The Influence of The Wordwall Application Media on Interest and Learning Outcomes in Grade V Students on The Human Respiratory System Material

Hijratul Arafah Amry[1]✉, Sri Estu Winahyu[2], Candra Utama[3]
[1]Elementary School Teacher Education, State University of Malang, East Java, Indonesia

Abstract

This research was conducted to analyze the influence of the Wordwall application media on the interest and learning outcomes of grade V students on the human respiratory system material. The research method used was quantitative research with a quasi-experimental type, using a non-equivalent control group design. The research results showed that, firstly, there was a significant difference in students' interest in learning after being treated with the Wordwall application compared to those using conventional media. Secondly, there was a significant difference in students' learning outcomes after being treated with the Wordwall application media compared to students who used conventional media. Therefore, it can be concluded that the Wordwall application media has a significant influence on the interest and learning outcomes of grade V students regarding the human respiratory system.

Keywords: Learning Interest, Learning Outcomes, Wordwall Application Media.

Pengaruh Media Aplikasi Wordwall Terhadap Minat dan Hasil Belajar Kelas V Materi Sistem Pernapasan Manusia

Abstrak

Penelitian ini dilakukan untuk menganalisis pengaruh media aplikasi wordwall terhadap minat dan hasil belajar siswa kelas V pada materi sistem pernapasan manusia. Metode penelitian yang digunakan yaitu penelitian kuantitatif dengan jenis quasi eksperimental, menggunakan jenis non equivalent control group design. Hasil penelitian didapatkan bahwa, pertama ada perbedaan yang signifikan pada minat belajar siswa setelah diberi perlakuan aplikasi wordwall dengan yang menggunakan media konvensional. Kedua, ada perbedaan yang signifikan pada hasil belajar siswa setelah diberi perlakuan media aplikasi wordwall dengan siswa yang menggunakan media konvensional. Oleh karena itu dapat disimpulkan bahwa media aplikasi wordwall memberikan pengaruh yang signifikan pada minat dan hasil belajar siswa kelas V materi sistem pernapasan manusia.

Kata kunci: Minat Belajar, Hasil Belajar, Media Aplikasi Wordwall.

✉*Corresponding Author: Hijratul Arafah Amry*
Affiliation Address: Universitas Negeri Malang, Indonesia
E-mail: hijratul.arafah.2001516@students.um.ac.id.

INTRODUCTION

Education is an effort to create quality individuals. Education is essential for humans. According to (Launin, 2013), education is a way to change behavior through teaching. Good education emphasizes and considers students' needs and development through the learning process. Based on Government Regulation No. 19 of 2005 concerning National Education Standards, article 19 mandates that "the learning process in schools should be conducted actively, inspirationally, enjoyably, and stimulatingly, motivating students to contribute actively and providing sufficient space for initiative, creativity, and independence according to students' talents, interests, and physical and psychological development." Therefore, the applied learning should meet the criteria determined by students' interests and learning outcomes.

Interest plays a crucial role in the teaching and learning process as it affects students' engagement levels. Good learning interest also influences student learning outcomes. Learning is a process where there is a change in an individual. (Syam et al., 2022) explain that learning is marked by a change in behavior, including attitudes, knowledge, and skills, resulting from given stimuli. Good learning outcomes can be obtained from good stimuli. Every learning process needs to be considered and expected to change students' thinking processes. Therefore, process skills in learning are crucial to keep students active during learning, fostering their interest and learning outcomes.

One of the learnings that enhances process skills is science learning. Through science learning, students are required not only to receive knowledge but also to experience the learning process themselves. Some competencies that must be mastered in elementary science learning according to Permendiknas Number 22 of 2006 are "developing awareness about the interconnectedness between technological and scientific abilities, environmental conditions, and their utilization for daily life; developing students' abilities to implement science and technology and skills that provide benefits in daily life or for further education." Thus, science learning requires abilities and skills in science and technology to go hand in hand. Moreover, students' interest in learning science must also be increased, considering that students must be active and skilled. The interest here will enhance students' learning activeness. Consistent with (Andira et al., 2022), who stated that learning interest is a state where someone has a liking and self-motivation in carrying out an activity without coercion, thus actively engaging in learning. Fostering students' interest in learning is vital to increasing their activeness, which will ultimately impact their learning outcomes. (Tasya & Abadi, 2019) explain that "learning outcomes are the abilities acquired after gaining learning experiences that will result in changes in student behavior." These learning outcomes can serve as benchmarks for students' success in their learning process.

Observation results at SDN Lowokwaru 3 Malang City during science learning showed that students' learning interest decreased over time when learning the human respiratory system material. Initially, students could focus, but towards the middle and end of the lesson, they felt bored and lost interest, as seen by their lack of attention and talking to themselves. The media used in the school mostly comprised learning books, videos, and regular PowerPoint presentations that did not engage students' activeness and skills. Moreover, the material taught, the human respiratory system, is relatively difficult as students need to know the respiratory system's organs and understand each organ's function. When using video learning on the human respiratory system, the researcher observed that the teacher only showed the video without engaging students in active question-and-answer sessions, leading to a lack of understanding of essential points and reduced interest in learning, making the lesson monotonous.

During interviews, teachers also explained that the learning media used were less varied due to limited learning facilities and time constraints in creating learning media. This issue is concerning as it is prevalent in many schools where media use is limited.

(Susanto et al., 2022) explained that the learning media used by teachers is often limited to PowerPoint presentations, image media, learning videos, and printed books. Similarly, research by (Diana et al., 2022) found that "teachers rarely utilize media maximally and rely only on student books, seldom using diverse learning media." This situation is worrying as teachers need to use learning media as tools to transfer information to students effectively.

Additionally, previous research by Junioviano showed that another factor causing students to lack enthusiasm and motivation to learn is that teachers are less innovative in using learning media, focusing only on one source, primarily thematic books (Junioviano, 2022). Based on the issues found in the learning process, such as students' lack of interest, which is concerning as it can affect their learning outcomes. Student learning outcomes are evidenced by data from teachers showing that more than 50% of students received low scores in the human respiratory system material in theme 2, sub-themes 1, 2, and 3, where daily assessments in class VA showed many students, 19 out of 26, scored low. Similarly, in class, VB, 20 out of 27 students scored low. Low scores mean that the scores obtained are far from expectations. This could be due to inappropriate and less interactive learning media, difficult learning material, or unsuitable teaching methods. These issues must be addressed as effective learning can increase students' interest and learning outcomes. Therefore, teachers should be able to apply innovative media to help students understand the learning material easily.

Implementing engaging media is a crucial factor in learning. During the interview process, the researcher offered a solution for the existing learning media. Teachers can apply innovative learning based on science and technology, using interactive learning media called the Wordwall Application. Wordwall is a learning media application with attractive and varied interactive game templates such as quizzes, word searches, random cards, and more (Pradani 2022). Wordwall is declared an interactive learning media. (Aidah & Nurafni, 2022) stated that "the Wordwall application can be used as a learning source and assessment media for teachers." Wordwall media has advantages, including making learning more engaging, and active, and enhancing students' understanding of the material, as it creates two-way learning between teachers and students. Therefore, the Wordwall application can be a solution to the existing problems.

The solution provided for the learning media, the Wordwall application, was discussed with the teacher, who agreed to implement it in the learning process as they were familiar with the application. During the implementation, the teacher explained that this media could attract students' interest in learning, as the teacher had previously used it in teaching, although not in science lessons. Therefore, the media was deemed a solution for the teacher's issues with the lack of interactive learning media, difficult material, inadequate learning facilities, declining interest, and low student learning outcomes. This media is easily accessible on the internet, providing interactive templates that make learning more meaningful, and it can be accessed and edited by teachers.

This solution is supported by previous research that found using the Wordwall media increased students' interest and motivation in science learning (Aidah & Nurafni, 2022). Other studies also showed that the Wordwall application is more effective in learning and learning outcomes than using a single source (Nadia & Desyandri, 2022). However, the objects and subjects of the research variables in this study are different from previous studies, prompting the researcher to conduct this study. The purpose of this research is to analyze the influence of the Wordwall application on increasing the learning interest and outcomes of grade V students in the human respiratory system material at SDN Lowokwaru 3 Malang. This research is expected to address existing problems and serve as a reference for teachers to implement engaging and interactive learning to increase students' interest and learning outcomes.

METHODS

This research uses a quantitative research approach with a quasi-experimental type, using a non-equivalent control group design. The study was conducted at SDN Lowokwaru 03 Malang City. The population consisted of 76 students, with samples from classes VA and VB, each comprising 25 students as the control and experimental classes. The control class used conventional media, such as learning videos, while the experimental class used the Wordwall application. The sampling technique used was purposive sampling based on the research objectives and problems. Data collection was done through questionnaires, written tests, and documentation. Data analysis used descriptive and inferential statistics with a t-test, specifically the Independent Sample T-test.

FINDINGS AND DISCUSSION
Research Results
1. Research Data

The learning interest data consists of before and after the media application in the control and experimental classes. The sample classes were class V, where class VA was the control and class VB was the experimental class. This learning interest data was obtained from questionnaire results and students' pre-test and post-test scores on the human respiratory system material.

The data from the pre-test and post-test for the experimental class, class VB, showed a significant increase in learning outcomes. The pre-test average was 60.8, and the post-test average was 80.3, indicating an improvement after using the Wordwall application. The control class, class VA, using conventional media, showed a pre-test average of 61.6 and a post-test average of 69.4, indicating a lesser improvement compared to the experimental class.

Table 1. Descriptive Statistical Test Results Data for Initial and Final Learning Interest

Statistik Deskriptif	Kelas Eksperimen		Kelas Kontrol	
	Pre-respon	Post-respon	Pre-respon	Post-respon
Jumlah Nilai	1833	2037	1836	1924
Rata-rata	73,32	81,48	73,44	76,96
Nilai Terendah	63	73	66	69
Nilai Tertinggi	80	89	85	90
Standar deviation	4,181	4,175	4,464	5,119

The table above shows the difference in students' learning interest scores after the intervention in the experimental class (VB) and the control class (VA). Class VA had an average score of 76.96, while class VB had an average score of 81.48. This means that students in the experimental class (VB) had a higher final learning interest compared to the control class (VA) with a final learning interest score difference of 4.52.

Furthermore, the average percentage calculations revealed that the highest average percentage of students in the experimental class was based on the student's responses in the final learning interest questionnaire, which was the students' interest in learning at 86.84%, while the lowest was the students' participation in learning with a score of 82.92%. In the control class, the highest average final learning interest was 80.625%, based on the indicator of students' attention in the learning process, while the lowest was the feeling of enjoyment in learning, with a score of 79.68%.

Based on the explanation above, here is a comparison of the average percentage data for the experimental and control classes in terms of students' learning interest in the human respiratory system material both before and after the intervention.
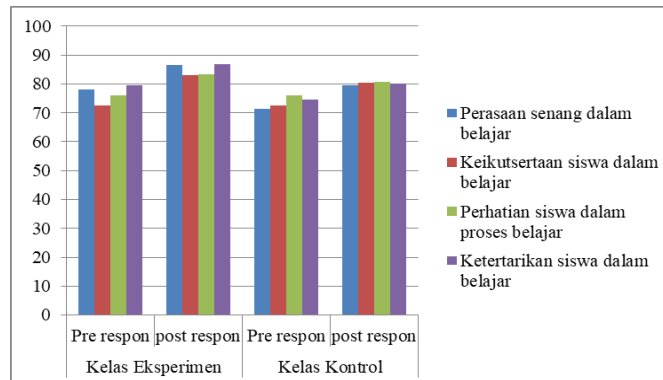

Figure 1. Comparison of Average Percentage of Initial and Final Learning Interest

Next, the data on students' learning outcomes were obtained through pre-tests and post-tests. The tests included 20 science questions about the human respiratory system, covering definitions, types of respiratory organs, functions of respiratory organs, and the human respiratory process. Below is Table 2, which contains the science learning outcomes data from the descriptive statistical test results using SPSS version 23.

Table 2. Descriptive Statistical Test Results Data for Pre-test and Post-test.

Statistik Deskriptif	Kelas Eksperimen		Kelas Kontrol	
	Pre-test	*Post-test*	*Pre-test*	*Post-test*
Jumlah Nilai	1435	1935	1400	1650
Rata-rata	57,40	77,40	56,00	66,00
Nilai Terendah	25	55	40	50
Nilai Tertinggi	90	95	75	85
Standar deviation	18,603	11,376	8,539	8,780

Based on the data above, it shows that there are different student learning outcomes after the treatment in the experimental and control classes, as seen from the post-test results. The control class achieved an average score of 66.00, while the experimental class had an average score of 77.40. This means that the experimental class had higher learning outcomes than the control class, with a score difference of 11.4. The comparison of student learning outcomes is presented in Figure 2 below.
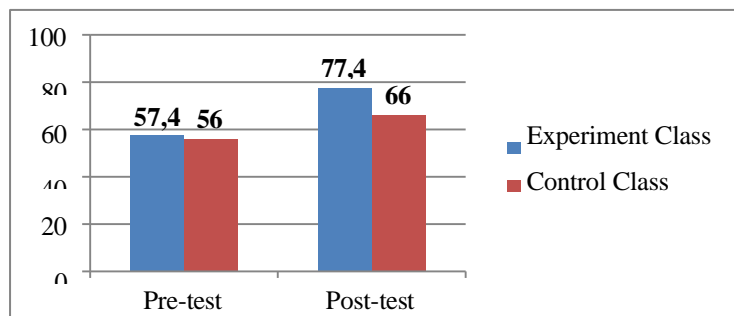

Figure 2. Diagram of Average Pre-test and Post-test Scores for the Experimental and Control Classes

2. Hasil Analisis Data

The results of the normality test on learning interest and learning outcomes data using the Shapiro-Wilk test, assisted by the software SPSS for Windows version 23, are shown in Table 3 below.

Table 3. Normality Test Results and Learning Outcomes in Control and Experimental Classes.

Kelas		Shapiro-Wilk		
		Statistic	df	Sig.
Minat Belajar IPA	Kelas Eksperimen (Wordwall)	0,975	25	0,767
	Kelas Kontrol (Konvensional)	0,962	25	0,461
Hasil Belajar IPA	Kelas Eksperimen (Wordwall)	0,953	25	0,287
	Kelas Kontrol (Konvensional)	0,951	25	0,270

From the results of the normality test, both the control and experimental classes have data that are normally distributed with p-values greater than 0.05 for both interest in learning and learning outcomes. Specifically, the experimental class has a significance value of 0.767 for interest in learning, while the control class has a significance value of 0.461. For learning outcomes, the experimental class has a significance value of 0.287, and the control class has a significance value of 0.270.

Therefore, it is concluded that the data for students in classes VA and VB are normally distributed for both interests in learning and learning outcomes. Next, the homogeneity test using Levene's test is presented in Table 4.

Table 4. Homogeneity Test Results and Learning Outcomes between Experimental and Control Classes.

		Levene Statistic	df1	df2	Sig.
Minat Belajar IPA	**Based on Mean**	0,571	1	48	0,453
	Based on Median	0,592	1	48	0,445
	Based on Median and with adjusted df	0,592	1	45,842	0,446
	Based on trimmed mean	0,592	1	48	0,445
Hasil Belajar IPA	**Based on Mean**	3,988	1	48	0,052
	Based on Median	3,729	1	48	0,059
	Based on Median and with adjusted df	3,729	1	47,986	0,059
	Based on trimmed mean	3,998	1	48	0,051

The table above indicates that the interest in learning and learning outcomes of students in the experimental and control classes are homogeneous (p > 0.05). Interest in learning has a significance value based on the mean of 0.453. Similarly, the learning outcomes data show a significance value based on the mean of 0.052. Therefore, it is concluded that the interest in learning and learning outcomes data of classes VA and VB are homogeneous. Based on the prerequisite tests conducted, the data is suitable for hypothesis testing. The results are as follows.

Table 5. Independent Sample T-test Results for Student Interest in Learning

Minat Belajar Siswa		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Post-respon	Equal variances assumed	-3,421	48	0,001	-4,520	1,321	-7,176	-1,864
	Equal variances not assumed	-3,421	46,132	0,001	-4,520	1,321	-7,179	-1,861

Based on the results of the test in Table 5, the data shows that the interest in learning after treatment has a significance value (2-tailed) of 0.001. The table indicates that there is a difference in the interest in learning values of students obtained after using the media in the control and experimental classes because the significance value (2-tailed) obtained is 0.001, which means that the significance value (2-tailed) is < 0.05, where 0.001 < 0.05. Therefore, it can be concluded that Ho1 is rejected and Ha1 is accepted, indicating the influence of the Wordwall application media on student interest in learning in Class V on the human respiratory system material at SDN Sumbersari 03 Kota Malang in the experimental class.

Table 6. Independent Sample T-test Results for Student Learning Outcomes

Hasil Belajar Siswa		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Post-test	Equal variances assumed	-3,967	48	0,000	-11,400	2,874	-17,179	-5,621
	Equal variances not assumed	-3,967	45,103	0,000	-11,400	2,874	-17,188	-5,612

Discussion

Analysis of the Influence of Wordwall Application Media on Grade V Students' Learning Interest in the Human Respiratory System Material at SDN Lowokwaru 03, Malang City

Based on the research results at SDN Lowokwaru 03, Malang City, in the experimental class using the Wordwall application media, students showed high enthusiasm and were actively engaged in learning. Thus, the Wordwall application media is capable of influencing students' learning interests. This is evidenced by Wordwall media being an attractive medium for students in conducting science learning processes, specifically in the human respiratory system material. In line with the explanation by (Launin et al., 2022), who stated that "Wordwall media is an application that can attract students in learning, making students feel happy and interested, showing enthusiasm in conducting the learning process."

This statement is also reinforced by the explanation by (Marleni, 2018) that students who show feelings of happiness, interest, and enthusiasm for learning are said to

have learning interest and are interested in following the learning process. Therefore, Wordwall media fulfills the indicators of learning interest, consisting of feelings of happiness in learning, which obtained an average percentage score of 86.5%, students' participation in learning at 82.92%, students' attention in learning at 83.34%, and student's interest in learning, with an average percentage score of 86.84%. Therefore, the use of Wordwall media is attractive to be used in learning as a medium to attract students' interest in learning.

Meanwhile, in class VA, which is the Control class using conventional media, namely learning videos, it was found that students had not maximally shown enthusiasm and happiness in learning, as evidenced by the research results showing that the happiness indicator in the learning interest only obtained an average percentage score of 79.68%. During the learning process after being given treatment in the control class using learning videos, the classroom condition was found to be less conducive, and students were talking to themselves during the learning process because the teacher did not encourage students to participate in learning, and the video duration was felt to be too long.

This is reinforced by the statement (Siska & Astiswijaya, 2022), which explains that "what needs to be reviewed in delivering learning using learning videos is the duration of the video because using long-duration learning videos will make students feel bored and unfocused during the teaching and learning process." Therefore, it can be said that students' learning interest is low when the learning process uses learning videos in the control class. Therefore, Wordwall media influences students' learning interest in the human respiratory system material.

The research results are in line with previous studies that show that the Wordwall application media influences the learning interest of grade IV students at SDN 1 Sukorame (Launin et al., 2022). Similarly, the study by (Herta et al., 2023) supports the research that has been conducted, namely the use of the Wordwall application media in learning can stimulate students' learning enthusiasm in class, making students happy and interested in learning. Therefore, utilizing the Wordwall application media can influence students' learning interests. Thus, teachers in implementing their teaching processes must be able to choose media that can attract students' interest in learning, be varied, and not monotonous.

Through the implementation of Wordwall media, learning feels meaningful because it is proven by the conducive classroom conditions and students showing activity in the class. This statement proves the truth of the cognitive learning theory, where in the learning process, students become the subject of learning and actively engaged, making learning more meaningful for students. This is also in line with the statement by (Mujahidin et al., 2021) that Wordwall media has several advantages, including making the learning process more meaningful, easy for students to follow, having various attractive templates or features in the application, so it is varied and does not make students feel bored, and making the learning process interactive and student-centered. The use of Wordwall application media allows students to be active and enthusiastic and not feel bored during the learning process, thus influencing students' interest in learning.

Increased learning interest in students will automatically support their learning processes so that the material taught can be easily understood by students because they will carry out the learning process with enthusiasm and actively participate in their learning processes. In line with the statement (Muliani & Arusman, 2022) that learning interest plays a role in supporting students to have a willingness to learn. One key to students' activity lies in their learning interests. This interest arises naturally due to meaningful experiences that students go through during learning.

The use of Wordwall application media stimulates students' enthusiasm to learn about the respiratory system. This is in line with (Pradani, 2022) explanation, which formulates that Wordwall media can influence students' learning interest, which is

characterized by students' activity during learning, being diligent in following lessons, actively asking questions, and submitting assignments on time. This is also in line with the behaviorist learning theory, where students are given stimuli, meaning here that Wordwall application media causes changes in the aspect of students' learning interest. In addition, Wordwall media can be used by teachers to realize effective learning.

Analysis of the Influence of Wordwall Application Media on the Learning Outcomes of Grade V Students in the Human Respiratory System Material at SDN Lowokwaru 03, Malang City

The research found that Wordwall application media can influence the learning outcomes of grade V students. This is due to the implementation of the learning process in the experimental class using Wordwall application media, which was able to make students understand the learning material taught because students actively participated, making the learning process interactive and lively. There was an increase in the average pre-test and post-test scores by 20.00.

This is in line with the research by (Nadia & Desyandri, 2022), which explains that the Wordwall application can influence students' learning outcomes. This is reflected in students' academic behavior and their interest and enthusiasm for discussion. High learning outcomes are also achieved by introducing enjoyable and relevant learning content to students.

The research results also align with related studies conducted by (Junioviano, 2022), who found that Wordwall media can influence the learning outcomes of grade V students at SDN 1 Kedungkumpu, Sukorame, Lamongan Regency, which were initially low but have now increased. Similarly, another study conducted by (Sukma & Handayani, 2022) to strengthen the research shows that using Wordwall application media compared to using traditional media or not using any media during learning. Therefore, Wordwall media influences the learning outcomes of students by obtaining an average score of 57.40 in the pre-test in the experimental class and increasing to 77.40 in the post-test, which means a difference in the average score of 20.00.

This is also in line with the behaviorist learning theory, where students are given stimuli, meaning here that Wordwall application media causes a response, namely changes in the aspect of students' learning outcomes. The achievement of high learning scores is also caused by high learning interest. Because people who have high learning interests are certainly enthusiastic about learning and actively strive in their learning processes their learning outcomes will also have a positive influence (Andira et al., 2022). This is caused by factors that influence students' learning outcomes consisting of internal and external factors. Internal factors are caused by learning interest, and external factors come from the learning methods used and the facilities used in the implementation of the learning process.

Through this research, these external factors come from Wordwall media used in the implementation of science learning. From the research results, Wordwall application media can make the learning process active and student-centered and can make students actively contribute to their learning processes. This is in contrast to the implementation of learning videos, which tend to be monotonous, and the classroom atmosphere tends to be passive because it is not accompanied by the implementation of appropriate learning methods by focusing on students, so in the end, students feel bored and the classroom atmosphere is not conducive. Therefore, the use of learning media combined with suitable learning methods and models will further help support the teaching and learning process so that it will also have an impact on students' learning outcomes.

CONCLUSION

The hypothesis testing results using the Independent Samples T-test with SPSS 23 application showed that the interest in learning data after the treatment was applied to both classes yielded a significance value of 0.001. Because 0.001 < 0.05, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted, indicating a difference in the average learning interest between the experimental and control groups. Therefore, it can be concluded that the Wordwall application influences the learning interest of grade V students in the human respiratory system material at SDN Lowokwaru 03, Malang City.

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