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Wordwall Integration in Learning: Is it Effective in Encouraging Student Activity?

Uzdah Fikri Annisa, Wawan Krismanto*, Ritha Tuken, Yonathan S. Pasinggi

Elementary Teacher Education Department, Universitas Negeri Makassar, Indonesia

*Corresponding author's email: wawan.krismanto@unm.ac.id

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ABSTRACT

Technology has become part of a strategy to improve the quality of learning, including in elementary schools. However, the specific influence on student learning activity still needs to be proven empirically. This study aims to measure the effectiveness of Wordwall integration in learning to encourage increased student learning activity by comparing student learning activities that integrate Wordwall with conventional learning. This study uses a quasi-experimental design in the form of a posttest-only control design. The population in this study were all students of 4th grade SDN 3 Parepare, as many as 108 people, while the sample used was class 4.1 as an experimental class with 37 students and 4.2 as a control class with 36 students. The treatment given to the experimental class was to integrate Wordwall during the learning process from the beginning to the end of learning. The research data were obtained from the posttest of the observation results of learning activity by observers in the experimental and control classes. The data analysis technique was the Independent Sample T-test. The result is that students in classes that integrate Wordwall into their learning have better learning activities. The inferential statistical analysis results showed Sig (2-tailed) = 0.00 <0.05, so H0 was rejected and H1 was accepted. Thus, this study concludes that there is a difference in learning activity between students taught with the integration of Wordwall game media and students taught with conventional media. Wordwall integration into learning can effectively encourage learning activity. Future researchers can examine more in-depth aspects related to the use of Wordwalls in elementary school learning, such as cognitive aspects, challenges and barriers.

Introduction

Modern technology advancements are rapidly impacting various fields, including education. Teachers must stay updated to stay professional and master technology for learning. Technology used in the educational process affects the growth of teachers' professional competence and contributes to high motivation of students, valuable results in teaching, and a substantial improvement in the quality of education(Kuzembayeva et al., 2022). Conventional teaching methods should be replaced with interactive models or media to avoid monotony and keep students engaged (Oulaich, 2020). This is in line with the

opinion of Adawiyah (2021), who stated that learning that tends to be monotonous and less interactive causes students to feel bored with their learning activities and become less active, so material delivered by teachers to students could be more optimal. Another that, the development of learning technologies has a significant impact on the efficiency and creativity of the learning process (Ghavifekr & Rosdy, 2015; Tang et al., 2022; Vasalou et al., 2022; Wieser, 2020). Nugroho et al., (2021) stated that technology is one of the innovations used as a learning medium in the world of education. The Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 65 of 2013 concerning technology in paragraph 13, which states, "Information and Communication Technology (ICT) can increase the efficiency and effectiveness of learning." Therefore, teachers must be able to use technology in learning in schools and begin to abandon conventional methods that are less interactive and encourage students to be passive in learning.

Student inactivity in class is a crucial problem in elementary schools. Student inactivity in learning can have several negative consequences, both academically and in their personal development. Students who are not active in the learning process tend to understand the subject matter less. This can lead to low grades, failure to master essential skills, and decreased overall academic achievement (Salo, 2023). Activeness in learning allows students to engage in discussions, problem-solving, and deeper analysis. Inactivity hinders the development of critical thinking skills that are essential in education. Inactivity often also leads to decreased student motivation and interest in learning. They may feel bored or less interested, ultimately worsening their inactivity. Based on the initial observations, the level of activity of fourth-grade students of SDN 3 Parepare needs to improve in the Pancasila Education learning process. This is based on the results found from interviews with fourth-grade teachers. In Pancasila Education, teachers use PowerPoint (PPT) technology-based learning media to display materials. However, the media is not yet interactive because PPT is only used to display materials, and there is still a lack of direct learning activities that involve students (Kosslyn et al., 2012). Based on direct observations in the classroom during the Pancasila Education learning process, it was also found that during the learning process, the teacher read the material and asked students questions. In contrast, students were busy copying the material displayed on the PPT on the board; students focused more on writing than listening to the teacher's explanation.

A solution to the abovementioned problems is needed to increase student learning activity. One alternative to increasing student learning activity is to use exciting and interactive learning media that can motivate students to be more active in participating in learning. This is in line with the opinion of Febrita & Ulfah (2019), who stated that choosing interesting, correct, and good learning media can increase student learning activity. In creating learning media, teachers must continue to innovate and choose learning media that are creative, interesting, and enjoyable for students and that are by the lessons to be learned (Nurrita, 2018). One of them is by using information technology-based learning media. This is in line with Azizatunnisa et al., (2022), who stated that in this digital era, the learning media used in the learning process must keep up with the times, namely technology-based learning media. Technology-based learning media has many features that can make students

actively engaged in learning and make learning fun. Children's world is identical to playing, and games can be an effective learning method, especially in elementary schools. According to Saefudin (Hayatinnupus & Permatasari, 2019), the game method presents lesson material through various activities to create a fun, solemn, relaxed atmosphere so students learn happily. Seeing the benefits and functions of games for student development, educators can use them as interactive learning media that are still rarely used. Games can be packaged into interactive learning media that are interesting and fun for students; this type of game is usually called an digital educational game where students can learn while playing. digital educational games aim to gain knowledge, foster habits, and foster understanding packaged in a digital environment (Dubey & Sinha, 2023; Janakiraman et al., 2021; Nisiforou & Vrasidas, 2021).

In today's digital era, there are many websites or applications available that educators can use to create interactive learning media; one of the websites that educators can use to create educational games is Wordwall. Wordwall is an application presented as a game that aims to involve students in answering quizzes, discussions, and surveys. Lestari (2021) stated that the Wordwall educational game is an exciting browser application that provides student learning, a media tool, and a fun assessment tool. Several previous studies have examined the use of Wordwall games in learning at the elementary school level. For example, a study concluded that the Wordwall application influences students' science learning motivation (Gandasari & Pramudiani, 2021). Another study concluded that Wordwall-based educational game media influenced the students learning outcomes (Miranti, 2021). Likewise, other studies concluded that Wardwall influenced students' motivation (Permana & Kasriman, 2022). However, previous studies are still limited to examining the variable of student learning activity. Thus, there is a gap that needs to be filled through this study. For this reason, this study will examine the integration of ward walls and its impact on student learning activity and attempt to answer a research question: Is there a difference in student learning activity in classes whose learning integrates words with classes whose learning is conventional? In addition, the novelty of this study compared to previous studies is that it integrates several variations of Wordwall games in the learning process as a whole, from studying the material and discussion to evaluation. Thus, Wordwall is genuinely integrated into the entire learning process from the beginning to the end of learning.

Research Methods

This study uses a quantitative approach, namely research that emphasizes the analysis of numerical data (numbers) processed using statistical methods. The type of research used in this study is Quasi Experiment, with the independent variable being Wordwall integration and the dependent variable being student learning activity. A quasi-experimental design is carried out without randomization but involves assigning participant groups. In quasi-experimental research, researchers divide the objects or subjects studied into two groups: the treatment group (experiment) receiving treatment and the control group not (Creswell, 2018). In general, the research procedure is to conduct sampling from a predetermined population, provide treatment to the experimental class, control variables

by providing a post-test, and then observe the learning process both in the class that was given the treatment and the class that was running naturally.

The research design used in this study is a posttest-only control design in two classes, namely the control class and the experimental class. According to Saputra & Sujatmiko (2017) , there are two groups in this posttest-only control design, each selected randomly. The first group is given treatment, and the other group is not. The group given treatment is called the experimental group, and the group not given treatment is called the control group. The experimental class is given treatment by integrating Wordwalls during the learning process, and the control class uses conventional media. In this design, the experimental and control classes are compared. The population of this study was all students of 4th grade of SDN 3 Parepare, totaling 108 students, including students of 4.1, 4.2, and 4.3. The sample of this study was 4.1 and 4.2 totaling 73 students, with 4.1 consisting of 37 students and 4.2 consisting of 36 students.

The research data collection was carried out through an observation sheet of learning activity developed by the researcher based on indicators of learning activity, as summarized in Table 1. The data analysis technique of this study was descriptive and inferential statistical data analysis with the help of SPSS software.

Table 1. Indicators of observation sheet of learning activity

Aspect	Indicators
Visual Activities	Pay attention to the teacher's explanation.
	Read the lesson material.
Oral Activities	Ask questions about material that is not clear.
	Respond to questions from the teacher.
	Active on group discussions.
Listening Activities	Listen to other students' opinions.
Writing Activities	Write down the teacher's explanation and discussion results.
Mental Activities	Active to solve problems
	Respond to opinions from other students
Emotional Activities	Dare to present the results of the discussion.

Modified form Yanti et al., (2023)

Findings

Students Learning Activity of Experimental and Control Class

The descriptive statistical analysis results can describe students' learning activity in classes where learning integrating Wardwall and in classes where learning is conventional (control class). Data on students' learning activities can be seen in the Table 2.

Table 2. Descriptive Statistics on students' learning activity for Experimental & Control Class

Statistic	Score (**Experimental Class)**	Score (**Control Class)**
Mean	51	34,47
Median	52	34,5
Modus	54	36
Range	26	23
Standard Deviation	6,22	5,09

Varians	41,278	25,913
Max Score	60	50
Min Score	34	27

If categorized based on the students' learning activitycategorization, then the students' learning activity of students in classes whose learning integrates Wordwall and classes whose learning is conventional can be described in the Table 3.

Table 3. Categorization of **students' learning activity** of Experiment and Control Class

Score	Categorization	Experiment Class	Control Class
51-60	Very High	19	0
42-50	High	14	3
33-41	Moderate	4	20
24-32	Low	0	13
15-23	Very Low	0	0

Differences in Student Learning Activity in Experimental Class and Control Class

A hypothesis test was conducted using the Independent Sample T-test assisted by SPSS version 27 software to determine the differences in student learning activity between the experimental and control classes. The following is a summary table of SPSS data.

Table 4. Independent Sample T-test Results

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	Sig. (2-tailed)
Keaktifan Belajar	Equal variances assumed	2.388	.127	12.161	71	<,001
	Equal variances not assumed			12.200	68.228	<,001

The results of the inferential statistical analysis were conducted for hypothesis testing. Previously, a prerequisite test consisting of a normality test and a homogeneity test was conducted. The results of the data normality test stated that the data was normally distributed, and the results of the data homogeneity test were declared homogeneous. Furthermore, a hypothesis test was conducted, and the test results using the assistance of SPSS version 27 with the Independent Sample T-test showed a significance value (2-tailed) = 0.00 ≤ 0.05. The t_count value = 12.161 and the t_table value = 1.993 so that the t_count value>t_table (12.161> 1.993). Based on these two criteria, H0 is rejected, and H1 is accepted.

Discussion

Students Learning Activity of Experimental and Control Class

Based on descriptive statistical analysis, it can be shown that students' learning activity in the experimental class is higher than that of the control class. In other words, there is a difference in the increase in student learning activity in classes that integrate Wordwall learning with classes that use conventional learning.

Before being given the Pancasila Education learning treatment, the activity could have been more optimal. The activities carried out by students were only monotonous to listen to material from the teacher and then write it down. This learning activity caused most students to be unenthusiastic about participating in learning and not interested in being actively engaged in finding solutions to questions asked by the teacher. Students were more focused during the learning process. Moreover, in Pancasila Education learning, teachers usually convey material by telling stories without using interactive learning media. Using less engaging and interactive media also causes communication between students and teachers or interaction between students and other students to be less established during the learning process. Giving learning assignments by asking students to copy questions in the textbook and work on them makes them less enthusiastic and less interested in doing their learning assignments.

After changes were made to the learning process by implementing Wordwall integration during the learning process in the experimental class, changes were also found in a student learning activity in the experimental class. Students become more enthusiastic at the beginning of learning with the Balik Ubin game. The Balik Ubin game also creates interaction between students and teachers or students with other students. Students pay more attention and listen to the teacher to quickly answer questions in group discussions and become the best group. Students become more competitive because there is a leaderboard at the end of the game. The game played during group discussions requires students to respect each other's opinions because they only use one gadget and focus on finding the correct answer quickly. This causes all group members to have their tasks and be active in group discussions. Giving assignments or evaluation questions by playing games makes students more enthusiastic about doing their learning assignments, and they even want to play them again at home. The learning activity of students in the experimental class can increase due to the application of Wordwall game learning media during the learning process in the classroom. Providing a variety of Wordwall games makes students interested and enthusiastic because they learn while playing, especially the Wordwall games that are applied have a theme design, more real objects, and the type of game has a challenging level of difficulty for students to play. This aligns with the opinion expressed by Asmadi (2022) that Wordwall games can attract attention, keep students focused on learning, and make the classroom atmosphere more enjoyable.

Furthermore, according to Harsanti & Lathifah (2023) , Wordwall media is learning while playing websites with many exciting games or quiz features applied in learning. In the initial learning activities, the Balik Ubin type of Wordwall game was applied, which actively

engaged students in playing directly and created interactions between students and other students or between students and teachers according to the questions or commands in the game. This aligns with Maghfiroh (Pradani, 2022) that Wordwalls can create interactions that benefit students. Students can play individually or interact with their peers according to the game instructions designed by the teacher. The questions or commands behind the tiles also make students curious and want to try to play. This is due to the advantages of Wordwalls, as explained Malewa & Amin (2023) which quickly make students interested, amazed, and curious about the various types of games that can be created.

In the core learning activities, students must pay more attention and listen to the teacher to quickly answer questions in group discussions that use various Wordwall games at each meeting, including Flying Fruit, Airplanes, and Win or Lose Quiz. Each game has different challenges and difficulty levels that require group members to divide tasks and work together to discuss the correct answers to win the game. The ranking at the end of the game makes each group more competitive. It encourages students to be more enthusiastic about achieving better results in the following lesson. As explained in the study of the theory of opinion by Dotutinggi et al., (2023), Wordwall is one of the choices from various interactive learning media that can make the learning process fun and not boring for students and teachers because this Wordwall application emphasizes a learning style that involves the role of student learning activities through participation with their peers competitively towards the learning that is being or has been studied.

Furthermore, according to Pamungkas et al. (2021), this media can be designed to improve group learning activities and involve students in its creation and usage activities. Another change in the experimental class after implementing the Wordwall was that students became more active in asking things they did not know yet so that they could answer all questions during the evaluation correctly. In addition, it provides a new experience for students that working on evaluation questions does not have to be monotonous working on paper but can be done while playing games. At the end of the lesson, there are evaluation questions in the form of the Chase in the Maze and Opening the Box game for each individual to work on, which is packaged to be more exciting and fun. The various game themes in each game attract students' attention and focus on winning the game by answering questions correctly. Students also become more active in maintaining or achieving higher rankings at each meeting and want to repeat the game to play at home. This aligns with Lestari (2021) opinion that the Wordwall educational game is an exciting browser application with its purpose as a source of student learning, as a media, and as a fun assessment tool for students. Another opinion was put forward by Yanti et al., (2023) that Wordwall is a game application that provides various types of games and is a technological learning media that is easy and interesting to use in Elementary Schools. The Wordwall application consists of various games so that students will not get bored quickly and will arouse a high sense of curiosity about the learning material. Games can be packaged into interactive learning media that are interesting and fun for students. With digital educational game, students can learn while playing to gain knowledge, foster habits, and foster

understanding packaged in a digital environment (Dubey & Sinha, 2023; Janakiraman et al., 2021; Nisiforou & Vrasidas, 2021).

Differences in Student Learning Activity in Experimental Class and Control Class

Based on the inferential statistical analysis above, it can be concluded that there is a difference in increasing student learning activity in classes that integrate Wordwall learning with classes that use conventional learning during Pancasila Education learning in 4th grade SDN 3 Parepare. This aligns with previous research conducted by Nafisah et al., (2024) , which concluded that Wordwall media with the Teaching at The Right Level (TaRL) Approach effectively increases student activity with high criteria. Likewise, research by Gandasari & Pramudiani (2021) stated that the Wordwall application is more influential than the lecture method, which only uses book media in learning; a new atmosphere in the learning process with exciting media can affect the learning process. Furthermore, other research by Permana & Kasriman (2022) stated that Wordwall learning media influences student learning motivation. This also aligns with research which concluded that Wordwall games media affects student learning activity (Cahya Adhi Nugraha et al., 2023; Marensi et al., 2023; Putriani & Gunawan, 2023; Selpia Anggraini & Putri Wellisa Anggraini, 2024).

Conclusion

Based on the research questions, results, and discussions, it can be concluded that there is a significant difference in student learning activity in classes that integrate Wordwall learning with classes that use conventional learning during Pancasila Education learning in 4th grade SDN 3 Parepare. The significance of the results of this study is that Wardwall integration is an alternative to facilitating and increasing student learning activity. Thus, this study concludes that there is a difference in learning activity between students taught with the integration of Wordwall game media and students taught with conventional media. Wordwall integration into learning can effectively encourage learning activity. Integration means that Wardwall is used not only as a learning evaluation medium but also as a learning introduction process, delivery of learning materials, and even a means for students to collaborate during learning. The significance of the findings of this study further enriches the literature related to efforts to increase student learning activity, especially in elementary school students. The recommendation for teachers is that Wordwall game media during Pancasila Education learning be used sustainably because this Wordwall media can increase student learning activity. In order to make maximum use of Wordwalls, teachers can pay attention to several things, namely ensuring that the equipment using Wordwall media must be carefully prepared to avoid obstacles during the learning process, including the availability of an adequate internet network. Teachers need to be creative in designing and selecting game features in Wardwall, with various types. The selection of game features must be adjusted to the material to be delivered, including paying attention to the allocation of learning time and the level of difficulty of the type of game chosen to suit the level of ability of students in elementary school. Further, researchers can conduct more specific research

on the features in Wordwall and their suitability for developing student abilities because each game feature in Wordwall has its characteristics. Future researchers can examine more in-depth aspects related to the use of Wordwalls in elementary school learning, such as cognitive aspects, challenges and barriers. These studies can be conducted both quantitatively and qualitatively, but they still focus on integrating Wordwall specifically and technology in general to improve the quality of learning in elementary schools.

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