

**DIGITAL ANIMATION IN PANCASILA EDUCATION LEARNING:
POWTOON MEDIA INNOVATION TO ENHANCE CIVIC KNOWLEDGE
AND UNITY VALUES IN ELEMENTARY SCHOOL STUDENTS**

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Abstract

This study aims to analyze the differences in civic knowledge between students using Powtoon digital animation media and students learning through conventional methods, as well as to measure the effectiveness of Powtoon media in improving civic knowledge and the value of unity in elementary school students. The research uses a quantitative approach with a quasi-experimental design of the non-equivalent control group type. The research subjects are the fourth-grade students of SDN Sempu 1, consisting of class IV A as the experimental group and class IV B as the control group. The research instruments are learning outcome tests and student attitude observation sheets. Data were analyzed using the Shapiro-Wilk normality test, Levene's Test for homogeneity, t-tests, and Cohen's d effect size. The research results show a significant difference between students' civic knowledge before and after learning using Powtoon media, with a significance value of $p < 0.05$. The effect size value of 0.83 indicates that using Powtoon media has a large impact on improving civic knowledge and unity values. Additionally, the observation results indicate that student attitudes and engagement are in the very good category. Thus, Powtoon digital animation media is effectively used as an innovative learning medium in Pancasila Education lessons in elementary school.

Keywords: Elementary Education, Civic Knowledge, Digital Animation, Powtoon

Abstrak

Penelitian ini bertujuan untuk menganalisis perbedaan pengetahuan kewarganegaraan antara siswa yang menggunakan media animasi digital Powtoon dan siswa yang belajar dengan metode konvensional, serta mengukur efektivitas media Powtoon dalam meningkatkan civic knowledge nilai persatuan pada siswa sekolah dasar. Penelitian menggunakan pendekatan kuantitatif dengan desain quasi experiment tipe non-equivalent control group design. Subjek penelitian adalah siswa kelas IV SDN Sempu 1 yang terdiri atas kelas IV A sebagai kelompok eksperimen dan kelas IV B sebagai kelompok kontrol. Instrumen penelitian berupa tes hasil belajar dan lembar observasi sikap siswa. Data dianalisis menggunakan uji normalitas Shapiro-Wilk, uji homogenitas Levene's Test, uji-t, dan effect size Cohen's d. Hasil penelitian menunjukkan adanya perbedaan yang signifikan antara hasil belajar siswa sebelum dan sesudah pembelajaran menggunakan media Powtoon dengan nilai signifikansi $p < 0,05$. Nilai effect size sebesar 0,83 menunjukkan bahwa penggunaan media Powtoon memiliki pengaruh besar terhadap peningkatan civic knowledge nilai persatuan. Selain itu, hasil observasi menunjukkan sikap dan keterlibatan siswa berada pada kategori sangat baik. Dengan demikian, media animasi digital Powtoon efektif digunakan sebagai media pembelajaran inovatif dalam pembelajaran Pendidikan Pancasila di sekolah dasar.

Kata kunci: Pendidikan Dasar, Pengetahuan Kewarganegaraan, Animasi Digital, Powtoon

INTRODUCTION

The development of digital technology has become a part of daily life, and this is also true in the world of education. The way students learn now no longer involves textbooks and teacher explanations in front of the class, but rather uses various interesting and innovative learning media. One such medium is digital animation, which combines moving images, sound, text, and visual effects to make learning more interesting and easier to understand. Animation-based media can enhance students' motivation and facilitate the understanding of abstract concepts by presenting them in a more concrete form (Arsyad, 2019).

Powtoon is an online animated video and presentation creation platform that allows users to generate engaging and dynamic visual content relatively easily (Putri & Susanti, 2022). As an audio-visual learning medium, Powtoon has the potential to create a more engaging and student-centered learning environment. This is supported by the Cognitive Theory of Multimedia (Mayer, 2009), which states that learning is more effective when verbal and visual information are processed simultaneously through dual channels, reducing cognitive load and improving conceptual understanding. Previous studies also indicate that animation-based media can increase students' motivation, engagement, and focus in learning (Agustina & Febiana, 2024).

In the context of Pancasila Education, civic knowledge plays a crucial role in shaping students into responsible and democratic citizens. Civic knowledge includes understanding values, principles, and systems of national life, including the value of unity as a fundamental element in maintaining social harmony (Cogan & Derrington, 1998). Pancasila education is an educational process aimed at instilling and developing the basic values of Pancasila as the way of life, foundation of the state, and national ideology of Indonesia (Winarno, 2019). Pancasila education in elementary school is very important because it strengthens students' character and

civic knowledge from an early age. Through Pancasila Education, students are expected not only to cognitively understand Pancasila values but also to be able to internalize and apply them in daily life, particularly the value of unity, which is the foundation for creating harmony in community, national, and state life (Maftuh & Sapriya, 2020). Pancasila education also plays a strategic role in nation and character building, because it is through this education that the basic values of national life can be systematically instilled from basic education (Tilaar, 2011).

Innovation in learning media using Powtoon is important to address the problems that often occur among elementary school students, which are a challenge for educators and always arise due to differences in economic status, race, culture, religion, and so on. To address this issue, educators need to demonstrate different teaching patterns because the teaching of Pancasila education is still traditional and not very engaging. It is usually teacher-centered learning that is passive and monotonous. Innovative media offers a more active, interactive, and effective student-centered approach to building learning motivation. In Pancasila education in elementary schools, the lecture method is still widely used, making students passive and finding it difficult to understand the meaning of abstract values such as unity (Wasono & Wibawa, 2024).

Several previous studies have shown the potential of Powtoon in education; however, important limitations remain. Most studies focus on motivation, media feasibility, or character development using descriptive qualitative or development approaches. For example, prior research demonstrates increased learning motivation and positive responses to Powtoon media, but lacks experimental comparison and does not specifically measure cognitive learning outcomes related to civic knowledge. In addition, existing studies have not explicitly examined the understanding of unity values within Pancasila Education using a rigorous quantitative design. Thus, the research gap lies in the lack of empirical evidence from a quantitative quasi-experimental approach that specifically examines the effectiveness of Powtoon in improving the cognitive dimension of civic knowledge, particularly students' understanding of the value of unity in Pancasila Education at the elementary school level. Based on this gap, the novelty of this study is clearly positioned in three main aspects: (1) the use of a quasi-experimental quantitative approach, (2) a specific focus on the cognitive dimension of civic knowledge, and (3) an emphasis on the value of unity within Pancasila Education in elementary schools.

Therefore, this study aims to: (1) analyze the differences in civic knowledge between students taught using Powtoon media and those taught using conventional methods, and (2) measure the effectiveness of Powtoon media in improving students' civic knowledge, particularly their understanding of unity values. This research is important in supporting 21st-century education by providing evidence-based digital innovation that can enhance meaningful and contextual learning, while also strengthening students' understanding of unity in diverse social contexts.

METHODS

In this study, the method used is quasi-experimental with a quantitative approach. This method was chosen to measure the effect of the treatment (using Powtoon media) on changes in student civic knowledge. Because the main focus is to determine whether there is an influence and the extent of that influence in a measurable way, a quantitative approach is the most appropriate to use. A quantitative approach is used because this study aims to determine the presence and magnitude of the treatment's influence through statistical analysis (Creswell, 2014). Researchers used a non-equivalent control group design, which is an experimental

design involving an experimental group and a control group without full randomization of subjects (Sugiyono, 2019). The experimental group received treatment using Powtoon animation media, while at the same time the control group received learning with textbooks and used the lecture method. The entire group was given a pretest before the treatment was administered to assess their initial abilities, and a posttest was given to measure the results after the intervention was carried out. This design is considered effective for assessing changes in civic knowledge because it allows researchers to compare conditions before and after treatment in two different groups (Fraenkel, Wallen, & Hyun, 2012).

This research was conducted at SDN Sempu 1 during the first semester of the 2025/2026 academic year, involving two fourth-grade classes: Class IV A as the experimental group and Class IV B as the control group. The study involved fourth-grade students, totaling 43 participants. Fourth-grade selection is based on the fact that at this stage, children are already beginning to understand cause-and-effect relationships, think logically about concrete objects, and start to connect concrete experiences with abstract concepts. The value of unity, which is moral and social in nature, is a concept that is quite abstract for elementary school-aged children, but it can be meaningfully understood by fourth-grade students when presented through visual and contextual media such as Powtoon animations.

The implementation stage began with administering a pretest to both classes—Class IV A as the experimental group and Class IV B as the control group—to measure students' initial abilities. This was followed by two learning sessions for each class, with each session lasting 2×35 minutes. The instructional material focused on the value of unity in Pancasila, including its application in daily life and attitudes such as tolerance, cooperation, and mutual assistance in school, home, and community environments. The experimental group received instruction using Powtoon media, while the control group was taught using conventional methods, including lectures and textbooks. The evaluation stage involved administering a posttest to both groups after the learning sessions to measure students' civic knowledge.

The research instruments consisted of a civic knowledge test and a student activity observation sheet. The civic knowledge test consisted of 20 multiple-choice questions used in the pretest and posttest to measure the cognitive aspect of understanding the value of unity. The test questions are based on the following indicators: understanding the meaning of unity, explaining the importance of unity in daily life, identifying examples of behavior that reflect unity, and recognizing attitudes that hinder unity. In addition to cognitive aspects, this study also uses observation sheets to assess student engagement, cooperation, respect for opinions, and student responses during learning. Observation indicators include positive behaviors such as working together, helping friends, and showing harmony, as well as negative behaviors such as reluctance to cooperate, arguing, or mocking friends' differences. The content validity of all instruments was obtained through assessment by subject matter experts and media experts, while the instrument reliability was calculated using Cronbach's Alpha, with a minimum value of 0.70 indicating that the instrument is reliable and consistent in measurement.

The data were analyzed using descriptive and inferential statistics. Descriptive analysis was used to determine mean scores, percentage improvement, and score distribution. The initial analysis showed that the average pretest score of the experimental group (Class IV A) was 82, while the control group (Class IV B) had an average score of 78, indicating relatively comparable initial abilities between the two groups. This pretest comparison was used as an effort to minimize selection bias in the non-equivalent control group design, ensuring that both groups had a similar baseline before the treatment was applied. In addition, both groups were

taught using the same learning objectives, materials, and time allocation to control for external variables, with the only difference being the instructional media used.

Before conducting hypothesis testing, prerequisite tests were performed, including the Shapiro–Wilk normality test and Levene’s Test of Homogeneity. The data were considered to meet the assumptions if the significance value was greater than 0.05. For inferential analysis, two types of t-tests were used. A paired sample t-test was conducted to examine the improvement within each group by comparing pretest and posttest scores. p -value > 0.05 indicates a statistically significant difference. Furthermore, the magnitude of the treatment effect was analyzed using Cohen’s d effect size, which is categorized as small (0.00–0.19), moderate (0.50–0.79), and large (> 0.80).

The final step involved interpreting the results of both within-group and between-group analyses to answer the research problem regarding the effectiveness of Powtoon media in improving students’ civic knowledge, particularly their understanding of the value of unity. This research was conducted at SDN Sempu 1, Serang, from November 24 to December 8, 2025. The research timeline consisted of three stages: preparation and validation (2 weeks), implementation including pretest, treatment, and posttest (2 weeks), and data analysis and reporting (3 weeks).

RESULTS AND DISCUSSION

The data normality test in this study aim to determine whether the experimental and control groups' pretest and posttest results follow a normal distribution or not. Normality testing was conducted using the Shapiro-Wilk test through the SPSS program, as the sample size in each class was less than 50 students. The choice of the Shapiro-Wilk test is based on the opinion of Ghozali (2016), who stated that this test is more accurate for small to medium sample sizes.

Table 1. Test of Normality

Tests of Normality

	Kelas	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pretest	Eksperimen	.201	24	.013	.923	24	.067
	Kontrol	.180	19	.105	.910	19	.075
Posttest	Eksperimen	.196	24	.018	.918	24	.052
	Kontrol	.177	19	.119	.921	19	.119

a. Lilliefors Significance Correction

The pretest and posttest data for both the experimental and control groups satisfied the homogeneity and normality assumptions, according to the data analysis results. All significant values for the pretest and posttest data are more than 0.05 according to the Shapiro-Wilk test, indicating that the data is regularly distributed.

The analysis proceeded with the variance homogeneity test using Levene's Test once the data was deemed to be normally distributed. Finding out if the variances between the experimental and control groups are the same or homogeneous is the goal of the homogeneity test. The significant value Based on Mean for the pretest data is 0.093 based on the homogeneity

test results, but the significance value for the posttest data is 0.267. The data variation between the pretest and posttest for the experimental and control groups is homogenous since both values are more than 0.05.

Table 2. Test of Homogeneity of Variance

Test of Homogeneity of Variance		Levene Statistic	df1	df2	Sig.
Pretest	Based on Mean	2.955	1	41	.093
	Based on Median	2.775	1	41	.103
	Based on Median and with adjusted df	2.775	1	40.466	.103
	Based on trimmed mean	2.850	1	41	.099
Posttest	Based on Mean	1.269	1	41	.267
	Based on Median	1.068	1	41	.307
	Based on Median and with adjusted df	1.068	1	37.189	.308
	Based on trimmed mean	1.089	1	41	.303

Next, the variance homogeneity test using Levene's Test showed a significance value greater than 0.05 for both pretest and posttest data, which means the variances of the two groups are homogeneous. With the fulfillment of both of these prerequisite tests, data analysis can proceed using parametric statistical tests, namely the t-test.

The following table presents the results of the paired samples t-test, including paired samples statistics, paired samples correlations, and paired samples test:

Table 3. Paired Samples Statistics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRETEST	82.21	24	11.677	2.384
	POSTTEST	90.00	24	6.297	1.285

Based on the table above, it is known that the average (mean) pretest score of class A students (experimental group) is 82.21 with a sample size of 24 students, while the posttest score increased to 90.00 with the same sample size. This increase, averaging 7.79 points, indicates a change in students' civic knowledge after the treatment was administered. Additionally, the standard deviation on the posttest (6.297) was smaller than on the pretest (11.677), indicating that student civic knowledge after the treatment tended to be more uniform.

Table 4. Paired Samples Correlations

		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	PRETEST & POSTTEST	24	.608	<.001	.002

Next, based on the table above, Paired Samples Correlations, the correlation value between pretest and posttest scores is 0.608 with a significance value of $p < 0.001$. The correlation value indicates a fairly strong and significant relationship between pre-treatment and post-treatment scores, meaning that students with high initial scores tend to maintain relatively high scores after treatment.

Table 5. Paired Samples Test

		Paired Differences							Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	PRETEST - POSTTEST	-7.792	9.306	1.900	-11.721	-3.862	-4.102	23	<.001	<.001

The main results of the paired sample t-Test are shown in the table above. The average difference between the pretest and posttest scores is -7.792, indicating that the posttest scores are higher than the pretest scores. Testing the t-value of -4.102 with degrees of freedom ($df=23$) and a significance level of $p < 0.001$ (two-tailed). Since the significance value is less than 0.05, it can be concluded that there is a significant difference between the students' pretest and posttest results. Thus, statistically, there is an improvement in student civic knowledge after the treatment is given.

Table 6. Effect Size

Komponen	Nilai
Rata-rata Posttest (M)	90,00
Rata-rata Pretest (M)	82,21
Selisih Rata-rata (M – M)	7,79
Standar Deviasi Gabungan (SDpooled)	9,38
Effect Size (Cohen's d)	0,83
Kategori Effect Size	Besar

The effectiveness of Powtoon media is further supported by the effect size analysis, which yielded a Cohen's d value of 0.83, categorized as a large effect. This finding suggests that the use of Powtoon not only produces statistically significant differences but also has a meaningful impact in practical classroom contexts. In other words, Powtoon provides substantial improvement in students' cognitive understanding of unity values compared to traditional teaching approaches. From a theoretical perspective, these findings are consistent with the Cognitive Theory of Multimedia Learning (Mayer), which emphasizes that combining visual and verbal elements enhances students' ability to process information. Powtoon facilitates dual-channel processing through animations, narration, and visual representations, making abstract concepts such as unity more concrete and easier for elementary school students to understand. This is particularly relevant for fourth-grade students, who are in the concrete operational stage and benefit from visual and

contextual learning experiences.

In addition to cognitive outcomes, the observation data indicate that students' attitudes and engagement in both groups were generally in the very good category. However, students in the experimental group demonstrated higher levels of participation, cooperation, and confidence in expressing opinions compared to those in the control group. This suggests that Powtoon media not only enhances cognitive learning but also promotes more active and interactive learning behavior. Overall, the findings demonstrate that the use of Powtoon digital animation media is effective in improving students' civic knowledge, particularly their understanding of unity values, while also fostering positive learning attitudes. These results highlight the importance of integrating innovative digital media into Pancasila Education to create more meaningful, engaging, and student-centered learning experiences in line with the demands of 21st-century education.

CONCLUSION

This study concludes that the use of Powtoon digital animation media is statistically and practically effective in improving elementary school students' civic knowledge, particularly their understanding of the value of unity in Pancasila Education. This effectiveness is evidenced by significant differences in civic knowledge both within the experimental group and between the experimental and control groups ($p < 0.05$), as well as a large effect size (Cohen's $d = 0.83$), indicating a strong and meaningful impact in classroom practice.

These findings confirm that Powtoon facilitates better conceptual understanding by presenting abstract values in a concrete, visual, and contextual form. In line with the Cognitive Theory of Multimedia Learning, the integration of visual and auditory elements supports more effective information processing, especially for students at the concrete operational stage. In addition to cognitive improvement, Powtoon also promotes more active, cooperative, and engaged learning behavior, contributing to a more interactive and student-centered learning environment.

This study makes several important contributions. Empirically, it provides evidence for the effectiveness of digital animation media in enhancing the cognitive dimension of civic knowledge, particularly the value of unity in Pancasila Education. Methodologically, it contributes through the application of a quasi-experimental design to rigorously measure the impact of instructional media. Practically, it offers implications for elementary school teachers by demonstrating that Powtoon can be used as an innovative and effective learning medium to improve both understanding and student engagement.

However, this study is limited by its relatively small sample size and its focus on a single school context. In addition, the research primarily examines cognitive outcomes, while affective and behavioral aspects of citizenship have not been explored in depth. Therefore, future research is recommended to involve larger and more diverse samples, longer implementation periods, and a more comprehensive analysis of students' civic attitudes and behaviors.

Overall, this study reinforces the importance of integrating innovative digital media in Pancasila Education and highlights Powtoon as an effective tool for strengthening students' understanding of unity values as a foundation for developing civic knowledge and character from an early age.

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