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THE INFLUENCE OF UTILIZING GAMIFICATION MEDIA WORDWALL ON THE IMPROVEMENT OF PANCASILA EDUCATION LEARNING OUTCOMES

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Abstract: This research aims to investigate the impact of using wordwall gamification media on enhancing educational achievements. The research strategy used in this study was the One-Group pretest-posttest design. The participants consisted of 43 students enrolled in the Chemistry C Education program at Yogyakarta State University, taking the Pancasila Education course. The data collected from the study were analyzed using descriptive statistics. According to the findings of inferential statistical analysis using the t-test method, there was a significant improvement in students' learning outcomes, with a mean gain of 12.31 score points. Given that the t count is statistically significant at a significance level of 0.05, the null hypothesis (H0) is rejected in favor of 3400 of the alternative hypothesis (Ha). This implies a discernible impact of using wordwall gamification media on enhancing learning outcomes. Based on the findings and deliberations, it can be deduced that the utilization of Wordwall media in the context of gamified learning exhibits efficacy in enhancing the educational achievements of 43 participants enrolled in the C Chemical Education program, namely those doing Pancasila Education courses at Yogyakarta State University.

Keywords: Gamification, Learning Media, Learning Outcomes

INTRODUCTION

The rapid innovations in the 21st century have significantly changed how society views education, especially among professional educators who must learn to optimize innovations in teaching. Technological advancements have also brought various innovations to support the learning process, including developing various media that have significantly changed education. One form of educational innovation for 21st-century educators is using digital media to support learning activities. By harnessing technology, students can engage in learning while embracing creativity and innovation through online and face-to-face learning modes. Therefore, there is a need for digital-based learning tools that can be used to enhance students' abilities and learning outcomes (Irwan et al., 2019).

Gamification, a term for game-based interactive learning, has become increasingly popular on mobile devices due to its ability to stimulate behaviour and improve learning outcomes. In recent years, gamification has been used in various disciplines, including education (Manzano-León et al., 2021). Based on gamification system analysis at various formal education levels, it has been found that gamification can accelerate motivation and academic achievement among students (Manzano-León et al., 2021). Gamification in education and learning most often involves using achievement and progress indicators. Most analyzed studies reported positive outcomes (Majuri et al., 2018).

Games are fun learning tools encompassing all situations, creating interactions among players committed to following predefined rules and achieving goals (Sadiman et al., 2011). By incorporating elements and mechanisms of games, gamification can also enhance educational outcomes for students (Alshammari, 2020). This can be seen in the success of digital games that have sought to validate their learning effects to support their potential to enhance motivation, engagement, and social influence (Groening & Binnewies, 2019; Lopez & Tucker, 2019). The effectiveness of gamification in improving students' attitudes, motivation, and engagement is evident, as seen in an increase in their scores from 57% in pretests to 79% in posttests (Chans & Portuguez Castro, 2021).

Interactive learning through digital media is a strategic step that educators can take to improve and maintain a high standard of education (Puspaningrum et al., 2021). One form of interactive learning through digital media is gamification in learning, which encourages participatory learning (Ahmad, 2022). Gamification allows things that may seem boring to be removed from routine and considered adventures and pleasures (Jaskulska & Starba, 2020). Teachers and students need to continue innovating how they use digital learning media. Teachers must be able to optimize the use of technology in learning (Rahim et al., 2019). Therefore, educators should consider incorporating gamification into online learning activities, especially educational games. Educators are expected to

develop their educational games, providing students with exciting online learning activities to meet their learning needs and requirements (Ahmad, 2022).

Wordwall is one of the structural gamifications used to organize content in such a way that it resembles a game. Wordwall can be characterized as a web application used to develop educational-based games presented as interesting quizzes (Shiddiq, 2021). It is stated that Wordwall can facilitate beneficial interaction between students (Maghfiroh, 2018). Media Word Wall is a network-based digital gamification application that provides various game features and quizzes for educators to deliver material evaluations (Khairunisa, 2021).

Students in online learning can use Wordwall as a teaching and evaluation tool that attracts their interests. It displays a group of words organized methodically, similar to the terms used to compose sentences (Arsini et al., 2022). Through an educational entertainment website that offers a variety of games that can be played individually or in groups, Wordwall provides new options for educators to use media to help students learn ((Çil, 2021; Hasram et al., 2021; Le, 2021). On this website, educators can play games they have made using pre-made templates to which they have added their text, images, and games made by other educators.

Several previous studies have involved the implementation of gamification in learning. However, gamification cannot work alone; it requires supporting media accessible through applications or websites. Thus, this research uses Wordwall as a gamification medium to examine its influence on student learning outcomes. The study is expected to contribute novelty and innovation in the use of gamification in education, considering different types of gamification, elements, educational levels, and subjects compared to previous studies.

Wordwall can be used for all subjects, including Pancasila Education, a mandatory university course. This requirement is based on Article 35, Paragraph 5, of Law No. 12 of 2012 concerning Higher Education. Based on observations conducted by the researcher in the Pancasila Education course for Chemistry Education class C, a lack of activity and interest in learning subsequently affected students' learning outcomes. There are many potential causes, including difficulties for educators in implementing strategies and tools for online learning preparation. With the structure of learning that educators provide, it is difficult for students to remain focused and overcome boredom. The progress of educational technology and internet access has made learning accessible without geographic or time constraints. Through the application of gamification with the help of media, Wordwall will enable them to understand the material better while avoiding boredom. Researchers can also use Wordwall media at different levels, purposes, and aspects of learning because of its wide flexibility and ability to adapt to different learning materials.

There have been many previous studies discussing the use of Wordwall gamification to improve learning outcomes. Study of Hafsah et al. (2023) on the influence of Wordwall learning media on PKn learning outcomes and material diversity in Indonesian society The study used a quasi-experimental approach to quantitative analysis involving 58 individuals, consisting of 29 control groups and 29 experimental groups. The research showed that wordwall media's influence on PKn learning outcomes on material diversity in Indonesian society in class VII MTs was significant, with t-test values greater than 0.156 and t-table values less than 0.005%. The results of this study show that the use of wordwall media can help teachers improve the ability of their students to learn. Previous research also suggested that teachers use this medium of the material and characteristics of other lessons. The researchers used this suggestion to apply gamification with Wordwall media to Pancasila Education for students of Yogyakarta State University Chemistry because it has different characteristics of learning objects and materials.

Restu et al. (2023) analyzed how Wordwall as an SD-level PPKN assessment tool affected teachers' abilities to teach digital literacy and creativity. This research uses a qualitative-descriptive approach. With good categories, 66.7% of teachers can develop digital literacy and teach creativity through wordwall media. Wordwall is an online learning medium combining diversity, creativity, simplicity, practicality, weighting, and fun. Besides, it can be used as an educational game to make PPKN learning more interesting and varied. According to this study, readers and other researchers should use applications to learn skills in the 21st century. So, the researchers will continue the research as teachers who use Wordwall gamification on Pancasila Education courses to improve student learning outcomes.

Study of Sulvina et al. (2023) on the use of Wordwall as a learning medium in IPS learning to enhance student/I learning interest in State High School 17 Field One of the problems discussed in this study was that students did not show interest in using monotonous learning media. This research aims to increase the motivation of students to learn and their interest in learning. This qualitative research shows that using Wordwall attracts students' attention and improves their mastery of learning. If students' learning interests increase, their learning outcomes will also increase. The application of learning with the help of Wordwall media can be used to see increased interest and learning outcomes in IPS subjects and other fields of study, such as Pancasila Education.

Research by Azis & Ahmad (2022), which aims to analyze the influence of online interactive digital learning media based on Word Wall on the learning outcomes of Pancasila Education and Citizenship of elementary school students, uses quantitative methods and experimental models with a non-equivalent control group design. This research uses questions of test before and test after, and

the data is analyzed with quantitative descriptive The results of this study show that the interactive digital learning media Word Wall improves student learning outcomes in Pancasila Education and Citizenship subjects. The statistical data from the hypothesis test is shown with a significance value of 0.01 < 0.05 and a t-count value > t-table, that is 5,809 > 2.042. Thus, the learning outcomes of Pancasila Education and the Citizenship of elementary school students can be enhanced by using Word Wall as an interactive digital learning tool. This research suggests that teachers use digital interactive learning media like Wordwall. Then, as a follow-up to previous research, the researchers implemented Wordwall media in students on different types of learning, namely online learning.

Salsabila et al. (2023) researched whether using a word wall as a learning tool increased the student's desire to learn about Pancasila education and Citizenship. Quasi-experimentation, also known as semu experiments, is used in this research with a quantitative approach. The researchers processed the data analyzed from students VIII C and VIII D in their samples. The analysis showed that students responded to learning motivation when using wordwall media. The result aligns with the hypothesis test results, which showed that the t-count value of 7,847 is greater than 2,042 and has a square R-value of 67.2%. These results showed that wordwall media influenced the motivation of pupils to study Pancasila Education and Citizenship subjects. The research to be carried out does not have the same object and purpose as the research being conducted. It is known that Wordwall will be used as a tool to evaluate the learning outcomes of Pancasila Education for students who have different levels of learning.

Based on the explanation and some of the reasons the researchers have presented, this study aims to determine whether Wordwall gamification can improve the learning outcome of Pancasila Education at Yogyakarta State University, especially for students of Chemical Education. This research is a follow-up to the related research suggestions that have been made. The study is expected to provide novelty and innovation in the use of gamification in education, considering different characteristics, educational backgrounds, and subjects compared to previous research.

METHODS

The present study used a pre-experimental design, namely a one-group pretest and posttest design. The assessment of learning outcomes was conducted both before and after the implementation of the intervention. This research used a single experimental group, performing a pretest (O1) to establish the baseline state. The therapy (X) was implemented, and the outcomes were assessed using a post-test (O2). This methodology facilitated the ability to compare the pre-treatment and post-treatment conditions. The research plan is shown in the table below.

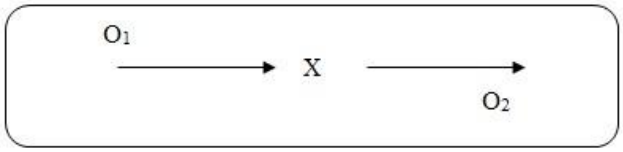

Figure 1. One Group Pretest and Posttest Design Research Design

After that, the test results underwent analysis and processing to determine the effects of the O2 therapy. Suppose a substantial disparity exists between the pretest and post-test results. In that case, using Wordwall as a learning medium has a discernible impact on enhancing educational achievements. The study sample included 43 students enrolled in Chemistry Education Class C, all of whom were currently enrolled in the Pancasila Education course. The sampling methodology used in this research was saturation sampling. Saturation sampling is a sampling method in which the whole population is included as the sample. The study instrument used by the researcher was a standardized assessment tool.

The present study used an assessment tool to evaluate the educational achievements of students, namely multiple-choice questions. The research used a quantitative data-gathering approach, and the collected data underwent analysis using tests to assess normality and homogeneity assumptions. The normality test was completed using the Kolmogorov-Smirnov test formula, while the homogeneity test could be executed by employing the homogeneity of variance test included in SPSS version 25. Following the completion of the normality and homogeneity preparatory tests, the paired sample t-test was executed.

RESULTS AND DISCUSSIONS

The Implementation of Wordwall Media Utilization

Interactive media, as used in Wordwall, pertains to digital material accessible to those using web-enabled devices, including personal computers, tablets, and smartphones. Games may be engaged in autonomously by students or facilitated by educators when students assume the role of presenters in a classroom setting on a rotational basis. The application's utility enables users to tap into their creative abilities effectively. This approach is advantageous for instructors who want to foster active student engagement in the learning process. Wordwall provides a range of complementary fundamental game choices in diverse forms. Wordwall games may also be distributed through popular platforms such as WhatsApp, Google Classroom, and similar services. The software offers a range of engaging tasks, such as crossword puzzles, assessments, randomized flashcards, and other options.

Another benefit is that the creations can be printed in PDF format, making it easier for students with difficulty making draughts. Games that have been created and can be printed in PDF format will assist students who have network issues (Swari, 2023). Students can better understand what they learn online with Wordwall and easily assess how well they have learned (Mahyudi, 2022). Affirm that Wordwall simplifies online subject access for students and can help measure their academic performance (Wafiqni & Putri, 2021).

One of the benefits of Wordwall is its easy-to-understand design. Another benefit is its diverse templates and features, including quizzes and word searches. The gameplay can be adjusted according to the number of players under the educator's control who want to play the same game simultaneously. Wordwall also offers several font sizes and theme options. Learning through games is engaging and enjoyable. It also facilitates educators' creative use of media and adapting to the pandemic while keeping up with technological advancements.

To encourage students to be more engaged in their online education, Wordwall can be utilized to help them become more active participants (Rahmawati & Wijayanti, 2022). Students' abilities and progress can be tracked through this medium or game. The benefits of using this application include easy accessibility, offering free basic options, and being equipped with several templates (Rahmi & Angraina, 2021). Instructors allow the delivery of content or assessments through games through WhatsApp, Google Classroom, or other platforms. The Wordwall platform is user-friendly and easy to navigate, with all steps explained clearly. Moreover, the Wordwall platform is also a convenient tool for educators needing more time or confidence with technology.

The learning planning process includes the following steps: (1) creating a syllabus; (2) preparing the Lesson Implementation Plan (RPP) that incorporates online learning with game media through Wordwall; (3) creating questions to be used for the pretest, posttest, and implementation of learning using Wordwall media; (4) creating answer keys for the questions in the implementation of learning using Wordwall media; and (5) creating a summary of learning outcomes that includes pretest and posttest scores and observations. Improving students' learning outcomes is intended through online teaching using Wordwall media.

The first meeting in this study was conducted in the form of introductory activities and the implementation of a pretest to assess students' initial abilities. An orientation activity came first, then an apperceptive activity. The next step was the educator's explanation of the subject matter. Students were asked to express their opinions, and then the educator explained the material through lecture and question-and-answer methods. The educator distributed a pretest for students to complete, assessing their initial learning abilities. The learning activity ended with the educator guiding students

to summarise the material, reflect on the benefits of the learning process, and determine the actions to be taken regarding future learning.

The second to fifth meetings involved the implementation of learning using Wordwall media, which began with an orientation activity conducted by the educator, followed by an apperceptive activity. The implementation steps started with distributing game links through WhatsApp groups, accessible via smartphones or PCs owned by the students. After that, students answered each question through various games. The educator provided questions related to the material taught during the learning process.

In the second meeting, students worked on 10 quiz game questions related to the first and second principles of Pancasila. The quiz game was a classic multiple-choice quiz. Each question in this quiz had a time limit, and students tapped the options to select the correct answers.

In the third meeting, students worked on 10 open-the-box game questions related to the third principle of Pancasila. This game contained 10 boxes, each containing one question. Students tapped the boxes to open them and then answered the questions inside.

In the fourth meeting, students worked on 10 match-up game questions related to the fourth and fifth principles of Pancasila. In this game, students had to match words with their correct definitions by dragging and placing them in the appropriate pairs.

In the fifth meeting, students worked on 10 true-or-false game questions related to the first and Second Amendments to the Indonesian Constitution (UUD NRI). In this game, there were flying items with a timer, and students had to guess whether the statements were true or false before the time ran out.

In the sixth meeting, students worked on 10 win-or-lose game questions related to the third and fourth amendments to the Indonesian Constitution (UUD NRI). Each question in this game had different points depending on the number of points chosen to bet on each answer. Incorrect answers did not receive points as they lost, while correct answers were marked as correct and received points.

The educator distributed post-test questions in the seventh meeting, and students worked on them individually. The activity ended with the educator guiding students to summarise the learned material to ensure meaningful learning. Subsequently, the educator announced the groups that had performed well and demonstrated good cooperation.

The Influence of Wordwall Media Utilisation on Learning Outcomes

Here is the presentation of research data to examine the influence of using Wordwall learning media on the learning outcomes of Chemistry Education C Programme students in the Pancasila

Education course at Universitas Negeri Yogyakarta. The detailed scores of learning outcomes in the pretest can be seen in the following figure:

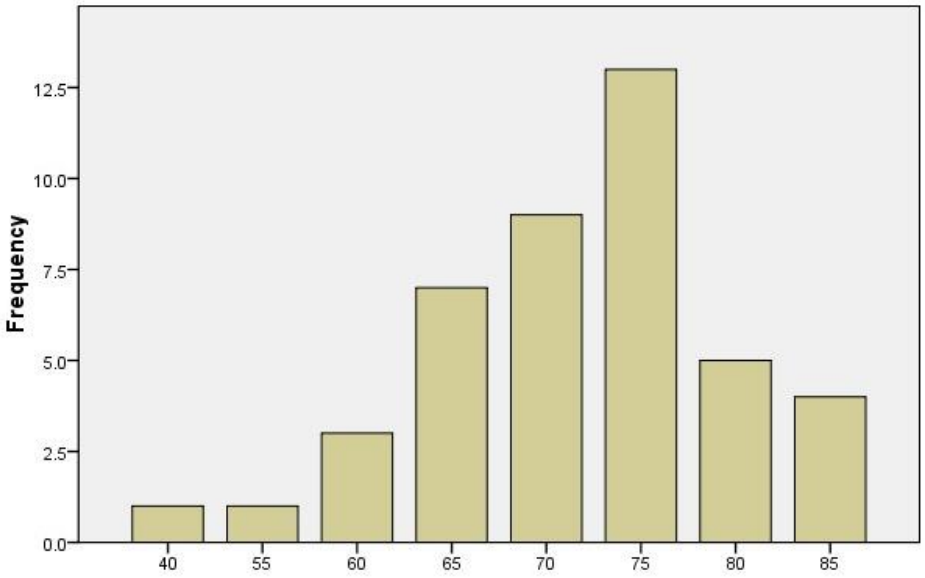

Figure 2. Pretest Results

The preliminary assessment findings indicate variation in the scores for the learning outcomes. The preliminary assessment included twenty inquiries, each carrying a potential score of one hundred. According to the data shown in Figure 1, it is evident that the students achieved varying scores during the pretest. Specifically, 13 students attained a score of 75, 9 students obtained a score of 70, 7 students achieved a score of 65, 5 students received a score of 80, 4 students attained a score of 85, 3 students achieved a score of 60, 1 student obtained a score of 55, and 1 student received a score of 40.

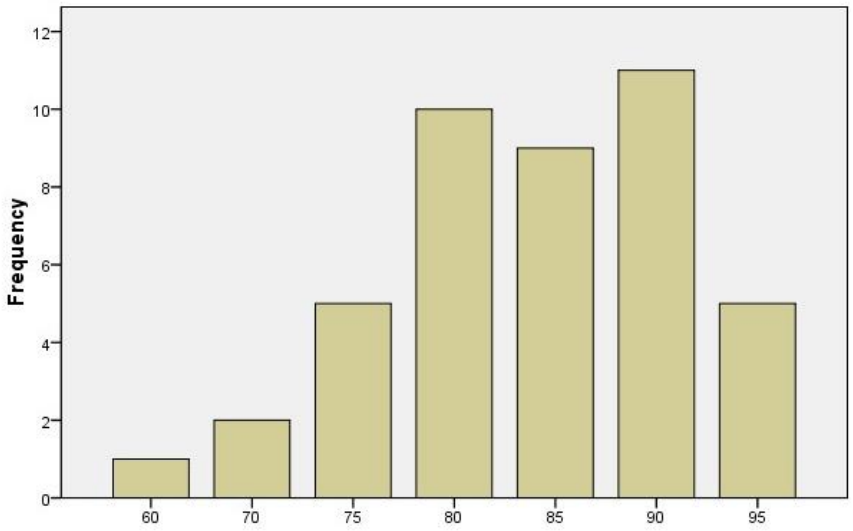

Figure 3. Post-test Results

Meanwhile, the post-test results, with a maximum score of 100, show that the student's learning outcomes are as follows: 11 students scored 95, 10 students scored 80, 9 students scored 85, 5 students scored 95, 5 students scored 75, 2 students scored 70, and 1 student scored 60.

Table 1. Description of Pretest and Post-test Results

	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Pretest	43	45	40	85	3076	71.53	8.776	77.017
Post-test	43	35	60	95	3605	83.84	7.779	60.520
Valid N (listwise)	43							

Based on the data shown in the table, it can be seen that before the implementation of Wordwall media, students achieved an average score of 71.53 out of a total possible score of 85, with a minimum score of 40. Subsequently, the researcher administered post-test inquiries to ascertain the media's impact. The inquiries above had an average rating of 83.84, exhibiting a minimum score of 60 and a maximum score of 95. The findings indicate a statistically significant rise of 12.31 points in the mean score from the pretest to the posttest. Using Wordwall in multi-game activities facilitated the students' ability to enhance their comprehension of the learning content.

Based on the normality test using the One-Sample Kolmogorov-Smirnov Test, it is known that the sample met the normality assumption ($\alpha > 0.05$). The α value is $0.268 > 0.05$, indicating that the data distribution in the research group or variable is normal. Using Levene's test method, the sig. The value obtained was $0.733 > 0.05$, indicating that the research data is homogeneous. After conducting the normality and homogeneity tests, and since the obtained data is both normal and homogeneous, the next step for the researcher is to conduct a hypothesis test, namely the t-test.

Table 2. T-Test Table

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pretest-Post-test	-12.302	5.962	.909	-14.137	-10.467	-13.530	42	.000

Based on the paired sample t-test calculation results, the decision is made based on the sig. (2-tailed) the value being smaller than the α value (0.05). In this case, the obtained sig. The value is

0.000 < 0.05. Thus, it can be concluded that using Wordwall media to improve student's learning outcomes has an influence.

CONCLUSION

Gamification, the term used to describe game-based interactive learning, is becoming increasingly popular on mobile devices and in technology due to its ability to stimulate behaviour and improve learning outcomes. Gamification involves incorporating rules into games. The goal is to modify non-game activities, such as learning activities, to make them more appealing to users. Based on the research results and discussions, it can be concluded that using Wordwall media in gamified learning is suitable for improving the learning outcomes of 43 students in the Chemistry Education C programme taking the Pancasila Education course at Universitas Negeri Yogyakarta. This is evident in the scores obtained by students before implementing the learning with Wordwall media, where they obtained an average score of 71.53 points. After the post-test questions were given, students obtained an average score of 83.84. The result shows an increase of 12.31 points in the average score between the pretest and posttest. Based on the significance test results, a value of 0.000 was obtained, indicating a significant influence.

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