

**CASE STUDY: IMPLEMENTATION OF WORDWALL-BASED
DIGITAL ASSESSMENT ON STATIC ELECTRICITY MATERIAL IN
CLASS IX AT SMPN 15 PUJUT**

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Abstract

The development of technology in today's digital era has a contrasting impact on every line of life, and education is no exception. Teachers will be greatly helped if they utilize technology in their learning process, both when delivering material, conducting assessments and evaluating learning outcomes. The need for interesting and interactive assessment tools is in line with the trend of digital learning and improving students' concept understanding. Based on observations and interviews with science teachers at SMPN 15 Pujut, teachers have never used the Wordwall website in conducting assessments. This study aims to examine the implementation of Wordwall-based digital assessment on static electricity material in class IX at SMPN 15 Pujut. The main question in this study is how effective is the use of wordwall-based digital assessment in improving student learning outcomes on static electricity material? This research is a case study with a quantitative descriptive approach, which aims to examine the implementation of Wordwall-based digital assessments in class IX SMPN 15 Pujut through analysis of pre-test and post-test results. A total of 24 students became the research subjects. Data were collected through multiple choice tests delivered through the Wordwall platform and analyzed using gain scores to see the improvement of learning outcomes. The results showed a significant increase in student learning outcomes after the implementation of Wordwall, with the average gain score in the medium category. Students responded positively to this digital assessment, showing increased motivation and engagement in the learning process. These findings suggest that Wordwall can be an effective and interactive digital assessment tool in science learning, particularly on abstract topics such as static electricity. It is recommended that teachers integrate similar platforms to support digital literacy and active learning in the classroom.

Keywords: Digital Assesment; Wordwall; Static Electricity; Science Education;

INTRODUCTION

The development of digital technology has brought significant changes, including education. Digitalization in education is no longer an option, but an inevitable necessity in facing the challenges of the Industrial Revolution 4.0 and Society 5.0 era. In this context, the integration of technology into the educational process has paved the way for various learning innovations, one of which is in assessment methods that are no longer fixated on conventional written test models (Elhefni et al., 2023). Assessment is a fundamental aspect of the learning process in education, and technologies such as digital tools can improve student engagement, motivation and learning (Fletcher et al., 2024).

Digital assessment tools are now increasingly prominent because they are able to provide learning experiences that are more interesting, interactive, and adaptive to the learning styles of today's students (Fatimah et al., 2021). Digital assessments provide a dynamic approach to evaluating student understanding, allowing teachers to design instruments that can be tailored to the characteristics of the material and the needs of learners (Bulut, 2021). The use of technology in assessment is also considered more efficient in terms of time, providing immediate feedback and facilitating student involvement in the evaluation process. Teachers can share learning materials, assess student learning outcomes, and evaluate learning through digital assessments (Sharma & Sharma, 2021). In developing the content of the assessment, questions and activities must be made in such a way as to produce answers that can be measured (Covello, 2010). If this trend is not seriously discussed and implemented, then education will lose its relevance to the times. Teachers and students will be stuck in an outdated learning model, which risks reducing learning motivation, student engagement and the quality of understanding gained.

In practice, non-contextual and uninteresting assessments are often the cause of low student understanding, especially in materials that are abstract and require a strong understanding of concepts, such as static electricity material in science lessons. This material includes concepts such as electric charge, forces of attraction and repulsion, and the process of electrical induction that require visualization and logical reasoning. If not delivered with the right approach and media, students tend to have difficulty in understanding these concepts. Therefore, it is important for teachers to utilize digital technology as an alternative approach that is more contextual, attractive, and able to foster student learning motivation. The increasing demand for educators to utilize technology in their teaching practices necessitates the exploration and implementation of digital tools that can effectively support and enhance the learning process (Prasetyo et al., 2021)

Teachers have a strategic role in bringing learning innovation through the use of digital technology. In the context of the Merdeka Curriculum, teachers are given the flexibility to design assessments that are formative, diagnostic, and fun. One solution that can be utilized is the use of Wordwall, a digital platform that allows teachers to create various forms of quizzes, educational games, and interactive activities based on gamification. Wordwall offers easy-to-use features and various quiz templates such as multiple choice, match pairs, anagrams, wheel of fortune, and so on, which can be customized to specific materials and learning objectives. This platform not only facilitates technology-based assessment, but also increases student motivation and engagement in the learning process in a fun way (Rahmawati & Wijayanti, 2022).

In the context of science learning, especially on static electricity, Wordwall can be an assessment tool that not only tests students' understanding, but also reinforces concepts through creatively designed interactive repetition. This platform answers the need for more flexible, adaptive, and engaging assessments, especially for students at the junior high school level who are still at the concrete-operational stage of development. Especially in schools located in regions such as SMPN 15 Pujut, the application of Wordwall can also be an inspiration and example of how teachers in areas with limited access to technology can still innovate in digital-based assessment.

The problems raised in this study include how the implementation of Wordwall-based digital assessment on static electricity material in class IX SMPN 15 Pujut and how students respond to digital assessment using Wordwall in science learning. In accordance with the problems formulated, this study aims to describe the implementation process of Wordwall-based digital assessment in static electricity material and analyze student responses to the use of Wordwall as an assessment tool in science learning.

By considering the urgency and relevance of these problems, this research was conducted to examine in depth the implementation of Wordwall-based digital assessment in science learning on static electricity material in class IX of SMPN 15 Pujut. This research is important to do because it can contribute to the development of assessment practices that are more contextual, innovative, and in accordance with the needs of 21st century learners. Furthermore, the results of this study are expected to be a practical reference for other teachers in utilizing technology as an evaluation tool that not only measures learning

METHOD

This study uses a quantitative descriptive method with a one group pretest-posttest design, which aims to determine the effectiveness of Wordwall-based digital assessment in improving student learning outcomes on static electricity

material, as well as examining its implementation in learning activities. The research subjects consisted of 24 students of class IX of SMPN 15 Pujut. The research was conducted in two stages: giving pre-test before learning and post-test after learning using Wordwall quiz. The data were analyzed using the N-Gain Score formula to determine the improvement of student learning outcomes. N-Gain Score formula:

$$N\text{-Gain} = \frac{\text{Post-Test} - \text{Pre-Test}}{\text{Ideal Score} - \text{Pre-Test}}$$

The instrument used in data collection was the same multiple-choice questions used for both pre-test and post-test, totaling 15 questions. The pre-test was administered manually before learning, while the post-test was conducted through the Wordwall platform in the form of an interactive digital quiz. The implementation of digital assessment was conducted after the teacher delivered the material through an interactive lecture model and a simple demonstration related to static electricity. Then, students were directed to access the Wordwall quiz through their respective devices. This activity not only measures student learning outcomes, but also provides an interactive experience in evaluation. Learning outcome data was analyzed by calculating the average pre-test and post-test scores and their improvement. In addition, direct observation of student participation and engagement was also used to evaluate the response to the Wordwall media.

FINDINGS AND DISCUSSION

Table 1. The effectiveness of using wordwall

Name	Pre	Post	POST- PRE	Ideal- PRE	N- Gain SCORE	N Gain Score (%)	Efektivitas	
							Category	
S1	11	15	4	4	1	100	High	Effective
S2	2	5	3	13	0.231	23.077	Low	Ineffective
S3	8	10	2	7	0.286	28.571	Low	Ineffective
S4	4	15	11	11	1	100	High	Effective
S5	1	15	14	14	1	100	High	Effective
S6	10	15	5	5	1	100	High	Effective
S7	9	10	1	6	0.167	16.667	Low	Ineffective
S8	9	14	5	6	0.833	83.333	High	Effective
S9	12	15	3	3	1	100	High	Effective

S10	9	10	1	6	0.167	16.667	Low	Ineffective
S11	11	10	-1	4	-0.25	-25	Low	Ineffective
S12	5	14	9	10	0.9	90	High	Effective
S13	9	15	6	6	1	100	High	Effective
S14	11	8	-3	4	-0.75	-75	Low	Ineffective
S15	11	15	4	4	1	100	High	Effective
S16	8	12	4	7	0.571	57.143	Medium	Moderately Effective
S17	5	8	3	10	0.3	30	Medium	Ineffective
S18	7	8	1	8	0.125	12.5	Low	Ineffective
S19	8	15	7	7	1	100	High	Effective
S20	7	11	4	8	0.5	50	Medium	Less Effective
S21	10	13	3	5	0.6	60	Medium	Moderately Effective
S22	10	15	5	5	1	100	High	Effective
S23	9	13	4	6	0.667	66.667	Medium	Moderately Effective
S24	6	9	3	9	0.333	33.333	Medium	Ineffective
Average	8	12.083	4.083	7	0.57	56.998	Medium	Moderately Effective

The results showed an increase in student learning outcomes after the application of Wordwall-based digital assessment on static electricity material. Based on the results of the pre-test and post-test of 24 students of class IX SMPN 15 Pujut, the average pre-test score was 8, and the average post-test score was 12.083, with an average score increase of 4.083.

The increase in student learning outcomes was analyzed using the N-Gain formula, which showed an average N-Gain score of 0.57 or 56.998%, which is categorized in the moderate category. Of the 24 students, 12 students (50%) showed an increase in the high category (effective), 6 students (25%) were in the medium category (moderately effective), and the remaining 6 students (25%) were in the low category (less or not effective). There were even some students who experienced a decrease in scores from pre-test to post-test, as indicated by negative N-Gain values (e.g. S11 and S14). This can be seen in the chart below

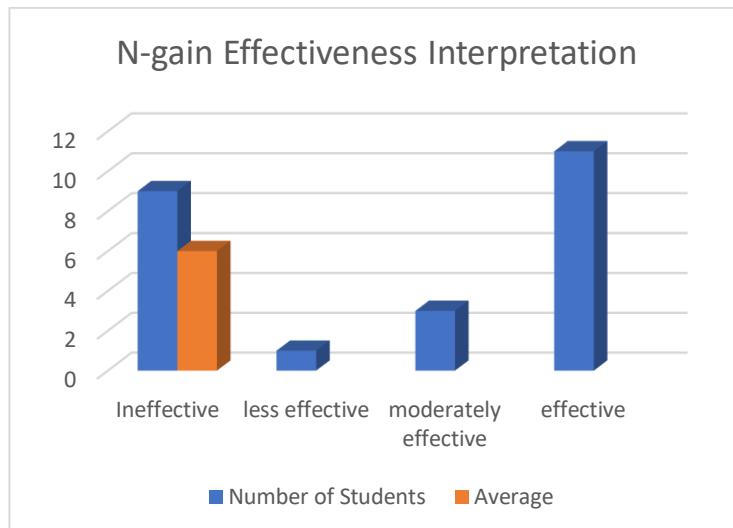


Figure 1. N-gain effectiveness interpretation

The increase in student learning outcomes after using Wordwall shows that this platform is able to provide a more interesting and interactive learning experience, especially in understanding abstract concepts such as static electricity. This is in line with Bulut's (2021) opinion, which states that digital assessment allows for a more dynamic approach to evaluation, and can be adapted to students' learning styles.

In the context of science learning, static electricity material requires strong conceptual understanding because it involves invisible concepts such as electric charge, force of attraction, and induction. Therefore, the use of visual and interactive media such as Wordwall greatly supports student understanding. Students are not only asked to answer questions conventionally, but also engage in game-based activities (gamification) that increase learning motivation.

Student response to the use of Wordwall was also very positive. Observations showed that students were more enthusiastic and active during the assessment process. They showed greater interest in the material and participated more actively in the discussion after the quiz was conducted. This supports the results of Rahmawati and Wijayanti's (2022) research which showed that Wordwall-based learning can increase student engagement and understanding.

However, the success of Wordwall implementation was not evenly distributed to all students. Some students showed less than optimal results, even experiencing a decrease in scores. This can be caused by several factors, such as differences in basic abilities, lack of focus during the assessment, or limitations in operating digital devices. Therefore, although Wordwall proved

to be effective in general, teachers still need to take an individualized approach to assist students who are having difficulties.

This finding emphasizes the importance of technology integration in learning assessment as part of the strategy to improve the quality of science education in the digital era. Wordwall can be an alternative assessment that is innovative, fun, and effective if used appropriately and adapted to the characteristics of learners.

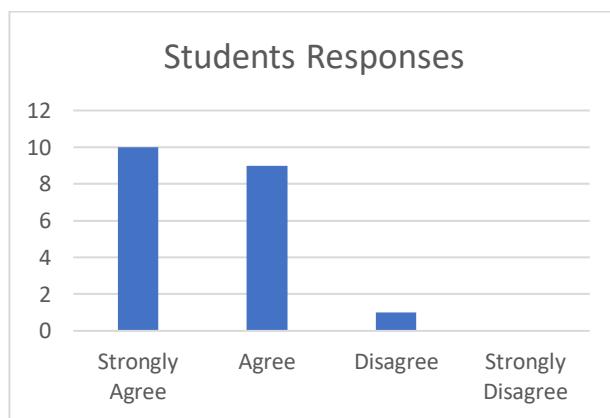


Figure 2. Students responses to the use of wordwall

Based on the results of the questionnaire given to the students after the implementation of digital assessment using Wordwall, a total score of 600 out of a maximum score of 800 was obtained, with an average percentage of 75%. This shows that in general, learners give a positive response to the use of Wordwall in the learning evaluation process.

The data above shows that the implementation of Wordwall not only had an impact on improving learning outcomes, but also received positive responses from students. The average percentage of questionnaire scores that reached 75% reflects that most indicators of student responses were in the good category.

The dominance of "Strongly Agree" and "Agree" responses indicates that students feel that the use of Wordwall: makes the evaluation process more fun and less boring, increase their motivation to understand the material, makes it easy to understand the questions because of its interactive and attractive appearance, and provide new experiences in the form of gamification that they do not get from conventional assessments.

This positive response is in line with the findings of Fatimah et al. (2021) and Rahmawati & Wijayanti (2022), which state that digital-based assessments can increase student engagement and satisfaction in the learning

process. Moreover, students at the junior high school level, who are still in the concrete operational stage of development, are greatly helped by the visual and interactive approach in the assessment.

However, the presence of one student who gave a "Disagree" response indicates that there are still challenges that need to be considered, such as possible technical difficulties in using the device, or different learning preferences. This is a concern for teachers to provide more individualized assistance in the transition to digital assessment.

Overall, these results strengthen the argument that Wordwall is not only effective in improving learning outcomes cognitively, but also affective acceptance by students. This good acceptance of technology-based assessment is an important foundation in encouraging the continuous integration of technology in classroom learning.

CONCLUSION

The implementation of Wordwall-based digital assessment on static electricity material in class IX SMPN 15 Pujut proved effective in improving student learning outcomes. Wordwall provides an interactive and fun learning experience, and helps students understand abstract concepts more easily. Thus, this platform is recommended as an innovative alternative in science learning assessment.

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