation in mathematics. The results of the hypothesis test using a simple linear regression test using SPSS Statistics version 25 software showed a significance value of 0.000. This was then compared with a significance level of 0.05, resulting in a value of $0.000 < 0.05$, indicating that Wordwall-based edugames media has an effect on student learning motivation.

The model summary results obtained using SPSS Statistics version 25 software indicate that Wordwall-based edugames media has an effect of 31.8%. Furthermore, the simple linear regression equation found is $Y = 30.776 + 0.734X$ with a constant value (a) = 30.776 and a regression coefficient (b) = 0.734. This means that every 1 point increase in the use of Wordwall-based edugames media will increase student learning motivation in mathematics by 0.734.

Based on observations made during the research on mathematics learning in class VII.5 using Wordwall, it was seen that during the learning process, all students in class VII.5 were actively involved in learning mathematics and were not afraid to express their opinions regarding the material presented by the teacher. Students demonstrate enjoyment and enthusiasm in learning mathematics, thereby increasing their motivation. Consistent with research conducted by Awalyah (2024), the use of Wordwall can make students more active and motivated in the classroom learning process. Mathematics learning also became more enjoyable because students could learn and play several games using their gadgets with the help of Wordwall (Nisa & Susanto, 2022). The presence of Wordwall can create an

interesting learning environment, minimize student boredom, and motivate them to be more enthusiastic in learning (Tejada & Alava Jr., 2025).

Research on the influence of Wordwall-based edugames media was conducted by Salsabila (2023). This study resulted in very positive student responses to learning motivation after learning mathematics using Wordwall-based edugames media. The results of the simple linear regression test obtained showed the influence of Wordwall-based edugames media on student learning motivation by 67.2%. This result is in accordance with Uno (2017) learning motivation theory, which states that an interesting and interactive learning environment can increase students' desire and drive to learn. This is also in line with research conducted by Triansyah & Suryana (2024) with a total of 37 students as respondents. The results showed a significance value of $0.000 < 0.05$, which means that there is an influence of Wordwall-based edugames media on student learning motivation by 26.5%. This difference in influence may be caused by variations in the number of respondents, the level of intensity of Wordwall use, and the characteristics of the students. According to (Pradani, 2022), Wordwall has a very attractive appearance so that it can create a fun learning atmosphere and can make it easier for students to understand the lesson material being delivered because it directly leads to important points of the material. Based on these results, it appears that the use of Wordwall can create more meaningful learning and teaching activities, especially to increase learning motivation so that students can more easily understand the concepts of the learning material (Febrianti & Baidullah, 2025).

From the discussion of the research results above, it can be concluded that Wordwall-based edugames media has a positive influence on student learning motivation in mathematics. By using Wordwall-based edugames media, students can actively participate in the learning process, which will ultimately help achieve learning objectives well. Wordwall is not only an interesting, interactive, and enjoyable learning resource for students, but also can foster students' enthusiasm and motivation to learn mathematics.

Conclusion and Suggestion

Based on the results and discussion of the research, it was concluded that there is an influence of Wordwall-based edugames media on students' learning motivation in mathematics learning. This is proven by the results of the linear regression test analysis using SPSS Statistics Software version 25 which shows that the significance value is $0.000 < 0.05$. In addition, a correlation or relationship value (R) of 0.564 and a coefficient of determination (R^2) of 0.318 were also obtained, which means that Wordwall-based edugames media has an effect of 31.8% on students' learning motivation. From these results, it can be concluded that there is an influence of Wordwall-based edugames media on students' learning motivation in mathematics learning. In other words, Wordwall-based edugames media can have a positive impact and influence to support students' learning motivation in mathematics learning.

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