Classroom Action Research: Enhancing IPAS Learning Outcomes on Indonesians' Cultural Diversity Using Wordwall to Elementary School Students

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A B S T R A C T

This research aimed to determine the improvement in learning outcomes in Natural and Social Sciences (IPAS) on the topic of Indonesia's cultural wealth using Wordwall media among Grade IV students at SD Negeri 019 Samarinda Ulu during the 2023/2024 academic year. The study employed Classroom Action Research (CAR) conducted over three cycles, with each cycle consisting of two sessions. The research procedure included four stages: planning, implementation, observation, and reflection. The subjects of the study were 22 Grade IV students at SD Negeri 019 Samarinda Ulu, and the object was the improvement in learning outcomes of IPAS on the topic of Indonesia's cultural wealth using Wordwall media. Data collection techniques included observation, tests, and documentation. Data analysis involved calculating percentages for teacher and student activities, learning completeness, and improvement in student outcomes. The results indicated significant improvement in learning outcomes. Students' completeness percentages increased from the first meeting in Cycle I at 23%, the second meeting at 27%, the first meeting in Cycle II at 41%, and the second meeting at 55%. By Cycle III, the first meeting achieved 64%, and the second meeting reached 82%. In conclusion, the use of Wordwall media significantly improved the learning outcomes of IPAS on Indonesia's cultural wealth for Grade IV students at SD Negeri 019 Samarinda Ulu during the 2023/2024 academic year. The research highlights the effectiveness of interactive media in fostering student engagement and enhancing academic achievement.

1. INTRODUCTION

Education is a fundamental effort designed to create a learning process that enables students to maximize their potential in spiritual, intellectual, social, and skill-related aspects (Kemdikbud, 2003). National education is based on Pancasila and rooted in religious values and Indonesia's national culture, while remaining adaptable to the developments of the era. In this modern era, learning requires an approach that aligns with technological demands and curriculum advancements, particularly in the implementation of the independent curriculum. This curriculum emphasizes learning based on exploration, innovation, and critical thinking, with one relevant subject being Natural and Social Sciences (IPAS). IPAS integrates concepts of natural and social sciences, which not only help students understand the universe and human life but also foster a sense of nationalism, cultural appreciation, and responsibility as citizens (Muzaini, 2023; Suhelayanti et al., 2023).

However, preliminary data at SD Negeri 019 Samarinda Ulu indicate that students' learning outcomes in IPAS are still low. Based on observations and interviews with the Grade IV teacher, Miftahul Jannah, S.Pd., the average score of Grade IV students is 72.6, below the established Learning Objective Achievement Criteria (KKTP) of 75. A total of 13 students have not met the KKTP, while only 9 students have achieved success. This highlights the need for innovative teaching strategies that meet students' needs to improve learning outcomes and reduce the rate of incompletion.

One potential solution is the use of Wordwall as an innovative learning medium. Wordwall is an interactive application that facilitates engaging, enjoyable, and active student participation (Ashari et al., 2023; Rodriguez-Escobar et al., 2023; Safitri et al., 2022). It features tools such as match-up, random card, quiz, and group sort that can be utilized across various subjects, including IPAS (Fitria, 2023; Novyanti et al., 2022). A prior study by Salsabila et al. (2023) demonstrated that the use of Wordwall in Aqidah Akhlak lessons r significantly improved students' learning outcomes. Another study by Muzaini et al. (2023) found that using Wordwall in mathematics instruction enhanced the conceptual understanding of Grade V elementary school students. This research revealed that Wordwall not only improved learning outcomes but also increased students' motivation to participate in learning activities. Similarly, Putri & Rafiz (2023) reported that integrating technology like Wordwall into PKn Learning in Islamic Elementary Schools created an interactive learning experience and improved students' learning outcomes by 20% compared to traditional methods. Further research, such as that by Susilana et al. (2022), underscores the importance of interactive media in mitigating student boredom during learning. Wordwall has been shown to increase student engagement and develop collaborative skills through its group-based game features. This finding is reinforced by Al-Taweel et al. (2021), who reported that technology-based media use boosts students' confidence in presenting their learning outcomes.

Although prior studies have demonstrated Wordwall's effectiveness in various learning contexts, no research has specifically applied this medium to IPAS instruction focusing on the topic of Indonesia's cultural wealth. Therefore, this study aims to address this gap by implementing Wordwall in IPAS instruction, particularly to enhance the learning outcomes of Grade IV students at SD Negeri 019 Samarinda Ulu.

The novelty of this research lies in the use of technology-based learning media within the independent curriculum, aimed not only at improving students' learning outcomes but also at instilling a love for local culture as part of the effort to realize the Pancasila Student Profile. By leveraging Wordwall, students can more easily explore Indonesia's cultural wealth through interactive activities that foster curiosity and critical thinking skills. This study aims to

determine the improvement in IPAS learning outcomes on the topic of Indonesia's cultural wealth through the use of Wordwall learning media among Grade IV students at SD Negeri 019 Samarinda Ulu.

2. METHODOLOGY

2.1 Research Design

This study employs Classroom Action Research (CAR) following the model proposed by Kemmis and McTaggart (as cited in Rizakhojayeva, 2020). CAR is conducted in systematic cycles of planning, action, observation, and reflection to improve the teaching-learning process (Bancin & Siagian, 2019; Nanda et al., 2021). The research was carried out during the second semester (March 19 to May 16, 2023) at SD Negeri 019 Samarinda Ulu, located at Jalan Siti Aisyah Gg. 15 RT 29 No. 68, Teluk Lerong Ilir, Samarinda Ulu, East Kalimantan Province. The subjects of the study were the teacher and students of Class IV B, while the object of the study was the learning outcomes in the IPAS subject focusing on Indonesian cultural wealth using the Wordwall media.
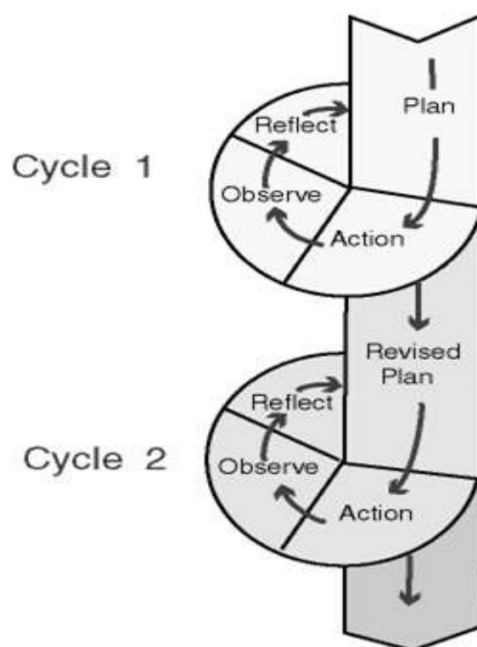

Figure 1. Cycle of classroom Action Research adapted from Kemmis and McTaggart

The study was conducted in three cycles, with each cycle consisting of two meetings. Each cycle included activities to plan interventions, implement them in the classroom, observe the process, and reflect on the results. The design emphasizes improving students' learning outcomes in a structured and iterative manner (Kemmis et al., 2014).

2.2 Data Collection Technique

Data collection methods in this study included observation, tests, and documentation. Observation was conducted to assess the activities and interactions between teachers and students during the learning process, following predefined indicators for teacher and student engagement. Tests were administered to measure students' learning outcomes after each

cycle, including pre-tests and post-tests to capture the improvement in their scores. Documentation involved gathering relevant materials such as lesson plans, photographs, and students' work to provide additional evidence of learning improvements.

2.3 Data Analysis Technique

Data analysis involved both qualitative and quantitative approaches. The qualitative data from observations and documentation were analyzed descriptively to identify patterns and insights regarding teaching and learning activities. Quantitative data were analyzed using statistical formulas to evaluate learning outcomes, group completeness, and improvement percentage.

3. RESULT AND DISCUSSION

3.1 Result

The classroom action research was conducted over three cycles, with two sessions in each cycle. The study was carried out to evaluate the outcomes of the planned interventions aimed at improving the learning outcomes in Natural and Social Sciences (IPAS) on the topic of Indonesia's cultural wealth through the use of Wordwall media among Grade IV students at SD Negeri 019 Samarinda Ulu during the 2023/2024 academic year.

In Cycle I, the first session achieved a percentage of 53% in the "Poor" category due to the use of Wordwall media via mobile phones, which disrupted the classroom environment. The second session of Cycle I saw an improvement to 63%, categorized as "Fair," as the Wordwall media was displayed using a projector instead of mobile phones, resulting in a more conducive learning environment.

In Cycle II, the first session recorded an increase to 68% in the "Fair" category, as the teacher's explanation of the material lacked depth and engagement, leaving some students struggling to grasp the material. The second session of Cycle II saw a further increase to 75% in the "Good" category, with the Wordwall media being effectively utilized, featuring questions related to the lesson. Despite these improvements, some students still fell short of the Learning Objective Achievement Criteria (KKTP), necessitating further interventions.

In Cycle III, the first session recorded a percentage increase to 83% in the "Good" category, as most aspects of teacher activity were successfully implemented. However, the students' average scores were still below the KKTP target set by SD Negeri 019 Samarinda Ulu, necessitating follow-up efforts. The second session of Cycle III achieved 91% in the "Very Good" category, as the teacher successfully implemented almost all activity components. At this stage, the students' learning outcomes met the KKTP of 75, indicating significant progress. The results of the study showed a steady improvement in teacher activity observation scores from Cycle I to Cycle III, as illustrated in the following table 1:

Table 1. Improvement in Teacher Activity Observation Scores for IPAS on Indonesia's Cultural Wealth Using Wordwall Media

Cycle Stage	Session	Total Score	Average Score	Percentage	Category
Cycle I	First	42	2.1	53%	Poor
	Second	50	2.5	63%	Fair
Cycle II	First	54	2.7	68%	Fair
	Second	60	3	75%	Good

Cycle Stage	Session	Total Score	Average Score	Percentage	Category
Cycle III	First	66	3.3	83%	Good
	Second	73	3.65	91%	Very Good

The percentage improvement in teacher activities during IPAS lessons using Wordwall media for Grade IV students at SD Negeri 019 Samarinda Ulu demonstrates a consistent upward trend across all cycles. Starting at 53% in the first session of Cycle I, categorized as "Poor," the percentage steadily increased to 91% in the second session of Cycle III, categorized as "Very Good." This progression highlights the effectiveness of implementing Wordwall media in enhancing teacher performance and engagement in the learning process.
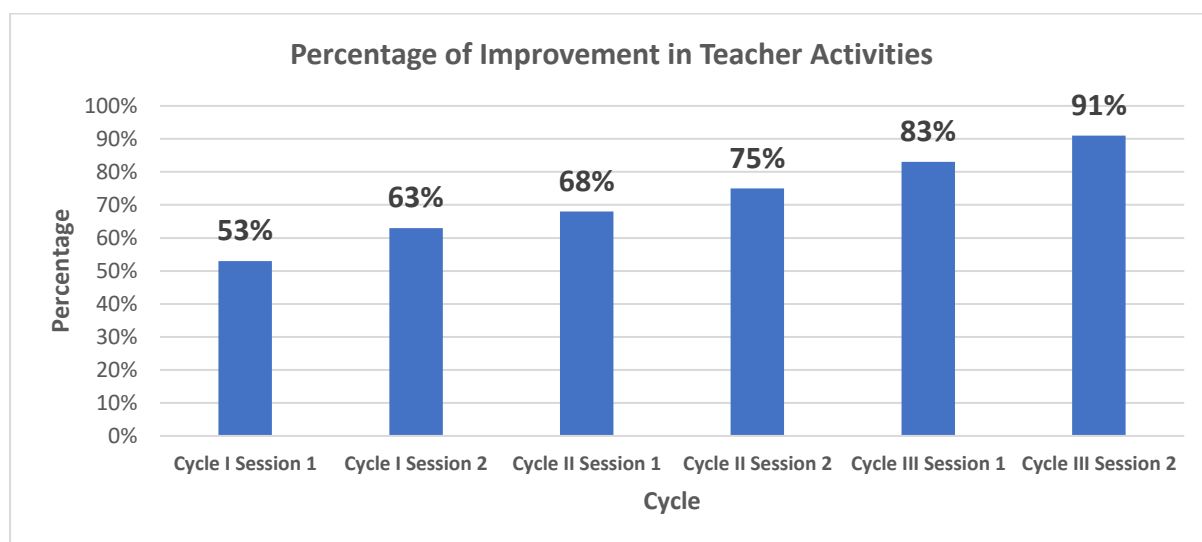

Figure 1. Percentage of Teacher Activity Improvement from Cycle I, Cycle II, and Cycle III

The observation of student activities during the IPAS lessons using Wordwall media revealed a consistent improvement across all cycles. This enhancement demonstrated the effectiveness of the interactive learning approach in fostering student engagement and participation. The gradual increase in percentage scores highlights the students' growing interest and adaptability to the use of Wordwall as a learning tool. Each cycle reflected a progressive shift from initial challenges in focus and participation to higher levels of involvement and enthusiasm, ultimately leading to a more engaging and effective learning environment. Below is a detailed breakdown of the percentage improvement in student activities across the three cycles.

In Cycle I, the first session recorded 56% in the "Fair" category, as some students were unfocused and engaged in off-task behaviors. By the second session of Cycle I, the percentage increased to 65% in the "Fair" category, as students gradually adapted to using Wordwall media, though some still struggled to engage fully in the learning process. Cycle II showed significant progress. In the first session, the percentage increased to 72% in the "Good" category, as students began showing interest in the interactive features of Wordwall, including various games that drew their attention. The second session of Cycle II recorded 79% in the "Good" category, as most students were eager to engage with the Wordwall games displayed by the teacher. Cycle III marked substantial improvements. In the first session, the percentage reached 84% in the "Good" category, as nearly all students actively participated

in the learning process. By the second session, the percentage rose to 88%, categorized as "Very Good," as students successfully engaged with all learning aspects, resulting in an effective and interactive IPAS learning experience.

Table 2. Improvement in Student Activity Observation Scores for IPAS on Indonesia's Cultural Wealth Using Wordwall Media

Cycle Stage	Session	Total Score	Average Score	Percentage	Category
Cycle I	First	248	49.6	56%	Fair
	Second	288	57.6	65%	Fair
Cycle II	First	318	63.6	72%	Good
	Second	346	69.2	79%	Good
Cycle III	First	370	74	84%	Good
	Second	386	77.2	88%	Very Good

The figure 2 illustrates the percentage improvement in student activities during the IPAS lessons using Wordwall media. In Cycle I, student participation began at 56% and increased to 65%, reflecting gradual adaptation to the new media. By Cycle III, participation reached 88%, demonstrating significant growth in student engagement and interaction throughout the learning process.
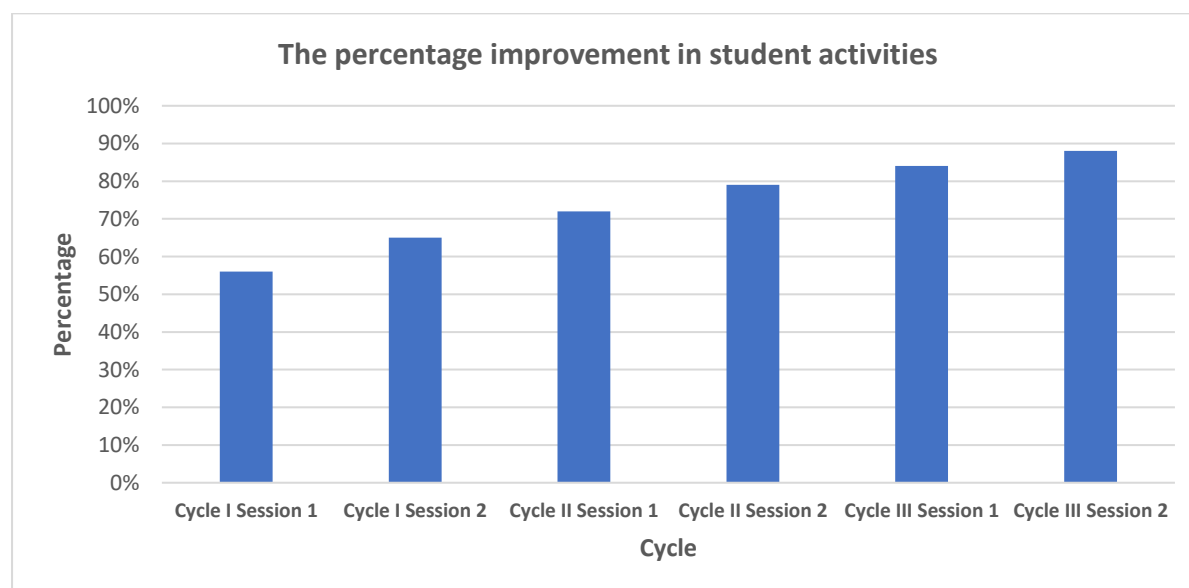

Figure 2. Percentage of Student Activity Improvement from Cycle I, Cycle II, and Cycle III

The next discussion focuses on Student Learning Outcomes, which highlight the progress made throughout the intervention cycles. These outcomes demonstrate how the implementation of Wordwall media influenced students' understanding and performance in IPAS, particularly on the topic of Indonesia's cultural wealth.

Prior to the intervention, the average student score was 61, categorized as "Fair." In Cycle I, the first session recorded an average score of 65 ("Fair"), while the second session showed an increase to 68 ("Fair"). In Cycle II, the first session recorded an average score of 70, with an improvement to 73 in the second session. By this stage, the learning

outcomes of most students met the KKTP criteria, though some students still required further support. In Cycle III, the first session achieved an average score of 74, categorized as "Good," though still slightly below the KKTP target. By the second session, the average score rose to 78, categorized as "Good," with students' outcomes meeting the KKTP criteria established by SD Negeri 019 Samarinda Ulu

Table 3. Student Learning Outcomes for IPAS on Indonesia's Cultural Wealth Using Wordwall Media

Assessment Stage	KKTP ≥ 75		Percentage		Learning Outcome	Average Score
	Completed	Not Completed	Completed	Not Completed		
Pre-Cycle	3	19	14%	86%	-	61
Cycle I P1	5	17	23%	77%	7%	65
Cycle I P2	6	16	27%	73%	12%	68
Cycle II P1	9	13	41%	59%	16%	70
Cycle II P2	12	10	55%	45%	19%	73
Cycle III P1	14	8	64%	36%	22%	74
Cycle III P2	18	4	82%	18%	28%	78

The figure 3 illustrates the percentage improvement in teacher activities during IPAS lessons using Wordwall media for Grade IV students at SD Negeri 019 Samarinda Ulu. Beginning at 53% in Cycle I Session 1, categorized as "Poor," teacher performance improved to 91% in Cycle III Session 2, achieving the "Very Good" category. This steady increase highlights the progressive enhancement in teacher engagement and instructional effectiveness throughout the research cycles.
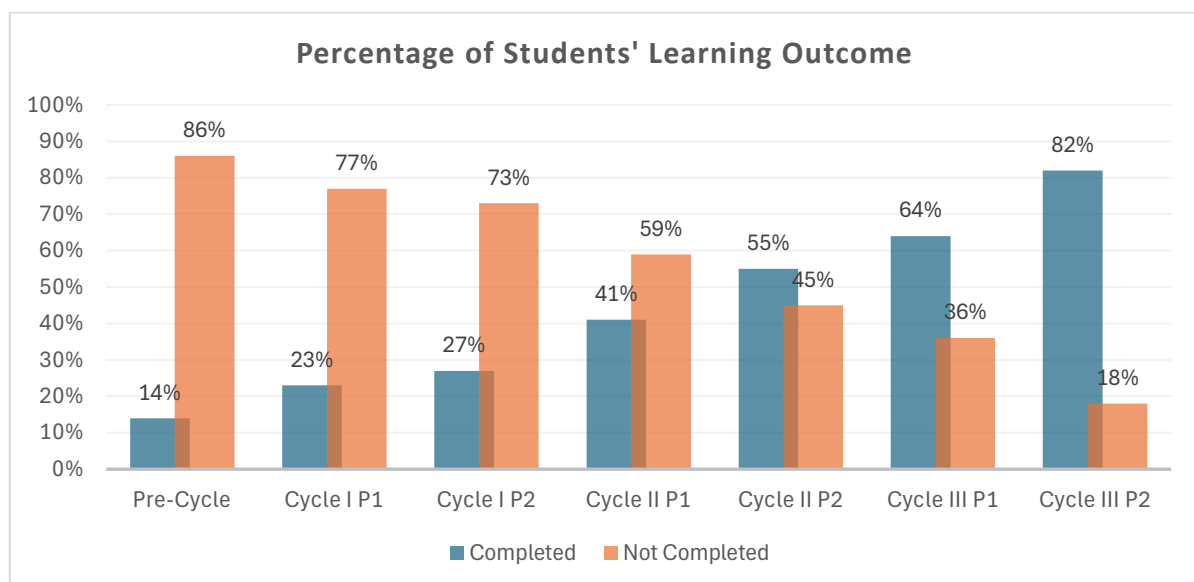

Figure 3. Average Student Learning Outcomes Pre-Cycle, Cycle I, Cycle II, and Cycle III

The findings indicate a consistent improvement in teacher activities, student activities, and student learning outcomes across the cycles. By Cycle III, the average student score met the KKTP target of 75, achieving a completion rate of 82%. Consequently, the study concludes that the use of Wordwall media significantly enhances student learning outcomes in IPAS, particularly on the topic of Indonesia's cultural wealth, for Grade IV students at SD Negeri 019 Samarinda Ulu during the 2023/2024 academic year.

3.2 Discussion

This study examines the effectiveness of Wordwall media in enhancing the teaching and learning process for Natural and Social Sciences (IPAS), focusing on Indonesia's cultural wealth. The research provides valuable insights into three key areas: teacher activity, student activity, and student learning outcomes, each showing significant improvement through iterative interventions conducted over multiple cycles.

The consistent improvement in teacher activity underscores the importance of strategically integrating interactive media like Wordwall into instructional practices. Initially, challenges such as disruptions caused by mobile devices highlighted the need for proper infrastructure and adaptation to new teaching tools. By transitioning to projectors and leveraging Wordwall's structured features, teachers were able to deliver more engaging and effective lessons. This approach aligns with studies emphasizing that successful technological integration in teaching requires both strategic planning and adaptability to achieve optimal results (Carey et al., 2019; Astuti et al., 2022).

The iterative design of the classroom action research allowed teachers to refine their instructional methods over time. By incorporating Wordwall's gamified elements, teachers fostered an active learning environment while minimizing distractions. These adjustments are consistent with research findings that highlight the role of interactive tools in enhancing teacher engagement and promoting innovative pedagogical practices (Hossain & Tarmizi, 2020). Furthermore, the observed improvements in teacher activity validate the potential of digital media to enhance lesson delivery and instructional efficiency when implemented effectively (Johan et al., 2022; McKnight et al., 2016; Serrano et al., 2019).

Student activity showed a steady upward trend, demonstrating the effectiveness of interactive media in fostering student engagement. Early challenges, such as distraction and lack of focus, gradually diminished as students became familiar with Wordwall. The platform's interactive features, including matching games and quizzes, engaged students in ways that traditional methods could not. These findings align with research indicating that gamified learning tools promote active participation, curiosity, and collaboration among students (Salim et al., 2020; Panjaitan et al., 2020; Purnamasari et al., 2022).

The progression in student engagement underscores the importance of adapting instructional methods to align with students' preferences and needs. Wordwall's ability to provide immediate feedback and visual rewards encouraged students to take ownership of their learning. This is consistent with studies emphasizing the motivational impact of interactive technologies on student behavior and academic performance (Calderón et al., 2020; Oviliani & Susanto, 2023; Rashid & Asghar, 2016). Moreover, the incorporation of culturally relevant content, such as Indonesia's cultural wealth, enriched the learning experience by fostering both cognitive and emotional engagement. Research supports this approach, highlighting the benefits of integrating local culture into the curriculum to deepen students' connection to the material (Drake & Reid, 2018; Peng, 2023; Suhelayanti et al., 2023).

4. CONCLUSSION

The study concludes that utilizing Wordwall as a learning medium significantly enhances the learning outcomes of students in the IPAS subject, particularly on the topic of Indonesian cultural heritage, at SD Negeri 019 Samarinda Ulu during the 2023/2024 academic year. The integration of Wordwall into the learning process fosters student engagement, critical thinking, and active participation, thereby improving comprehension and mastery of the subject matter. This improvement aligns with the goals of the independent curriculum, which emphasizes interactive, technology-driven learning to meet students' needs and aspirations.

The findings of this research emphasize the importance of integrating innovative and interactive media into teaching, particularly in creating a meaningful and enjoyable learning environment. Wordwall effectively addresses the limitations of traditional teaching methods by motivating students and making the learning process more dynamic and engaging. The study highlights the potential of technology in achieving educational objectives and enhancing the overall learning experience.

For future research, this study provides a foundation for exploring the application of interactive media in other subjects or educational contexts. Researchers are encouraged to expand this approach to different grade levels, subjects, or schools to investigate its broader applicability and effectiveness. Additionally, future studies could focus on long-term impacts, such as knowledge retention and the development of students' critical thinking skills. Schools and educators are also advised to continue adopting innovative teaching methods and investing in professional development to support the effective integration of technology in education.

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