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THE INFLUENCE OF WORDWALL MEDIA ON THE LEARNING OUTCOMES OF GRADE III STUDENTS IN SCIENCE LEARNING CHANGES IN THE FORM OF OBJECTS

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Abstract

This study aims to examine the impact of the use of Wordwall media on the academic achievement of grade III science students at SDN Tanah Baru 1 for the 2023–2024 school year. The method used is a quantitative approach with a quasi-experimental design, where class III A is the experimental group and class III B is the control group. Of the 30 multiple-choice questions that were tested for validity, 20 questions were declared valid. The reliability test with the KR-20 formula showed a reliable result with a Rcal value of 5.4361, greater than the critical reliability value of 1.6972. The t-test results showed that the Tcount > Table (0.975 > 0.564) was at a significance level of α = 0.05, so H0 was rejected and H1 was accepted. In conclusion, there is a positive influence of the use of Wordwall media on the learning outcomes of science grade III students at SDN Tanah Baru 1 Depok, West Java.

Keywords: *Wordwall Media, learning outcomes, Science, Chages in the form of objects.*

Abstrak

Penelitian ini bertujuan untuk mengkaji dampak penggunaan media Wordwall terhadap prestasi akademik siswa IPA kelas III di SDN Tanah Baru 1 tahun ajaran 2023–2024. Metode yang digunakan adalah pendekatan kuantitatif dengan desain kuasi-eksperimental, di mana kelas III A sebagai kelompok eksperimen dan kelas III B sebagai kelompok kontrol. Dari 30 soal pilihan ganda yang diuji validitasnya, 20 soal dinyatakan valid. Uji reliabilitas dengan rumus KR-20 menunjukkan hasil yang reliabel dengan nilai Rhitung 5,4361, lebih besar dari nilai reliabilitas kritis 1,6972. Hasil uji-t menunjukkan bahwa Thitung > Ttabel (0,975 > 0,564) pada tingkat signifikansi α = 0,05, sehingga H0 ditolak dan H1 diterima. Kesimpulannya, terdapat pengaruh positif penggunaan media Wordwall terhadap hasil belajar siswa kelas III IPA di SDN Tanah Baru 1 Depok, Jawa Barat.

Kata kunci: Media Wordwall, capaian pembelajaran, ilmu, perubahan wujud dalam bentuk benda.

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Introduction

Education is the deliberate and directed cultivation of an environment conducive to learning and the learning process to empower students to reach their full potential in all areas of life: spirituality, personality, intelligence, virtue, and abilities required by themselves, their communities, their country, and their state (Annisa 2022).

In the era of globalization in the 21st century, education uses technology in the learning process which is very interesting so that students do not get bored with the teaching and learning process activities. However, in this case, educators at SDN Tanah Baru 1 have not used technology that has a great influence on student learning outcomes, besides that educators in the process of science learning activities without using learning media. Many students have low KKM scores. That the KKM score for the learning outcomes of science subjects that must be

achieved by students is 75.

For class III A whose score is still below the KKM, there are 19 students, while those above the KKM are 15 students. For class III B, the KKM score is 18 students, while those above the KKM are 16 people. It is very important to determine how many students in Grades III A and III B still benefit greatly from the KKM to improve scientific learning outcomes. Teachers and students alike can use this wordwall media in various ways, including as a teaching tool, learning resource, and evaluation tool for their progress (Tatsa Galuh Pradani 2022).

Learning according to (Siti Ma'rifah Setiawati 2018), The term "learning" refers to the process in which an individual's attitudes and behaviors are deliberately changed from pre-learning and post-sedentary states. Learning is defined as "the ability to behave in a certain way as a result of practice or other types of experience," as put forward by (Schunk 2019).

According to (A.M. Cicih Juarsih 2016) The basic definition of learning is the process by which an organism acquires new skills and knowledge that, when combined with existing knowledge, improves its overall model of behavior. According to (Aqib 2020) A person's identity undergoes a transformation as a result of learning. It cannot be claimed that a man has learned something if he remains unchanged after acquiring new knowledge.

Learning outcomes, as defined by Wulandari (2021), are competencies or abilities that students acquire during the teaching and learning process. These results include cognitive, emotional, and psychomotor skills. Learning outcomes are defined as changes in student behavior that occur as a result of the implementation of the learning process (Purwanto 2011). Three main goals of education—cognitive, affective, and psychomotor—are consistent with this shift. Observable and measurable changes in learner behavior, including new information, perspectives, and abilities, are known as learning outcomes (Omer Hamalik, 2016). This shift can be seen as an advancement or improvement over what was previous.

Science is defined as the study of naturally occurring symptoms that are systematically arranged according to human observations and experiments (Kurniasih 2020). In general, its use is limited to natural phenomena, according to (Trianto 2010), which states that science is methodically regulated knowledge. Science is a subfield of knowledge that seeks to explain and understand the cosmos with methodical and directed observations, processes, and reasoning (Susanto, 2013).

Learning media according to (Suprapto 2011), Simply put, learning media is anything that can be physically brought to the student's environment that contains instructional information with the aim of stimulating their learning. Teachers need learning materials so that learning becomes effective and efficient (Sutjiono 2005). The purpose of learning media is to facilitate better two-way communication and engagement between educators and students in the classroom (Hamalik 2014). Learning media is an excellent complementary tool that teachers can use to achieve the required goals, according to (Suprapto 2011). According to (Tatsa Galuh Pradani 2022) wordwall is a digital gamification-based program that offers various features of games and quizzes that teachers can use as a learning medium that assesses student learning. According to (Lesatari 2021) Wordwalls are entertaining for students to use as evaluation tools, media resources, and educational resources.

Some of the studies that are considered relevant to this research include, namely, (1) Prisma Gandasari and Puri Pramudiani (2021) from the University of Muhammadiyah Prof.DR.HAMKA with the title "The Influence of the Wordwal Application on the Motivation to Learn Science of Students in Elementary Schools" This study aims to examine the impact of

the use of the Wordwall application on the learning achievement of Natural Sciences (IPA) of elementary school students. The method used was an experiment with a Post-Test Control Group design. The similarity between this study and previous studies lies in the use of Wordwall media and experimental methods. The difference is in the focus of the subject, where this research takes the topic of changing the form of objects in science lessons at the elementary school level. (2) Wafiqni and Putri (2021) with the title "The Effectiveness of the Use of Wordwal Application in Online Learning Mathematics in Grade 1 Decimal Numbers" The purpose of the study proves that the Wordwall application should be used as a means of learning for students, with an increase in exam scores reaching 75%. This study applies an experimental method with a Post-Test Design of the Control Group. The similarity between this study and previous studies lies in the use of Wordwall media and experimental methods. The difference is in the subjects and the way they are implemented. Previous research focused on online Mathematics lessons (in the network) in elementary schools, while this study examined science subjects offline (offline) at the same level. (3) Farhan (2022) from the University of Muhammadiyah Prof. DR. Hamka with the title "The Influence of Wordwall Media on Science Learning Outcomes of Generative Animal Breeding Materials for Students in Grade 5". This research aims to provide a solution in the use of appropriate learning media to improve students' understanding and reasoning of science lessons, so as to achieve the Minimum Completeness Criteria (KKM). The similarity between this study and previous studies lies in the use of Wordwall media and experimental methods. The difference lies in the specific focus of the subject, where this study examines the topic of changes in the form of objects in science lessons at the elementary school level.

Research on Wordwall media aims to expand the insight and proficiency of educators in designing learning activities, increase the value of the Minimum Completeness Criteria (KKM) of students, and create a fun and not boring learning atmosphere. Wordwall is one of the learning facilities that can be used as a learning resource, teaching media, and evaluation tool for educators and students. This application provides eight patterns that can be used to compile evaluation questions, are easy to change, and support online and offline learning. Wordwall's functions include matchmaking, using images, answering multiple-choice and essays, and composing sentences in the right language. The use of this media is expected to have a positive impact on the learning outcomes of grade 3 students. Therefore, a study entitled "The Influence of Wordwall Media on the Learning Outcomes of Grade 3 Students Learning Science Changes in the Form of Objects at SDN Tanah Baru 01 Depok West Java" was conducted.

Research Methods

This research relies on quantitative techniques. The study used a quasi-experimental design with two groups: one that functions as a control and another that functions as an experimental unit. The quasi-experimental design used in this study is *Posttest-Only Control Design*. In this design, only the learning outcomes after the treatment are measured (posttest), without measuring the learning outcomes before the treatment (pretest). Class III A received treatment in the form of using Wordwall media, while Class III B did not receive the treatment and functioned as a control. The potential for bias in this design can occur due to uncontrolled variables, such as differences in students' basic abilities between the experimental and control groups.

Although this method has a control class, it is not fully capable of controlling the variables that affect the execution of the experiment. By separating the two data sets, this procedure can be performed in a homogeneous batch. One category has not used all forms of

mass communication, while the second group uses wordwall learning media. With the pattern that Posttest uses - *Control Design Only.* The research location is located at SDN Tanah Baru 1. The research sample was shown to grade III students in 2 classes, namely, class III A with a total of 34 students and class III B with a total of 34 students. The total number is 68 students. The multiple-choice exam given as pre and post-exam is a learning instrument used. Classes III A and B were selected as experimental and control groups to ensure that the two groups had similar or homogeneous characteristics, such as almost the same level of academic ability, so that the comparison of the measured learning outcomes could be more valid. This selection is also based on practical convenience, namely that both classes are in the same location (SDN Tanah Baru 1) and have a balanced number of students (34 students each). Thus, measurable differences in learning outcomes can be more clearly linked to the use of Wordwall media, rather than other uncontrolled factors.

One option is to do a normality test to see if the data you have is representative of a normally distributed population. (2017 research by Nuryadi and colleagues). The normality test determines whether the expected regression error is distributed normally. Regression analysis was performed to estimate errors in Y and X using the Liliefors formula, with a significance level of α 0.05. The variance homogeneity test refers to the samples that are observed and significantly compared. The homogeneity test can determine the sample that has been taken from the population, so that the researcher can generalize from the results of his research that has used *the Fisher formula* or it can be called the F test.

You can test your hypothesis by comparing two averages using the T-test procedure and a significance level of $\alpha = 0.05$. This will help you find out if wordwall media has an effect on student learning outcomes. To perform a hypothesis test, one must use the following formula. An item or instrument is considered valid if its value is greater than the table. An item or instrument is considered invalid if the value of rtable is greater than rtable.

Results and Discussion

This research was conducted on students of SDN Tanah Baru 1 grade III in the odd semester of the 2023/2024 school year. This study is to see if there is an influence of wordwall media on the learning outcomes of grade 3 students in learning science material that changes the form of objects. Wordwall is a multipurpose learning tool. According to Tatsa Galuh Pradani (2022), Wordwall can function as a learning resource, teaching medium, and a means of learning assessment or evaluation for educators and students. This application provides eight templates that allow educators to compile and design evaluation questions easily, both for online and offline learning.

The advantage of Wordwall lies in the variety of features it offers. This media allows users to create matching or pairing exercises, use pictures as learning elements, compose multiple-choice questions, create essay questions, and practice the use of appropriate and correct sentences according to language rules. The diversity of these features allows educators to design varied and interactive learning activities.

The use of Wordwall is predicted to have a positive impact on student learning outcomes, especially in grade 3. This is because the media offers a more interactive and interesting learning approach, which can increase students' interest and active participation in the learning process. Thus, Wordwall can be an effective tool in supporting the achievement of learning goals and increasing students' understanding of the material being taught.

This study adopts a quantitative approach with a quasi-experimental design method. This method is characterized by the existence of a control class, but it cannot fully control the variables that affect the experiment. The research was conducted on a homogeneous group which was divided into two: the control group (without media) and the experimental group (using Wordwall learning media).

The research design uses a Posttest-Only Control Design pattern, where only the experimental group is given treatment. The main purpose of this method is to predict the possible outcomes through actual experiments, albeit without full control or manipulation of all relevant variables. Quasi experimental was chosen because it allowed researchers to use control groups and experiments without random placement of participants. Although this method has limitations in controlling external variables, it is still able to provide valuable insights into the effects of the treatment.

This study used a form of control group posttest design, which allowed comparison of results between the treated group and the non-treatment group. This method was chosen because it was considered valid to obtain data and information related to the research problem, and was able to provide accurate predictions about the effectiveness of the use of Wordwall learning media in the context studied.

The instrument test has been carried out in class IV A from the validity test instrument in the form of question items consisting of 30 multiple-choice questions, there are 20 valid questions and 10 invalid questions. In this study, the population is defined as an entire object or subject that has certain characteristics that have been determined by the researcher to be studied and concluded. The population in this study includes all students in grade III of SDN Tanah Baru 01, which totals 68 people in the 2023-2024 school year. The sample, which is a representative part of the population, was chosen to be representative of the entire population in the study. In this case, the sample consisted of two classes, namely classes III-A and III-B, with a total of 68 students. This study uses a saturated sampling technique, where all members of the population are used as research samples. Class III-A, consisting of 34 students, was determined as an experimental class that would receive treatment in the form of the use of Wordwall learning media. Meanwhile, class III-B, which also has 34 students, is designated as a control class that will use the conventional learning model. Thus, the total sample used in this study is 68 students, which includes the entire population of grade III of SDN Tanah Baru 01. This approach allows researchers to directly compare the effectiveness of the use of Wordwall media against conventional learning models in the context studied.

Table 1
Reality test results in class IV A

N	N	Rhitung	Rtabel	Conclusion
29	30	5,4361	1,6972	The calculation > the question table is declared reliable class IV A

The results of the reality test calculation in table 1, where r11 or Rcalculate = 5.4361, Rtable = on $\alpha = 0.05$ is 1.6972, Rcalculate = 5.4361 > 1.6972 Rtable. So that the instrument is said to be reliable. The research instrument used has excellent reliability, which is indicated by the Rcalculate value that far exceeds the Rtable. This gives confidence that the data collected through this instrument will be consistent and reliable for further analysis. The use of the

Liliefors test for data normality demonstrates the appropriate approach in ensuring data conformity with the assumption of normality, which is important for various advanced statistical analyses. The combination of high reliability and proper normality testing provides a strong foundation for the overall validity of the research results. The normality test uses the liliefors test. The results of this normality test can be presented in the table, below:

Table 2
Normality Test

Results of Analysis Ability	N	L_{hitung}	L_{tabel}	Criterion	Conclusion
Post-test experiments	34	0,1006	0,271	$L_{hitung} > L_{tabel}$	Normal distribution
Posttest Control	34	0,0973	0,242	$L_{hitung} > L_{tabel}$	Normal distribution

The data in table 2 of the experimental class of the post-test condition were obtained Lcount = 0.1006 and in the control class of the post-test was obtained Lcount = 0.0973, with n = 30 and the significance level of α = 0.05, by obtaining Ltable = 0.271. So Lcount > Ltable Then H1 has been received, so it can be said that all if the distributed sample data is considered normal. Based on the results of the Liliefors normality test that has been carried out, it can be stated that the post-test data from both groups, both the experimental class and the control class, meet the assumption of normality. This provides a strong foundation to continue the analysis using parametric statistical methods in comparing learning outcomes between the two groups. The normality of this data also increases the validity and reliability of the conclusions to be drawn from further analysis, as well as allowing for more accurate generalizations of research results against a wider population.

Table 3
Homogeneity Test

Results of Analysis Ability	N	L_{hitung}	L_{tabel}	Criterion	Conclusion
Post-test experiments	34	0,1045	0,3548	Fhitung < Ftabel	Homogen
Posttest Control	34	0,1813	0,3357	Fhitung < Ftabel	Homogen

The analysis in table 3 of the post-test produced an F value of 0.1813, a table value of F of 0.3357, and a significance level of α Because the post-test calculation produced Fcal < Ftable, it can be concluded that the sample is uniform. Using the data provided in the table, we will conduct a t-test to assess the hypothesis that wordwall media has an effect on student learning outcomes. Based on the results of the homogeneity test that has been carried out, it can be stated that the samples from the two groups tested have homogeneous or uniform variances. This homogeneity of variance has important implications in advanced statistical analysis, particularly in the use of parametric tests such as t-tests that will be performed next.

The homogeneity of this data provides a strong foundation to continue the analysis using the t-test to assess the hypothesis of the influence of Wordwall media on student learning outcomes. With the fulfillment of the homogeneity assumption, the results of the t-test that will

be carried out are expected to provide valid and reliable conclusions about the effectiveness of the use of Wordwall media in improving student learning outcomes. This also improves the ability to generalize research results to a wider population.

Table 4
Hypothesis Testing

Number of samples	Dk	Thitung	Ttabel	Conclusion
Nx = 34	Dkx = 30	0,9756	0,5643	There is an influence

In table 4 of the results of the posttest t-test, it can be shown that Ttable > Thicount = 0.9756 > 0.5643, then the H1 and H0 rejection tests have an effect. The conclusion is that in the posttest treatment of the research hypothesis results can be accepted, it can be stated that there is a significant influence between the learning outcomes of KKM science students who use wordwalls in grade III of SDN Tanah Baru 1. These results show that the null hypothesis (H0) is rejected and the alternative hypothesis (H1) is accepted. In other words, there is a significant influence of the treatment given, namely the use of Wordwall learning media, on student learning outcomes.

The results of this study stated that the use of Wordwall learning media had a significant influence on student learning outcomes in science subjects in grade III of SDN Tanah Baru 1. This effect can be seen from the significant difference between the learning outcomes of students who use Wordwall media compared to those who do not use it. This finding has important implications for learning practices in elementary schools, especially for science subjects in grade III. The use of Wordwall media has proven to be effective in improving student learning outcomes, because of its interactive and engaging nature for elementary school students. Therefore, the results of this study can be a consideration for educators and education policymakers in adopting and implementing innovative learning media such as Wordwall to improve the quality of learning and student learning outcomes.

After applying wordwall media to grade III students, students will show activeness in the learning process, and students will be able to understand the science learning that has been explained, because in learning what they already understand can add insight into knowledge. So it can be concluded that by using wordwall media there is an increase in learning outcomes. The results of this study were supported by researchers Wafiqni and Putri (2021) with the title "The Effectiveness of the Use of Wordwal Application in Online Learning Mathematics in Grade 1 Decimal Numbers" that the Wordwal application can help students in learning. Farhan's research (2022) with the title "The Influence of Wordwall Media on Science Learning Outcomes of Students' Animal Reproductive Materials in Grade 5". This study uses an experimental method with the aim of finding solutions for the use of appropriate learning media to improve students' understanding and reasoning in science subjects, so that they can achieve the minimum completeness criteria (KKM).

So that the results of research by Wafiqni and Putri (2021) and Tatsa Galuh Pradani (2022) both show that wordwal learning media can improve the learning outcomes of grade III students on material changes in the form of objects. Both use experimental quantitative research methods. However, the difference lies in the focus of the subject, where this research specializes in learning science in elementary schools with the topic of changing the form of objects. The results of the second study show that wordwal media can help students in learning.

The application of this wordwall media will affect classes that previously used ordinary media, the learning environment does not look more active, after using this media the character of students begins to become active in learning. According to Tatsa Galuh Pradani (2022), Wordwall is a digital gamification-based program that offers various game features and quizzes that teachers can use as a learning medium to assess student learning and provide good results to help students in learning. With the application of this learning media, the knowledge and potential of participants can be developed optimally, so that teaching goals can be achieved properly.

It can be concluded and associated that the final results of the research conducted by the researcher entitled "The Influence of Wordwall Media on the Learning Outcomes of Grade III Students Learning Science Changes in the Form of Objects" have a significant increase and value and show that the wordwall media has succeeded in improving the learning outcomes of grade III students in the material of changing the form of objects. This media not only helps students improve learning outcomes, but can create a more engaging learning experience for students.

This wordwal media makes it easier for students to understand learning. Based on this statement, it can be described in detail that the use of Wordwall learning media has proven to be effective in improving student learning outcomes, especially in material related to changes in the shape of objects in grade III of SDN Tanah Baru 1. This success is shown by significant achievement, where 80% of students are able to achieve a score between 80 and 96. This image illustrates that most students have succeeded in understanding and mastering the material taught through the use of Wordwall media.

However, there are still 20% of students who have not achieved satisfactory results by using Wordwall media. This is due to several factors that affect the learning process. One of the main factors is the tendency of some students to rush to complete the assignments or problems given. Lack of precision and desire to complete tasks quickly without paying attention to details and precision are obstacles in achieving optimal learning outcomes. In addition, there are several technical obstacles faced in the use of Wordwall media. First, the limitations of an inadequate internet network are an obstacle to accessing and using this learning media optimally. Second, storage issues are also an obstacle, where the device used does not have enough capacity to store Wordwall media effectively.

Therefore, it can be concluded that wordwal media is very helpful for students in the process of learning material that changes the form of objects at the elementary level. This approach not only improves students' learning outcomes, but also increases their interest and motivation in learning science. Thus, this wordwal media can be a quality tool in improving science learning in elementary school.

Conclusion

This study shows that the use of Wordwall media significantly improves student learning outcomes in science subject grade III at SDN Tanah Baru 1. The average post-test score of students in the experimental class using Wordwall was higher (84.18) compared to the control class (78.74). The results of the hypothesis test supported these findings, by showing that there was a significant difference between the learning outcomes of the two groups. Wordwall media has proven to be effective in helping students understand the material more deeply and motivate them to be more active in the learning process.

Researcher's Suggestion: (1) For Educators: Maximize the use of Wordwall as an innovative and fun learning tool, in order to support the achievement of learning objectives optimally. (2) For Principals: Encourage more effective collaboration between schools and educators to create a quality and student-oriented education ecosystem. (3) For Future Researchers: Consider using Wordwall media for various classes and other subject matter, and conduct research to explore its impact more broadly. (4) For Students: Make good use of the learning media provided to improve understanding and learning outcomes.

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