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Effectiveness of the Deep Learning Approach Assisted by Wordwall Media on Civics Education Learning Outcomes

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Abstract: Learning approaches and media that do not comply with Permendikbudristek Number 16 of 2022 on Process Standards have contributed to low learning outcomes. This study investigates the effectiveness of the deep learning approach supported by Wordwall media on Civics Education learning outcomes for Grade V students at Cahaya Bangsa Integrated Islamic Elementary School. Using a quasi-experimental design, the study involved 112 fifth-grade students from several elementary schools in the Ki Hajar Dewantara Cluster, Semarang. The sample was determined through cluster random sampling, with Class V-A as the experimental group and Class V-B as the control group. Data were collected through pre- and post-tests, observations, interviews, and documentation. Analysis included normality and homogeneity tests, followed by t-tests and N-Gain calculations. The results show a significant difference between groups, with the experimental class achieving a moderate N-Gain of 0.60 compared to 0.32 in the control class. These findings confirm that the integration of deep learning with Wordwall media positively impacts students' performance and conceptual understanding. This study contributes to the field of education by providing empirical evidence that technology-supported deep learning can foster higher-order thinking, enrich Civics Education instruction, and offer innovative pedagogical models aligned with national standards at the elementary school level.
Keywords: deep learning approach, Wordwall media, civic education, learning outcomes, instructional effectiveness

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Introduction

Education is one of the important aspects in the formation of qualified individuals and a developed society. A country's educational quality determines its level of progress and development. A good education will give birth to the next generation, which is competent, skilled, and has a strong character (Pane & Dasopang, 2017). Improving education is an effort to lay the foundation for an advanced, high-ality Indonesian society (Defantari & Yulianto, 2024). Education is a dynamic, continuous process or journey that is inherent touman life (Isrokatun et al., 2023). According to Law No. 20 of 2003, Article 1, concerning the National Education System,ducation helps a person become a better individual and benefits their environment (Setiawan et al., 2023).

In the globalization era, students are expected to master concepts deeply, demonstrate critical thinking, and apply knowledge in real-world contexts (Mahya & Setiawan, 2024). However, the field reality shows that learning in elementary schools still often focuses on traditional methodthat do not facilitate deep understanding (Khakim et al., 2022). As a result, students often struggle to connect the subject matter to everyday life, resulting in low learning outcomes.

Based on observations and interviews conducted at Cahaya Bangsa Integrated Islamic Elementary School, particularly in Grade V Civics Education learning activities, several issues were identified. Student learning outcomes remain relatively low, indicating that the instructional methods used have not been optimal. Teachers predominantly rely on lecture-based approaches and conventional learning

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media, such as blackboards, printed textbooks, and simple teaching aids. This instructional pattern tends to position students as passive learners, as they are primarily required to listen to the teacher's explanations. Such methods are considered less effective in improving learning outcomes, especially in Civics Education, which requires engaging and student-centered media to facilitate understanding. Consequently, students show low enthusiasm toward Civics Education lessons, perceiving the subject as difficult to understand and often experiencing boredom during the learning process.

The lack of student involvement in the teaching and learning process exacerbates this situation. Learning that tends to be monotonous and less interactive causes students to lose interest and motivation, even though active involvement is crucial for improving understanding and information retention. Furthermore, although information and communication technology (ICT) has developed rapidly, its use as an interactive learning medium remains suboptimal at Cahaya Bangsa Integrated Islamic Elementary School. This results in a lack of variety in teaching methods that could attract students' interest, thereby affecting student learning outcomes.

Teachers rarely use digital learning media, even though technological facilities such as computers, projectors, and internet access are available at school. IT-based learning media have great potential to improve the quality of learning. For example, teachers can use interactive presentations, learning videos, or educational applications to make learning materials more engaging and easier for students to understand. In addition, digital media also allows students to learn independently and collaboratively through various online learning platforms and resources.

This unfortunate condition can hamper students' potential to learn optimally. Students are expected to have good digital literacy skills in today's digital era. The underuse of innovative and interactive media makes students less motivated and more bored during learning. Learning media development that is still less than optimal impacts student learning outcomes. Based on the documentation of the learning outcomes of fifth-grade students at Cahaya Bangsa Integrated Islamic Elementary School, it can be concluded that Civics Education learning outcomes remain low, as evidenced by the number of students who receive scores below the Learning Objective Achievement Criteria. This problem is due to the limited time available during learning, which prevents the material from being delivered effectively. This is because students can fully absorb the material conveyed by the teacher, which will affect their learning outcomes. This problem underscores the urgent need to innovate the learning approach at Cahaya Bangsa Integrated Islamic Elementary School.

In response to these problems, the researchers sought solutions by applying innovative and sustainable approaches, one of which was deep learning (Wijaya et al., 2025). This approach aligns with the government's vision to cultivate a knowledgeable generation equipped with critical thinking skills, creativity, and adaptability. Deep learning emphasizes three main pillars, namely Meaningful Learning, Mindful Learning, and Joyful Learning. Meaningful Learning serves as a foundation that enables students to understand learning material deeply and comprehensively by integrating newly acquired information with existing knowledge structures, resulting in a complex and interconnected understanding rather than the mere accumulation of facts (Hamzah et al., 2022; Khotimah & Abdan, 2025). Mindful Learning encourages students to become reflective learners by developing focus and metacognitive awareness, allowing them to understand and regulate their own learning processes, including learning strategies and ways to improve learning effectiveness. Meanwhile, Joyful Learning aims to create a positive and enjoyable learning environment that enhances students' engagement and motivation in the learning process (Turmuzi, 2025).

Haryanti et al. (2024) define deep learning as a learning approach that emphasizes deep mastery of concepts beyond mere memorization or quick recognition of facts. The main goal of this approach is to ensure that students not only understand the essence of a concept but can also relate it to relevant practical contexts in real life (Turmuzi, 2025). This approach encourages students to develop a more complex and integrated understanding, allowing them to apply their knowledge in various situations and contexts (Khotimah & Abdan, 2025). Thus, deep learning prepares students for academic exams and equips them with the necessary skills to face real-world challenges and to improve their understanding and retention of subject matter.

Deep learning requires appropriate learning strategies and media, namely interactive and interesting media that learning media is an object that channels the process to the recipient in the educational process (Nurfadhillah et al., 2021a). Various learning media, in both digital and non-digital forms, such as visual and audio-visual mediaare effective in overcoming student boredom and

improving the quality of learning (Mulyanto & Mustadi, 2023; Simanjuntak & Pardede, 2023). One popular and easily accessible media is Wordwall, which offers various interactive game templates to present subject matter in an engaging and fun way (Meysandi et al., 2024). Wordwall is a digital platform that is very popular in the world of education because of its ease of creating various interactive learning activities (Arimbawa, 2021). Its main advantage lies in the availability of various ready-to-use game templates. Educators can quickly transform conventionally presented subject matter into a game format that is more engaging and motivating for students (Ningsih et al., 2025). Abstract concepts or boring memorization are turned into interactive quizzes, matching games, or simple competitions involving the whole class (Dheni et al., 2024). Wordwall is expected to help create an atmosphere of Joyful Learning and facilitate a deeper understanding of concepts, so it can be implemented as a solution to problems in class V at Cahaya Bangsa Islamic Elementary School.

This research is supported by several previous studies showing the effectiveness of using Wordwall media in improving student learning outcomes. One of them is research conducted by Layyina et al. (2023), which obtained the results that cognitive learning outcomes increased from the pre-cycle stage, namely 38.5% (Need Guidance), then after cycle I, it increased to 84.6% (good), and increased in cycle II with a percentage of classical completeness of 96.2% (good). Another study by Ningsih (2025) found that the percentage of completeness was 54in cycle I, with 15 students, while cycle II achieved 89% with 25 students. So, students' learning outcomes have improved after using the Wordwall application in Pancasila Education subjects. This progressive increase indicates that Wordwall is efficacious in improving initial understanding and can maintain and improve student learning outcomes sustainably through a structured learning process.

Research by Meysandi et al. (2024) found that Wordwall media can improve learning outcomes in IPAS subjects. This is evidenced by the average post-test score of 75.00, which is higher than the initial pre-test score of 47.40, indicating an increase of 27.60. Another study by Rizki et al. (2023) found that using the Wordwall application increased students' learning motivation. Judging from the attitude of students during learning and student learning outcomes after learning Pancasila Education in the Merdeka Curriculum. This shows that Wordwall is effective for subjects that are exact or require extensive practice, as well as for subjects that focus on understanding social values and concepts. Wordwall's ability to present Pancasila Education material in an interactive and engaging format is strongly suspected to be a driving factor in improving student learning outcomes in both studies.

Based on the background of the problem, which shows that the lack of use of varied learning media, as well as the low motivation of students to learn, and not maximizing student learning outcomes in Civics Education learning content, the researcher is interested in proving the effect of the deep learning approach assisted by Wordwall media to improve learning outcomes in Civics Education subjects on the material of Indonesian cultural diversity in Class V of Cahaya Bangsa Integrated Islamic Elementary School. Wordwall, a supporting media in the deep learning approach, has strong synergistic potential. Wordwall can provide a variety of interactive activities that not only make learning more fun but can also be designed to encourage students to think critically, analyze information, and solve problems related to Civics Education material.

Although several studies have demonstrated Wordwall's effectiveness in enhancing learning outcomes, most have focused on factual or practice-based subjects such as Mathematics and IPAS (Science, Social, and Environmental Studies). There remains a lack of research on the use of Wordwall in value-oriented subjects like Civics Education (PPKn in the Indonesian context), particularly in addressing abstract and affective concepts such as cultural diversity. Furthermore, while the deep learning approach—emphasizing meaningful, mindful, and joyful learning—has gained attention in secondary and higher education contexts, its application at the elementary level remains underexplored, especially when integrated with digital learning media.

This study offers novelty by integrating the deep learning approach with Wordwall, an interactive digital platform, to improve Civics Education learning outcomes in elementary education. Specifically, it focuses on Indonesia’s cultural diversity among fifth-grade students. The aim is to examine the effectiveness of this integration in fostering deeper understanding, increasing student engagement, and enhancing learning outcomes. It is expected that this research will provide both theoretical insight and practical contributions to the implementation of meaningful and engaging digital learning in primary education.

This study aims to demonstrate that the effect of the deep learning approach assisted by Wordwall media on Civics Education learning outcomes is highly significant. The success of this research is expected to make a practical contribution by helping educators find alternative learning strategies that are more effective and engaging, especially in Civics Education subjects. In addition, this study's results can provide new insights into integrating technology, such as Wordwall, with innovative learning approaches, such as deep learning, to create a more meaningful learning experience and improve overall student learning outcomes.

Methods

This study employed a quantitative approach using a quasi-experimental design with a pre-test and post-test control-group design (Sugiyono, 2019). This design was selected to examine the causal relationship between variables in a real classroom setting without full randomization. The research was conducted at Cahaya Bangsa Integrated Islamic Elementary School in Semarang City during the second semester of the 2024–2025 academic year, from January to March 2025.

The population consisted of all fifth-grade students at Cahaya Bangsa Integrated Islamic Elementary School, totalling 112 students across four classes. Cluster random sampling was applied to select two intact classes as the research sample. Class V A was assigned to the experimental group, and Class V B served as the control group, with each group consisting of 27 students.

The research procedure was conducted in three stages: preparation, implementation, and evaluation. The preparation stage involved preliminary observations and field studies. The implementation stage began with the administration of a pre-test, followed by learning activities using the deep learning approach, assisted by Wordwall media, in the experimental group, while the control group received conventional instruction. The evaluation stage involved administering a post-test to measure the intervention's effect on Civics Education learning outcomes related to Indonesian cultural diversity.

The independent variable in this study was the implementation of the deep learning approach assisted by Wordwall media, while the dependent variable was Civics Education learning outcomes. Learning outcomes were measured by comparing students' pre-test and post-test scores. Data were collected using achievement tests, supported by observations, interviews, and documentation to enrich the description of the learning process. The achievement test consisted of multiple-choice items that had been tested for validity and reliability.

Data analysis was conducted using SPSS version 25 at the 5 percent significance level. Prerequisite tests of normality and homogeneity were performed prior to hypothesis testing. An independent-samples t-test was used to examine differences in post-test results between the experimental and control groups, while a paired-samples t-test was used to analyze differences between pre-test and post-test scores within each group. In addition, the N Gain test was used to assess the intervention's effectiveness by measuring improvements in learning outcomes, which were classified into low, medium, and high categories according to established criteria.

Results and Discussion

Results

The comparison of these two test results is the key data to evaluate whether there is a significant increase in students' understanding of Civics Education concepts and critical thinking skills after the learning intervention. This study examines and evaluates how well the deep learning paradigm improves fifth-grade learning outcomes when paired with Wordwall media. Based on pre-test and post-test results, this study explicitly aims to ascertain whether there is a substantial difference in students' critical thinking ability, as reflected in their learning outcomes before and after the intervention (Eviota & Liangco, 2020).

The practical application of the deep learning approach combined with Wordwall media in Civics Education encourages critical thinking skills and provides a meaningful learning experience for students. The reason is that the deep learning approach can foster students' curiosity and critical thinking related to a phenomenon that is relevant to everyday life, coupled with the help of Wordwall media by

displaying several types of interactive activities that can arouse students' enthusiasm in receiving lessons because the presentation of subject matter is not only fixated on printed books (Dheni et al., 2024).

In this study, the test consisted of 30 multiple-choice questions used to assess the pre-and post-test results. A summary of student learning outcomes achievement is presented in Table 1.

Table 1. Students' Learning Outcomes (Pre-Test and Post-Test)

Class	Pre-test		Post-test	
	Control	Experiment	Control	Experiment
Mean	58.56	62.37	76.78	82.22
Score Max	80	97	80	100
Score Min	23	76	46	76
Std. Deviation	13.259	10.456	16.265	4.371

The experimental class that used Wordwall media to execute the deep learning paradigm had a pre-test average score of 62.37, as shown in Table 1. In contrast, the control group's mean score before the test was 58.56. This group used learning without applying the deep learning approach and Wordwall media. After the treatment, the experimental class had an average achievement score of 82.22, while the control group obtained a score of 76.78. Based on these results, the experimental class outperformed the control group in the learning outcomes that had been obtained. The most significant improvement occurred at the reasoning level because deep learning ensures students not only understand the core of a concept but also relate it to relevant practical contexts in real life, and emphasizes the processes of reasoning, analysis, and complex problem-solving, reinforced by interactive, exploratory game features.

Statistical analyses were conducted to evaluate the effectiveness of the deep learning approach, combined with Wordwall media, on student learning outcomes. These calculations include the achievement of student passing scores, Independent Sample t-test, Paired Sample t-test, and N-gain test (Triyono et al., 2024). The normality test is the first step to test the pre-test and post-test results. We use parametric tests, such as independent-samples t-tests, to assess normality. The analysis will be conducted with SPSS 25, with a significance level of >0.05 (Sintia et al., 2022). Table 2 below presents the results of the normality test for the experimental and control groups.

Table 2. Normality Test for Pre-Test and Post-Test

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Class	Statistics	df	Sig.	Statistics	df	Sig.
Results	Pre-test Experiment	.111	27	.200*	.962	27	.404
	Pre-test Control	.148	27	.132	.946	27	.167
	Post-test Experiment	.234	27	.001	.864	27	.102
	Post-test Control	.126	27	.200*	.952	27	.245

Based on Table 2, the significance values for the pre-test and post-test results of the experimental and control groups are greater than 0.05. The data from both groups appear to have a normal distribution. A homogeneity test must be conducted in addition to the normality test to ascertain whether the variances of the two classes are the same. Homogeneity was evaluated using Levene's parametric test with a significance threshold of 5% (0.05).

Table 3. Homogeneity Test for Pre-Test and Post-Test

Results		Levene Statistics	df1	df2	Sig.
Based on Mean	Pre-test	.571	1	52	.453
	Post-test	10.747	1	52	.442

Based on the results of the homogeneity test of the pre-test and post-test data of the experimental and control classes in Table 3, the significance value of the pre-test data of the two classes is 0.453. Meanwhile, the significance value of the post-test data of the two classes is 0.442. It can be concluded that the significance value of the pre-test and post-test data of the two classes is 0.453 and 0.442, respectively, and the significance value is greater than 0.05. Thus, the pre-test and post-test data of the two classes are homogeneous. Based on the results of the normality test and homogeneity test, which

are prerequisite tests, it can be concluded that the data in this study are normal and homogeneous. So that the hypothesis can be tested using an independent-samples t-test.

Table 4. Independent Samples T-Test Results

		Levene's Test for Equality of Variances		**t-test for Equality of Means**						
									95% Confidence Interval; of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Control VA	Equal variances assumed	.571	.453	-1.174	52	.046	-3.815	3.250	-10.336	2.706
	Equal variances not assumed			-1.174	49.319	.036	-3.815	3.250	-10.344	2.714
Experiment VB	Equal variances assumed	13.498	.001	-1.680	52	.099	-5.444	3.241	-11.949	1.060
	Equal variances not assumed			-1.680	29.735	.003	-5.444	3.241	-12.067	1.178

The sig value is based on the output table of the independent sample t-test test results in Table 4. (2-tailed) is 0.000 or smaller than 0.05. This means that the t-value is significant (0.000 <0.05). It can be concluded that H0 is rejected and Ha is accepted. That is, there is a significant difference in average learning outcomes between students in the class treated with the deep learning approach assisted by Wordwall and those not treated with it. Thus, the deep learning approach supported by Wordwall effectively improves Civics Education learning outcomes on Indonesian cultural diversity at Cahaya Bangsa Integrated Islamic Elementary School.

The deep learning approach, with the help of Wordwall, has the potential to effectively improve the learning outcomes of Civics Education on the material of Indonesian cultural diversity of fifth-grade elementary school students of Cahaya Bangsa Integrated Islamic Elementary School who are at the concrete operational stage. Students are encouraged to actively explore and relate numerical material to real experiences by emphasising deep understanding and conceptual connections. Wordwall supports this process by presenting the material interactively, facilitating the understanding of basic concepts (knowing), applying them in everyday contexts (applying), and developing reasoning and problem-solving skills (reasoning). This combination of approaches and media pedagogically and cognitively encourages students to build understanding gradually and comprehensively, making learning more meaningful and engaging and meeting the learning needs of elementary students.

The next step was to evaluate the impact of the deep learning approach supported by Wordwall using the Paired Samples t-test. Table 5 presents the results of this analysis, which was conducted with the help of SPSS 25 software.

Table 5. Paired Sample T-Test Results

Paired Samples Test									
		Paired Differences							
		Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**		**t**	**df**	**Sig. (2-tailed)**
					Lower	**Upper**			
Pair 1	Control VA - Experiment VB	-19.037	16.678	2.270	-23.589	-14.485	-8.388	53	.000

Based on Table 5, the average difference between Control Class VA and Experiment Class VB is significant at the 0.05 level using SPSS version 25. (2-tailed) value of 0.000. In the paired-samples t-test, it is said that there is a significant difference between pre-test and post-test data if the Sig. (2-tailed) value <0.05. Meanwhile, if the sig value. (2-tailed) > 0.05, then there is no significant difference in learning outcomes between pre-test and post-test data. The t-test results above show the sig value. (2-tailed) 0.000 <0.05, so the results of the difference in the Control VA and Experiment VB scores show a significant difference.

N-Gain testing was conducted to analyse changes in experimental class scores from pre-test to post-test. This difference shows the estimated development of the experimental group's numeracy skills (Sukarelawan et al., 2024). A summary of N-Gain values is shown in the following table.

Table 7. N-Gain of Experimental and Control Class Learning Score

Group	Mean		N-Gain	Category
	Pre-test	Post-test		
Experiment	62.37	82.22	0.6057	Medium
Control	58.56	76.78	0.5928	Medium

Based on the N-Gain test results in Table 7, the two research classes have nearly identical initial abilities. However, after giving different treatments, these two research classes have different average improvements (N-Gain) in learning outcomes. In the experimental class, the N-Gain value is 0.6057, which is included in the moderate category. Meanwhile, the control class has an N-Gain of 0.5928, which falls within the moderate category. This means that the IPAS learning outcomes of fifth-grade students of Cahaya Bangsa Integrated Islamic Elementary School who receive learning treatment with the deep learning approach assisted by Wordwall have a higher average increase (N-Gain) than the average increase (N-Gain) in learning outcomes of students who do not receive the treatment of the deep learning approach learning assisted by Wordwall.

Based on the questionnaire responses regarding the learning model and media used by the experimental class students, 23 students responded “agree” and four responded “strongly agree” that the learning approach used made the students more active. Furthermore, for the indicator regarding the use of Wordwall-assisted media, eight students responded “strongly agree” and 19 responded “agree” that Wordwall-assisted media improved their understanding. In addition, based on the teacher's questionnaire responses regarding the use of the deep learning approach assisted by Wordwall media, the teacher rated the indicators of student engagement and student understanding of the material with a maximum score of 4 points for each. This indicates that the use of the deep learning approach assisted by Wordwall is capable of making students more active in learning, since problem-solving requires relevant information that students cannot acquire if they remain passive during the learning process (Nandhifa et al., 2023; Nurfadhillah et al., 2021a), and the use of Wordwall can increase students' understanding, marked by increasing students' learning outcome (Aprilia et al., 2024; Wati et al., 2025).

Discussion

In this study, the researcher focused on existing contextual problems by applying a deep learning approach integrated with Wordwall learning media on Indonesian diversity material. In addition, the researcher limited this study to improving learning outcomes in Civics Education with Indonesian diversity material. The findings of this study demonstrate that integrating the deep learning approach with Wordwall media significantly enhances Civics Education learning outcomes on Indonesian cultural diversity among fifth-grade students at Cahaya Bangsa Integrated Islamic Elementary School. Specifically, the experimental group exhibited substantially higher post-test scores than the control group, indicating a statistically significant improvement ($p < 0.05$) attributable to the combined intervention. This result aligns closely with established educational theories and prior empirical research, particularly those emphasizing student-centered, technology-enhanced pedagogies.

From a theoretical perspective, the effectiveness observed can be linked to the principles of constructivist learning theory, as proposed by Piaget and Vygotsky, which posit that deep learning occurs when students actively construct knowledge through real-world problem-solving and social interaction. In this study, the deep learning approach encouraged students to engage with authentic problems related to cultural diversity, such as navigating multicultural interactions in daily life, fostering critical thinking and creativity. This mirrors findings by Turmuzi (2025), Nandhifa et al. (2023) and Nurfadhillah et al. (2021), who reported that deep learning shifts students from passive reception to active participation, thereby increasing engagement and retention. Similarly, Widyasari et al. (2024) highlighted how contextualised problem-solving in deep learning enhances cognitive skls, leading to gains in the comprehension and application of cultural diversity concepts, with students not only memorising facts but also analysing and synthesising them into personal insights.

The incorporation of Wordwall media further amplifies these outcomes by leveraging multimedia learning theory (Dhea, 2024), which argues that visual and interactive elements reduce cognitive load and promote deeper processing. Wordwall's gamified features, including images, videos, and interactive quizzes, visualised abstract cultural elements (e.g., traditional rituals and ethnic harmony), making the material more accessible and engaging. This is corroborated by Faiza et al. (2022) and Riskiono et al. (2020), who found that technology-integrated tools, such as Wordwall, enhance student involvement and conceptual understanding in social studies. Prabowo & Wakhudin (2024) extend this by noting its role in maximizing classroom dynamics, which, in our study, translated into heightened motivation and collaborative discussions, directly contributing to the experimental group's superior performance.

Moreover, the synergy between deep learning and Wordwall aligns with Indonesia's national educational standards, as outlined in Permendikbudristek Number 16 of 2022, which mandates learner-centred processes integrating real contexts and technology (Article 7, Paragraph 2). This integration not only complies with policy but also echoes Aprilia et al. (2024) and Ginting (2023), who demonstrated that such combinations yield improved outcomes in Civics Education by making learning experiential and inclusive. Saputra et al. (2025) and Anggraeni et al. (2025) reinforce practical implications, suggesting teacher training and collaborative content development strategies we recommend to sustain these benefits, ensuring relevance to student characteristics and credible sourcing. In essence, the results validate and extend prior theories by showing how deep learning's emphasis on depth over breadth, combined with Wordwall's technological affordances, creates a fertile ground for cultural education in elementary settings. This not only improves factual recall but also cultivates socio-cultural competencies essential for Indonesia's diverse society.

Based on the results of this study, it can be concluded that statistically, the learning outcomes of students in the experimental class are higher than those in the control class, which means that the learning process using the deep learning approach assisted by Wordwall media is declared very effective because there is a very significant difference in learning outcomes between the experimental class and the control class so that it can be generalized to a larger population. However, this study still has some limitations, including a small sample size, a short study duration, and a lack of control over confounding variables, which can affect the validity of the results. For future research, it is recommended that researchers use a larger sample, extend the study duration, and control for confounding variables by designing more rigorous experiments. In addition, exploring variations in learning media and methods, as well as qualitative studies of students' experiences, can deepen understanding of the effectiveness of the deep learning approach assisted by Wordwall media in Civics Education learning, enabling it to make a greater contribution to educational practices in elementary schools.

Conclusion

This study demonstrated that the deep learning approach assisted by Wordwall media significantly improved Civics Education learning outcomes for fifth-grade students, particularly in the topic of Indonesian cultural diversity. The findings highlight that integrating deep learning principles with interactive digital tools fosters critical thinking, motivation, and more meaningful learning, thereby offering both theoretical confirmation and practical innovation for elementary education. Nevertheless, the study is limited by its relatively small sample size, short intervention period, and the lack of control over potential confounding factors. Future research should expand to broader populations, adopt longitudinal designs, and include qualitative perspectives to capture a more comprehensive understanding of the model’s impact. These directions will strengthen the evidence base and further clarify the contribution of technology-integrated learning to Civics Education and beyond.

References

Anggraeni, D. F. P., Widodo, W., & Supardi, Z. A. I. (2023). Development of the android-based educational game media “Perjalanan Si Maya” as a formative assessment to improve critical thinking skills and interest in learning science for elementary school students. *Ijorer : International Journal of Recent Educational Research*, *4*(4), 514–533. DOI:

https://doi.org/10.46245/ijorer.v4i4.386

Anggraeni, S. W., Alpian, Y., Prihamdani, D., & Fahrudin, R. (2025). Enhancing social maturity: A study on the effectiveness of TGT method in primary schools. *Jurnal Prima Edukasia*, *13*(1), 45–58. DOI: https://doi.org/10.21831/jpe.v13i1.75923

Aprilia, D. P., Tryanasari, D., & Kartikasari, A. (2024). the effectiveness of using word wall educational game media on science learning outcomes at SDN Karangtengah 4 Ngawi. *Prosiding Konferensi Ilmiah Dasar*, *5*, 265–271. https://prosiding.unipma.ac.id/index.php/KID/article/view/5474

Arimbawa, I. G. P. A. (2021). Implementation of wordwall game quiz in classroom to increase motivation and achievement in biology learning. *Indonesian Journal of Educational Development*, *2*(2), 324–332. DOI: https://doi.org/10.5281/zenodo.5244716

Castaño-Calle, R., Jiménez-Vivas, A., Poy Castro, R., Calvo Álvarez, M. I., & Jenaro, C. (2022). perceived benefits of future teachers on the usefulness of virtual and augmented reality in the teaching-learning process. *Education Sciences*, *12*(12). DOI: https://doi.org/10.3390/educsci12120855

Defantari, E. L., & Yulianto, S. (2024). Development of interactive learning media capinus air science lessons water cycle topics. *Jurnal Penelitian Pendidikan IPA*, *10*(10), 7220–7227. DOI: https://doi.org/10.29303/jppipa.v10i10.7483

Dheni, D. R., Nawawi, E., & Saputra, D. (2024). Implementation of problem based learning model assisted by interactive wordwall media to improve learning outcomes in Pancasila education learning in class V of SD Negeri 241 Palembang. *Jurnal Pendidikan dan Pembelajaran Indonesia (JPPI)*, *4*(1), 49–59. DOI: https://doi.org/https://jiped.org/index.php/JSP

Eviota, J. S., & Liangco, M. M. (2020). Students' performance on inquiry-based physics instruction through virtual simulation. *Jurnal Pendidikan MIPA*, *21*(1), 22–34. DOI: https://doi.org/10.23960/jpmipa/v21i1.pp22-34

Faiza, M. N., Yani, M. T., & Suprijono, A. (2022). The effectiveness of augmented reality–based social studies learning media in improving students' knowledge competence. *Jurnal Basicedu*, *6*(5), 8686–8694. DOI: https://doi.org/10.31004/basicedu.v6i5.3901

Ginting, M., & Tambunan, H. P. (2023). The effect of 3D augmented reality–based learning media using Assemblr Edu on the learning outcomes of fourth-grade students in theme 3, subtheme 1 at SDN 065015 Medan. *IJMS: Indonesian Journal of Mathematics and Natural Science*, *01*(03), 132–139. https://jurnal.academiacenter.org/index.php/IJMS/article/view/140

Hamzah, R. A., Mesra, R., Karo, K. B., Alifah, N., Hartini, A., Agusta, H. G. P., ... & Pinasti, T. (2024). 21st century learning strategies. *Penerbit Mifandi Mandiri Digital*, *1*(01). https://jurnal.mifandimandiri.com/index.php/penerbitmmd/article/view/55

Haryanti, S., Wibawa, B., & Siregar, E. (2024). *Development of a mobile learning-based statistics learning model: Bibliometric analysis* (Issue Icliqe 2023). Atlantis Press SARL. DOI: https://doi.org/10.2991/978-2-38476-301-6_14

Isrokatun, I., Hanifah, N., Abdul, R. Y., Rosmiati, R., & Khoerunnisah, R. (2023). The development of android-based learning mobile app to practice critical thinking skills for elementary school students. *Pegem Egitim ve Ogretim Dergisi*, *13*(2), 161–172. DOI: https://doi.org/10.47750/pegegog.13.02.20

Khakim, N., Mela Santi, N., Bahrul U S, A., Putri, E., & Fauzi, A. (2022). The implementation of the problem-based learning model in improving students' learning motivation in Civics Education at

SMP YAKPI 1 DKI Jaya. *Jurnal Citizenship Virtues*, *2*(2), 347–358. DOI: https://doi.org/10.37640/jcv.v2i2.1506

Khotimah, D. K., & Abdan, M. R. (2025). Analysis of the deep learning approach to improve the effectiveness of Islamic education learning at SMKN Pringkuku. *Jurnal Pendidikan Dan Pembelajaran Indonesia (JPPI)*, *5*(2), 866–879. DOI: https://doi.org/DOI: https://doi.org/10.53299/jppi.v5i2.1466

Layyina, H., Nursyahadiyah, F., & Listyarini, I. (2023). Improving learning outcomes through the project-based learning model assisted by Wordwall media in fifth-grade students at SDN Peterongan. *Pendas : Jurnal Ilmiah Pendidikan Dasar*, *8*(1), 3370–3378. DOI: https://doi.org/10.23969/jp.v8i1.8608

Mahya, B. H., & Setiawan, D. (2024). Development of Carabisatulus chatbot learning media based on environment to improve science learning outcomes. *Jurnal Penelitian Pendidikan IPA*, *10*(6), 3132–3140. DOI: https://doi.org/10.29303/jppipa.v10i6.7185

Meysandi, S. I., Zumrotun, E., & Widiyono, A. (2024). The effectiveness of Wordwall-based learning media on IPAS learning outcomes of fourth-grade elementary school students. *Kappa Journal, 8*(2), 225–229. DOI: https://doi.org/10.29408/kpj.v8i2.27265

Mulyanto, S., & Mustadi, A. (2023). Interactive PowerPoint learning media in social studies for fifth-grade elementary school students. *Jurnal Penelitian dan Pengembangan Pendidikan, 7*(1), 110–116. DOI: https://doi.org/10.23887/jppp.v7i1.54552

Nandhifa, N. K., Nuvitalia, D. N., Azizah, M. A., & Saraswati, D. (2023). The implementation of the problem-based learning model to improve learning outcomes of first-grade students in Indonesian language subjects at SD Negeri Sawah Besar 01. *Jurnal Ilmiah PGSD FKIP Universitas Mandiri, 9*(2). DOI: https://doi.org/10.36989/didaktik.v9i2.1069

Ningsih. (2025). Improving students' learning outcomes through the use of the Wordwall application in Pancasila education for fifth-grade students at SD Negeri 241 Palembang. *Jurnal Sains Student Research, 3*(1). DOI: https://doi.org/10.61722/jssr.v3i1.3557

Ningsih, H. I., Anwar, Y., & Dewi, N. F. (2025). Improving students' learning outcomes through the use of the Wordwall application in Pancasila education for fifth-grade students at SD Negeri 241 Palembang. *Jurnal Sains Student Research, 3*(1), 466. DOI: https://doi.org/10.61722/jssr.v3i1.3557

Nurfadhillah, S., Ningsih, D. A., Ramadhania, P. R., & Sifa, U. N. (2021a). The role of learning media in increasing students' learning interest. *Pensa: Jurnal Pendidikan dan Ilmu Sosial, 3*(2), 243–255. DOI: https://doi.org/10.36088/pensa.v3i2.1338

Prabowo, E., & Wakhudin, W. (2024). The development of augmented reality (AR) learning media to improve students' learning motivation in IPAS for fourth-grade students at SD Negeri 3 Linggasari. *Jurnal Pendidikan dan Pembelajaran Indonesia (JPPI), 4*(2), 591–604. DOI: https://doi.org/10.53299/jppi.v4i2.552

Riskiono, S. D., Susanto, T., & Kristianto, K. (2020). Augmented reality as a learning medium for prehistoric animals. *Krea-TIF, 8*(1), 8. DOI: https://doi.org/10.32832/kreatif.v8i1.3369

Rizki, I. A., Saphira, H. V., Alfarizy, Y., Saputri, A. D., Ramadani, R., & Suprapto, N. (2023). Integration of adventure games and augmented reality based on Android in physics learning. *International Journal of Interactive Mobile Technologies, 17*(1), 4–21. DOI: https://doi.org/10.3991/ijim.v17i01.35211

Saputra, A. R., Murti, R. C., & Hastuti, W. S. (2025). The effect of web-based interactive learning media on elementary school students' critical thinking skills. *Jurnal Prima Edukasia, 13*(1), 159–168. DOI: https://doi.org/10.21831/jpe.v13i1.75228

Setiawan, D., Putri, E. R., & Hidayat, A. (2023). Learning methods and scientific approaches in integrated thematic learning. *Jurnal Penelitian Pendidikan IPA, 9*(4), 1679–1686. DOI: https://doi.org/10.29303/jppipa.v9i4.3029

Simanjuntak, H., & Pardede, D. L. (2023). Interactive PowerPoint learning media in science subjects for fifth-grade elementary school students. *Jurnal Ilmiah Mahasiswa Pendidikan Sejarah, 8*(4), 3950–3957. DOI: https://doi.org/10.24815/jimps.v8i4.26248

Sugiyono. (2019). *Quantitative, Qualitative, and R&D Research Methods*. Alfabeta.

Triyono, A., Nuary, R. H., Permatasari, N., Yuni, Y., & Wibowo, T. (2024). The level of effectiveness of TPS and conventional methods based on students' geometry learning outcomes using the N-gain test. *AlphaMath: Journal of Mathematics Education, 10*(1), 125. DOI: https://doi.org/10.30595/alphamath.v10i1.21530

Turmuzi, A. (2025). The deep learning approach to creating meaningful learning experiences. *Journal Scientific of Mandalika (JSM), 6*(7), 1711–1719. DOI: https://doi.org/10.36312/vol6iss7pp1711-1719

Wati, M., Hindarwati, M., Zulfa, M., Badry, A., & Iman, B. N. (2025). The implementation of Wordwall educational game–based learning media to increase student activeness in mathematics learning in grade 1. *Dinamika Pembelajaran: Jurnal Pendidikan dan Bahasa, 2*(2), 323–334. DOI: https://doi.org/10.62383/dilan.v2i2.1592

Widyasari, D., Miyono, N., & Saputro, S. A. (2024). Improving learning outcomes through the problem-based learning model. *Jurnal Inovasi, Evaluasi dan Pengembangan Pembelajaran (JIEPP), 4*(1), 61–67. DOI: https://doi.org/10.54371/jiepp.v4i1.368

Wijaya, A. A., Haryati, T., & Wuryandini, E. (2025). The implementation of the deep learning approach in improving learning quality at SDN 1 Wulung, Randublatung, Blora. *Indonesian Research Journal on Education, 5*(1), 451–457. DOI: https://doi.org/10.31004/irje.v5i1.1950