

THE EFFECTIVENESS OF EVALUATION OF MATHEMATICS LEARNING USING WORDWALL MEDIA IN ELEMENTARY SCHOOL

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Abstract

This study aims to determine the effectiveness of learning mathematics at the time of evaluation. The type of research used is a Quantitative Experiment. The method used in this research is a quantitative experiment using a design that is a quasi-experimental post-test type only with a nonequivalent group design. The sampling technique used is Cluster Random Sampling. The subjects of this study were 28 students in grade 4 at SD Muhammadiyah 2 Jakarta from 158 students of the population at SD Muhammadiyah 2 Jakarta. The result of this study were (1) The results of validity about Wordwall media in the student response questionnaire, which is a closing learning activity or arguably an evaluation of learning mathematics material for a fraction of numbers, is very effective with an average value of 69.1 questionnaires (2) Using paper media to get an average result of 50.00 was not effective (3) Using Wordwall media to get an average result of 77.14 was very effective from the above result mathematics learning at SD Muhammadiyah 2 Jakarta.

Keywords

Effectiveness; Evaluation; Mathematics; SD Muhammadiyah 2 Jakarta; Wordwall



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INTRODUCTION

Over time, the world of education will experience increased development, bringing a transition to expand thinking. Starting from ordinary and rigid thinking, that makes thinking modern and open. This has a positive impact on the progress of education in Indonesia. The purpose of education is to realize the next generation of the nation by having character and quality to have a vision of the future. Thus, it can affect human resources for the better. With this happening, it can certainly obtain goals in education.

The implementation of learning in the classroom helps teachers improve their roles and competencies because a teacher has the competence to manage his class better and assess his students both personally and professionally in class.

Assessment is an effort to obtain information about the acquisition of students from the entire learning process, including concepts, knowledge, values, attitudes, and processing skills. This can be done by a teacher for feedback or decision-making with needed to ensure teaching and learning strategies. By doing so, teachers must assess the progress and learning outcomes of students.

Evaluation is part of research with objectives such as analyzing, collecting, and providing very useful information about an evaluation object by assessing it, which can be compared through evaluation indicators and results that can be applied by making decisions about the evaluation object (Wirawan, 2013). The existence of an evaluation is a process of giving meaning, understanding, communicating, and obtaining information for the need to make decisions that can ensure the situation where the goal can be achieved. Thus, this can state that learning evaluation is very important for the teaching process to make final decisions in the learning process (Amri, 2013).

Evaluate the part of the process that can judge the quality of which will take place. At the same time, it can determine how the quality of learning media at the time of evaluation can be needed to be a criterion. Therefore, evaluation is part of the process of judging something based on criteria. Evaluation of learning media is part of a process that can assess based on criteria or goals set on the basis of objectives in every decision-making on the object to be evaluated. Therefore, the evaluation of the learning media will be carried out by assessing the type of media based on the criteria. Therefore, it can assess learning media that should not be carried out carelessly but based on certain criteria.

Mathematics Learning is a learning that is often feared and respected by students, and some even consider mathematics to be the enemy of learning at school. Mathematics is the science of logic which includes arrangements, forms, concepts, and quantities that have to do with having a greater number and can be divided into three fields, namely geometry, analysis, and algebra (James, 2019). Mathematics is not from the knowledge that is very alone can perfect because for itself, but with mathematics, the most important thing can help humans by overcoming and knowing problems in the economy, society, and nature. Learning mathematics is a process of interaction between teachers and students that involves developing patterns of thinking and processing logic in something learning environment that is deliberately created by the teacher with various methods so that the mathematics learning program grows and develops optimally and students can carry out learning activities effectively and efficiently (Rusyanti, 2014). Learning Mathematics is a process of providing learning experiences to students through a series of planned activities so that students gain competence in the mathematics material being studied (Sudiati, 2014).

In this, it can be concluded that mathematics is learning by having a very important role in everyday life. Maths should not be considered an enemy by students but a true friend because, almost every day, we use math. Word Wall is an interesting media or application that is included in the browser and gets free student access through the link. Word Wall Learning Media is known to make web applications used to make quiz-based games filled with pleasure (Halik, 2021). Meanwhile, Word Walls is part of an application that can be needed regarding learning resources, learning media, and tools to assess teachers and students (Sherianto, 2021). Wordwall began as a source of learning, media, and assessment tools that are fun for students. This game can be used on a laptop or smartphone. In the Wordwall application, there are images, audio, animation, and interactive games that can make students interested (Lestari, 2021).

The advantage of Wordwall is that this application is not paid for Basic options (Yarza, 2021). There are many educational game features provided. Besides that, to access it, students do not need to download the application. Students only need to access the links that the teacher shares. From the explanation above, it can be concluded that Word Wall is a web-based media that can arouse students' enthusiasm for learning, especially learning mathematics. That is considered difficult to be more fun and more varied because of their attractive appearance so that students will do it by students not bored with the media.

Prior to the implementation of the Wordwall method, the learning method applied in learning mathematics at SD Muhammadiyah 2 Jakarta was the CBSA method or (Record Book Until End). This method was used before because it still uses traditional methods. The boring form of learning is CBSA-based lessons or Record Books Until the End. Teachers do not have the awareness to move forward to compete with developments in the world of education. In teaching, teachers still use the old CBSA pattern (write down the book until it's finished). At SD Muhammadiyah 2 Jakarta, teachers have never attended training in operating deep-learning media. At SD Muhammadiyah 2 Jakarta, Teachers have attended training but have not been able to implement it at school. Teachers do not yet have the awareness to utilize learning media in schools even though schools have facilitated media devices that are rarely used. Teachers do not know the benefits of media to facilitate teachers in the learning process. In this learning, the process of transferring knowledge is only done by re-copying what is in the book. So that the CBSA learning form seems monotonous and not varied. Therefore, both teachers and students can both feel bored.

The CBSA learning method applied at SD Muhammadiyah 2 Jakarta has a not-so-good impact on learning. The deficiencies found in CBSA at SD Muhammadiyah 2 Jakarta, namely: a) Decisions are not guaranteed to be implemented, b) The discussion process cannot be predicted whether it is running or not running, c) In the discussion, there is less community, allowing students' skills to be ineffective, d) If the leader has difficulty in conveying opinions, it can be said that the leader is fake. This method makes students at SD Muhammadiyah 2 Jakarta feel bored quickly. This is because learning that is watched tends to make students quickly bored and reluctant to learn because every day, they use the same method

The use of applications such as Wordwall opens up space for students to be creative and innovative during learning. In addition, an unsightly display of learning will increase the authority and trust of educators in the classroom. One of the efforts to create fun learning, as above, is to utilize the features in Wordwall as an educational game. The benefits of Wordwall in learning are. First, Wordwall can Stimulate the Development of Thinking Power and Sensitivity of Learners. Second, Creating an Interesting, Creative, and Innovative Play Environment. Third, Improving Logic and Understanding of Learners. Fourth, Interactive TwoWay Educational Media. Fifth, Assessment Benchmarks and Student Capabilities. Wordwall is a website-based application that can be used as a learning media, such as interactive quizzes, pairings, random words, and anagrams. There are many features that you can choose from, thus providing many possible variations in the delivery of

teaching materials.

Relevant research that researchers consider almost the same as their research. First, The research entitled "The Effectiveness of Learning Media on Learning Outcomes of Class V Students at SD Pertiwi Teladan Metro Pusat" was compiled by (Hikmah, 2020). State Islamic Institute (IAIN) Metro. The results obtained by these researchers were an average value of 65.32% in the effective category, and the control class obtained an average of 45.36% in the less effective category. The difference in this study is the type of media. The media used by this researcher is in the form of media images, where image media is a learning process. At the same time, the research in this article is to use Wordwall media in the evaluation of learning mathematics. The equation is the same as using learning media.

Second, Research entitled "Effectiveness of Using Learning Media on PPKN Learning Outcomes in Class IV Students at the Impres Elementary School in Makassar City" was compiled by (Asma, 2017). The difference in this study is in the subjects tested. This study uses PPKN lessons, while the researchers in this article use Mathematics. The learning media is also different, and this researcher uses audio-visual media while the article researcher uses wordwall media.

Third, the research entitled "Effectiveness of Media Wordwall to Improve the Economic Learning Outcomes of Man 1 Lamongan Students" compiled by (Minarta, 2022), The differences in this study were different at the school level. This research uses the MAN School (SMA) while the researchers of this article use the Elementary School (SD) level, but the learning media used are the same as Wordwall media.

The study entitled "Effectiveness of Learning Media on Learning Outcomes of Chemistry at SMA Negeri 16 Banda Aceh" was compiled by (Mardhiah, 2018). This study used learning media in the form of Crosswords where the chemical substances were recorded using cards, getting very effective results.

The research entitled "The Influence of Media Wordwalls on Interest and Learning Outcomes" was compiled by (Hidayaty, 2020). The method used is a Quantitative Experiment and uses the control class and experimental class, the same as the research in this article.

From some of the research above, it can be concluded that the importance of media in learning, especially in Mathematics lessons. The fact is that learning mathematics is considered difficult and unpleasant for students, especially when it comes to arithmetic questions. Students are sure to feel bored and bored, but by using WordWall media, students are more interested in learning

and enthusiastic because it has a quiz feature in the form of a game, especially at the elementary school level where now the era of technology has developed greatly and entered the Z generation. Schoolchildren are now inseparable from gadgets. Therefore, the researchers took a study entitled "Effectiveness of Evaluation of Mathematics Learning in Elementary Schools" to see how effective word wall media was in learning mathematics.

METHOD

The method used in this research is a quantitative experiment using a design that is a quasi-experimental post-test type only with a nonequivalent group design (Hastjarjo, 2019). There were two groups studied, namely the control class as a class group that did not use wordwall learning media and the experimental class as a class group that used wordwall learning media. The population in this study were all students at SD Muhammadiyah 2 Jakarta, totaling 158 students. The sample in this study was fourth-grade students at SD Muhammadiyah 2 Jakarta, totaling 28 students, where 14 students became control classes, and 14 students became experimental classes. The sampling technique used is Cluster Random Sampling. The instrument used in this research is a test in the form of an essay. The questions used in the previous research were tested for validation of questions. Where in this study, there were ten questions used in the validity test, and 10 of these questions were declared valid. H₀: evaluation of mathematics learning using wordwall is not effective as a media in elementary school. H_a: evaluation of mathematics learning using wordwall is effective as a media in elementary school.

FINDINGS AND DISCUSSION

Findings

This research was conducted at SD Muhammadiyah 2 Jakarta on Jalan Kramat Raya number 49 from 5 June to 10 June 2023. This research was conducted in grade 4 at this school. The number of grade 4 students is 28 people, of whom ten boys and girls are 18 people. In the first stage, the researcher gave a questionnaire in the form of a questionnaire which was answered by students by looking at the effectiveness of Wordwall media at the learning evaluation stage. The results of all student scores add a total of 691 with 28 students. This study uses several prerequisite tests, including the normality test, homogeneous test, and t-test.

This calculation has results on ten questionnaire questions related to the effectiveness of using the Wordwall media application in learning mathematics with researchers who were given to 28 grade IV students from SD Muhammadiyah 2 Jakarta included in the "very effective" category. This can be seen through the results by explaining that the average value of the questionnaire is included in the very effective category.

Table 1. Comparison of Post-test Values for the Experimental and the Control Group

Groups	Average
Experimental	85,0
Control	71,4

Source: Processed Data, 2023

Based on the table above, the difference in the average post-test score between the experimental group and the control group is 13.6. The student learning outcomes of the experimental group were higher than those of the control group. This indicates that the student learning outcomes between the experimental group and the control group have significant differences.

Prerequisite tests in the research include the normality test, homogeneity test, and hypothesis testing. The normality test aims to determine whether the population is normally distributed or not. The statistical test used is the normality test with the Liliefors test method with a significance level of $\alpha = 5\% = 0.05$.

Table 2. Normality Test Results for Post-test Critical Thinking Ability

Groups	L count	L table	Evidence	Conclusion
Experimental	0,146	0,173	H0 Accepted	Normally Distributed
Control	0,106	0,173	H0 Accepted	Normally Distributed

Source: Processed Data, 2023

From the results of the analysis of the normality test in the post-test experimental class, the value of L count (0.146) < L table (0.173) then H0 is accepted, for the post-test control class, the value of L count (0.106) < L table (0.173) then H0 is accepted. So it can be concluded that the post-test value data for the experimental class and the control class come from populations that are normally distributed.

A homogeneity test is used to determine whether the two samples come from a homogeneous population. In this study, the homogeneity test used the F formula with a significance level of $\alpha = 0.05$. If Fcount < Ftable, then H0 is rejected and Ha is accepted (homogeneous variant prices), and if Fcount > Ftable, then H0 is accepted and Ha is rejected (heterogeneous variant prices).

Table 3. Table of Homogeneity Test Results

Groups	Variant	Fcount	Ftable	Conclusion
Experimental	143,29	1,503	1,983	Homogenous
Control	202,50	1,503	1,983	Homogenous

Source: Processed Data, 2023

Based on the table above shows the results of the homogeneity test on the results of the post-test questions on student learning outcomes in the experimental class and control class, with the smallest variance in the experimental class, namely 143.29, and the largest variance in the control class, namely 202.50. So, it can be concluded that Fcount (1.503) < Ftable (1.983). From the homogeneity test of the post-test results on student learning outcomes, it can be concluded that the variance data is declared homogeneous.

The hypothesis test used in this research is using a paired sample t-test (Paired Sample T-test). The test aims to determine whether there are differences in student learning outcomes between classes that use Wordwall learning media and classes that do not use wordwall learning media. The hypothesis in this study can be calculated using the t-test (t-test) with a significance level of $\alpha = 0.05$. Test criteria: H_0 is rejected / H_1 is accepted If $t\text{-count} \geq t\text{-table}$ H_0 is accepted / H_1 is rejected If $t\text{-count} \leq t\text{-table}$.

Based on the data analysis obtained, t-count (4.404) and t-table (1.064). Because $t\text{-count} \geq t\text{-table}$, H_0 is rejected, and H_1 is accepted, which means that there is the effectiveness of wordwall learning media on student learning outcomes in grade 4 SD Muhammadiyah 2 Jakarta.

Discussion

In working on problems with Wordwall media, students understand each other's abilities through the material to be discussed. With this, students have good motivation to learn more enthusiastically, and this student feels shortcomings in learning and is expected to learn more enthusiastically. Therefore, the test results obtained by students where test scores can be obtained an average of 85 %, including a very good category. Evaluation of the use of Wordwall media is about improvement as needed, whether the media time is used by students or after that is used by students. With the use of SD Muhammadiyah 2, students are very enthusiastic and enthusiastic when working on questions with Wordwall applications, while there are weaknesses that can sometimes experience interference during the game process because the software requires a stable or strong network. Through research that has been done, there is one student who experiences problems when doing questions because the signal is unstable. However, there are advantages to

the themes obtained according to companion music and learning styles. Through research conducted by students during their reaction through interviews, they are happy with applications because in it, there are applications in the form of games and several types of features in it. After that, students can access applications with their cell phones, and can be used at home.

Lack of mastery of technology for teachers and students, inadequate infrastructure, is a separate problem (Shah, 2020). This indicates a lack of realization of the activeness of students in understanding a concept in the learning process, which will indirectly result in a weakening of the quality of education and is closely related to the achievements achieved (Fiantika, 2013). (Suhardi, 2021) states that learning with online mode requires teachers to be more creative, and parents must contribute by accompanying their children to learn (Rachmadtullah, 2018). Meaningful learning is a learning process that is expected of students, where students can be directly involved in the learning process and discover this knowledge firsthand. For learning to occur, which is expected to be in accordance with learning objectives, educators must be able to develop reasoning, thinking skills, and self-concept of students learning by doing. To understand the meaning of learning outcomes, it must start from the notion of learning itself. In line with (Atsani, 2020), delivering learning material online, in this case, must also be adjusted to the level of education and the needs of students. Teachers need to have a positive mindset so that they come up with creative solutions for delivering material online. With this, the resulting learning outcomes will be delivered properly and with quality.

Evaluation of online learning applications, which are able to share experiences through playing through the exploration of the conditions and situations they face and play very actively, where students play actively. In the eyes of students, play can be used as a means to build intimacy with friends and as a means to learn and socialize, while virtual games are very minimal moving activities. Students also prefer to evaluate learning using wordwall media compared to boring stationary media.

The Wordwall application, with its attractive display of images, and presentation of fun quizzes, helps teachers make the geometric material conveyed easier, especially in online learning. The Wordwall application is able to foster motivation and enthusiasm for student learning so that student learning outcomes in geometric materials are also increasing. The constraints that exist in this study, not all students have cell phones, so other students help take turns using the application on one cellphone. Utilizing applications in learning activities that are not carried out in the same

place can help students learn because the use of applications or media makes an effective learning implementation carried out (Nurmala, 2021). The use of interactive media and e-learning applications in learning is really needed, aimed at creating good and effective convenience and reciprocity, as well as fostering student independence which the teacher can see in its use in student learning activities (Maksum, 2021).

CONCLUSION

The results of the discussion in this study show that the effectiveness of Wordwall learning media in mathematics learning in class IV influences significant learning outcomes. After the implementation of experiments, it can be concluded that the use of Wordwall learning media can improve mathematical learning outcomes, especially fractional materials. The T-test results also show that not using the media and using the media there are significant differences. In addition, the results of student questionnaires stated that they strongly agree that evaluation of Wordwall learning media can increase good and enthusiastic learning outcomes in doing.

Based on research that has been done, there are limitations experienced by researchers, one of which is the limited number of respondents. Respondents used in this study were only 28 students. Of course, the number did not describe the situation widely. For future research, researchers are expected to be able to expand the research subjects to get broader research results. In addition, researchers are expected to be able to develop other variables that can affect student learning outcomes.

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