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IMPLEMENTATION OF WORDWALL LEARNING MEDIA ON THE LEARNING OUTCOMES OF CLASS VIII STUDENTS ON THE MATERIAL OF GROWTH AND DEVELOPMENT AT BINTANG LANGKAT JUNIOR HIGH SCHOOL

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ABSTRACT

Low student learning outcomes are a common problem at the end of the learning process. Suboptimal use of learning media is one of the causes of low student learning outcomes. This study was conducted with the aim of determining the extent to which the use of Wordwall learning media affects the learning outcomes of class VIII students at SMP Bintang Langkat. This study used a quantitative approach with the Quasi Experiment method. The research population was all eighth-grade students. The sampling technique was carried out using a purposive sampling method. The sample group was divided into two classes, namely the control class taught conventionally and the experimental class taught with wordwall media. Each class will be given a pretest and posttest. The instrument used was a multiple-choice test instrument with 20 questions on the material of growth and development. Before testing the hypothesis, the data were tested for normality and homogeneity. From the analysis results, it was obtained that the sample was normally distributed and categorized as homogeneous. Furthermore, a statistical hypothesis test can be carried out using the t-test. The results of the hypothesis test with the t-test showed that the calculated t-value was greater than the t-table so that Ho was rejected. This means that there is an effect of the use of the discovery learning model on the learning outcomes of students at SMP Bintang Langkat.

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INTRODUCTION

Education is a crucial aspect of national development because it plays a significant role in improving skills, quality of life, and human dignity. Efforts to improve education can be implemented through formal institutions, such as schools, which serve as the primary venue for the learning process. Therefore, schools are required to create a conducive, comfortable, enjoyable learning environment so that students feel motivated to actively participate in teaching and learning activities. This environment is expected to produce high-quality and highly competitive human resources.

One factor supporting active student engagement in learning is the availability of learning aids or media. These media serve as a bridge between the subject matter and student understanding, making the concepts presented by the teacher more easily understood, engaging, and relevant to the students' learning experiences. Therefore, the use of teaching aids is not merely a supplement, but also a determining factor in the success of the educational process in schools.

Rapid technological developments have significantly impacted the world of education, particularly in the use of various learning aids. The use of learning media, such as teaching aids, audio, visual, and audiovisual devices, and other school supplies, is now adapting to these technological advancements. This aims to support the achievement of learning objectives, align curriculum requirements, deliver material more effectively, and support teaching methods that are appropriate to students' abilities (Agusti & Aslam, 2022).

According to Wibowo et al. (2021), educational success can be seen from students' learning outcomes. These learning outcomes serve as an important indicator and benchmark for students' understanding and mastery of the material being taught. In other words, good learning outcomes not only reflect individual student success but also demonstrate the effectiveness of teaching methods and the appropriateness of the learning media used.

Based on observations, it was found that there were differences in student engagement levels in science learning. Some students appeared enthusiastic and actively participated in the learning process, while others appeared passive, having difficulty understanding the material, which they considered quite complex. This situation was exacerbated by teachers' limited use of technology-based learning media. Teachers still relied on textbooks as the primary source for delivering science material and found it challenging to teach. As a result, students also struggled to understand the lessons and tended to lose interest, making learning boring. This reduced student engagement in class (Anggraini, 2023). Furthermore, teachers were also unfamiliar with or unfamiliar with interactive learning media such as Wordwall, which could actually help create a more engaging learning environment.

Growth and development are topics studied in eighth class. To understand this material, concrete examples are needed to explain it. These examples can include images of each growth phase. Using appropriate media will make it easier for students to understand the material.

Wordwall is a web-based platform designed to support the learning process with a more engaging and interactive approach. Through this site, teachers can utilize a variety of game-based learning media to increase student engagement in learning activities. Wordwall provides a variety of game-based quiz templates, such as quizzes, random cards, crossword puzzles, and many other activity options (Sinaga & Soesanto, 2022).

The use of Wordwall not only makes learning more enjoyable but also encourages active student participation because they learn while playing. This way, students can more easily understand the subject matter without having to rely too much on textbooks or direct explanations from the teacher (Turohmah et al., 2020). Furthermore, this medium helps teachers introduce variety in teaching methods, creating a more lively classroom atmosphere and reducing student boredom.

The use of wordwall in the learning process can positively contribute to improving student learning outcomes (Aurillia & Mustika,

2024). Presenting material through this medium not only displays information but also provides a more realistic and contextual learning experience. This is because wordwall allow students to directly see examples and applications of the material in the form of images, visuals, or interactive activities.

With more engaging and easy-to-understand presentations, students can connect the subject matter to concrete learning experiences. Consequently, students' understanding of the concepts taught deepens, leading to optimal learning outcomes. Furthermore, interactive media like Wordwall can help reduce student boredom, increase motivation, and foster active participation in class.

METHODS

This research is a quantitative study. This research was conducted at Bintang Langkat Private Junior High School using a quasi-experimental method, namely a type of research that aims to determine the effects or consequences of certain treatments given to subjects, in this case, students. The study population included all eighth-grade students at the school. To determine the sample, the researcher used a purposive sampling technique, namely selecting samples based on certain considerations relevant to the research objectives. The sample was then divided into two groups: the experimental class that received learning using Wordwall media, and the control class that continued to use conventional learning methods without the assistance of digital media.

In the data collection process, the researchers used an instrument in the form of a learning achievement test to measure students' level of understanding. Before administering the test, content validity analysis and item analysis were conducted to ensure the instrument was truly suitable for use. Next, the data obtained were analyzed through prerequisite tests, namely a normality test to determine data distribution, and homogeneity test to ensure uniformity of variance between groups. After that, a final analysis was conducted using a t-test to determine whether there were any significant differences between student learning outcomes in the experimental and control classes.

RESULT AND DISCUSSION

In this study, the assessment instrument used was a learning outcomes test. The test was a multiple-choice test with 30 questions, specifically designed to measure students' achievement of science competencies. Prior to use, the test instrument was first analyzed through content validity and item analysis. Content validity was assessed by requesting assessments from expert validators, namely lecturers, to ensure that each question item aligned with the core competencies and learning objectives to be achieved (Utomo, 2022).

Prior to the research, the instrument was further analyzed to assess its quality. This analysis included tests for validity, reliability, discriminatory power, and item difficulty. This stage is crucial to ensure the instrument accurately reflects student learning outcomes (Ida & Musyarofah, 2021). The analysis process was conducted classically using a computer application, Microsoft Excel, to facilitate data processing.

Before being analyzed, the questions were first piloted on ninth-grade students of Bintang Langkat Middle School. The validity test revealed that 20 questions were valid and suitable for use, while 10 were invalid and therefore not used in the study. The results of this validity analysis are presented in Table 1 as a basis for selecting questions for use in the research test.

Table 1. Validity Test Results

Question Number	Number of Question	Validity
2, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 20, 23, 24, 25, 26, 28, 29, 30	20 Question	Valid
1, 3, 4, 7, 17, 18, 19, 21, 22, 27	10 Question	Not Valid

The next step was to conduct a reliability analysis using a Cronbach's Alpha comparison. The purpose of the reliability test is to determine the extent to which the test items consistently measure student learning outcomes in a stable and reliable manner (Alhakim et al., 2021). A test instrument can be categorized as reliable if the calculated r value is greater than the table r value. Based on the analysis results, all test items were declared reliable and therefore suitable for use in research. In addition to reliability, a difficulty analysis was also conducted to determine the variation in difficulty levels of each item. The analysis results showed that 8 questions were categorized as easy, 11 were categorized as medium, and 1 question was categorized as difficult. This variation in difficulty levels is important to ensure that the test instrument is neither too easy nor too difficult, but rather balanced in measuring students' overall abilities. Details of the difficulty analysis results are presented in Table 2.

Table 2. Difficulty Level Test Results

Question Number	Number of Question	Level of Difficulty
2, 5, 9, 11, 14, 15, 20, 24	8 Question	Easy
8, 10, 12, 13, 16, 23, 25, 26, 27, 28, 29, 30	11 Question	Medium
6	1 Question	Difficult

A discriminatory power analysis was then conducted, the results of which can be seen in Table 3. This analysis aims to determine the extent to which each item is able to differentiate between students with high ability and students with low ability (Magdalena et al., 2021). In other words, discriminatory power ensures that the questions not only measure knowledge but also effectively select students' levels of understanding. The assessment of discriminatory power is based on the discriminatory power index value, which indicates the quality of the questions. The analysis results show that 11 questions are categorized as good, meaning they are still suitable for use despite their average quality; 8 questions are categorized as fair, meaning they are able to effectively differentiate students' abilities; and 1 question is categorized as poor. This variation in question quality is important so that the test instrument can truly provide an objective picture of student learning achievement.

Table 3. Differentiating Power Test Results

Question Number	Number of Question	Differentiating Power
1, 9, 11, 12, 15, 20, 23, 24, 25, 26, 28	11 Question	Good
2, 5, 6, 8, 10, 13, 14, 16	8 Question	Enough
29	1 Question	Bad

After the assessment instrument passed the validity, reliability, discriminatory power, and difficulty levels tests and was found to meet the criteria for quality questions, it was then used to collect research data. The instrument was applied to two groups: a control class using conventional learning methods and an experimental class using Wordwall media.

The initial step in data collection was a pretest, a preliminary test given to both classes to determine students' initial abilities before the learning treatment was administered. The results of this pretest are important as a baseline for comparing learning outcomes after the treatment. The pretest results for the control and experimental classes are presented in detail in Table 4.

Table 4. Pretest results in the control class and experimental class

Data	Pretest	
	Control	Eksperiment
Max	60	75
Min	25	20
Mean	42,875	42,5
SD	12,247	17,004

After the pretest, both research groups the control and experimental classes were given treatments using different learning approaches. The control class continued to use the conventional learning model, where the learning process is largely teacher-centered, while the experimental class used wordwall, which emphasize active student involvement in discovering concepts through experiential learning.

After the treatment was completed, both groups of students underwent a posttest. This test aimed to measure the extent to which students had improved their learning outcomes after participating in the learning process using different models. A comparison of posttest scores between the control and experimental classes is then presented in detail in Table 5, which serves as the basis for analyzing the effectiveness of the learning methods used.

Table 5. Posttest results in the control class and experimental class

Data	Postest	
	Control	Eksperiment
Max	85	95
Min	55	60
Mean	70,128	78,205
SD	10,801	12,247

Before conducting the hypothesis test, a prerequisite analysis was first carried out, including a normality test and a homogeneity test. The normality test is used to determine whether the research data is normally distributed or not (Usmadi, 2020). In this study, the analysis technique used was the Lilliefors test. The criterion used is if the calculated L value is smaller than the L table, then the data is said to be normally distributed. Based on the calculation results on the learning outcomes of students taught using wordwall media, the calculated L value was 0.117 with an L table of 0.140. Because the calculated L < L table, it can be concluded that the data is normally distributed.

The next step is the homogeneity of variance test, which aims to determine whether the data from both research groups have the same variance or not. The criteria used is that the data is said to be homogeneous if the calculated F < F table. From the calculation results, the calculated F is 1.648, while the F table is 3.96. Because the calculated F < F table, the data can be said to have homogeneous variance.

After both prerequisites are met, the hypothesis test is continued using the t-test at a significance level of 0.05. The criteria used are if the calculated t> t table, then H_o is rejected and H_1 is accepted. From the calculation results, the calculated t is 3.65 which is greater than the t table which is 1.99. This indicates that H_o is rejected, so it can be concluded that there is a positive influence of the use of wordwall media on the learning outcomes of class VIII students of SMP Bintang Langkat. In other words, the application of this media is proven to be more effective than conventional media in improving student learning outcomes. The results of this study are in line with research by Aurillia & Mustika (2024), which states that the use of Wordwall application-based learning media has a positive influence on improving student learning outcomes, especially in the material of the human respiratory system.

CONCLUSION

Based on the results of the research that has been carried out, it can be concluded that the use of Wordwall learning media has a significant influence on the learning outcomes of class VIII students of Bintang Langkat Junior High School. This is proven through the results of the t-test analysis on the post-test data, where the calculated t value of 3.65 is obtained, which is greater than or equal to the t-table of 1.99. Thus, the null hypothesis (H_o) is rejected and the alternative hypothesis (H_a) is accepted.

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