

# The Influence of Animated Videos on Critical Thinking Skills of Elementary School Students

**Author:**

Ahmad Khairul Fakhri<sup>1</sup>  
Pradana Chairy Azhar<sup>2</sup>  
Kiki pratama  
Rajagukguk<sup>3</sup>

**Affiliation:**

STKIP Al Maksum<sup>1,2</sup>

**Corresponding email**

[Ahmadkhairulfakhri68@gmail.com](mailto:Ahmadkhairulfakhri68@gmail.com)

**Histori Naskah:**

Submit: 2025-02-26  
Accepted: 2025-04-24  
Published: 2025-04-25



*This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License*

**Abstrak:**

This study examined the influence of animated video utilization as an instructional medium on enhancing elementary school students' critical thinking abilities in science education, specifically focusing on human body organs in sixth grade. Animated videos, which integrate visual elements, textual information, and audio components, are practical pedagogical tools that facilitate educators' more engaging and comprehensive content delivery. Critical thinking is conceptualized as a higher-order cognitive process involving systematically evaluating information, problem-solving, decision-making, and formulating reasoned judgments based on logical analysis and evidence-based arguments. The research employed a quasi-experimental methodology with a pretest-posttest control group design. The sample consisted of 46 sixth-grade students who were randomly assigned to an experimental group and a control group. Both groups were administered a pretest to establish baseline critical thinking abilities. The experimental group received instruction through animated video media, whereas the control group was taught using conventional instructional methods. A posttest was conducted following the intervention to assess the students' progress. Data obtained from the pretest and posttest were analyzed using an independent samples t-test, following preliminary tests for normality and homogeneity of variance. The analysis results demonstrated a statistically significant improvement in the critical thinking skills of students exposed to animated video instruction compared to those who received traditional teaching. These findings suggest that the integration of animated video media in science education can serve as an effective strategy to foster critical thinking development among elementary school students.

**Keywords:** Animated Videos; Learning Media; Science Learning Outcomes

## Introduction

Education plays a vital and enduring role in human life. It serves as a cornerstone for individual and societal development, contributing to the overall quality of life. Through education, individuals become more knowledgeable, creative, critical in thinking, and well-rounded in personality. As Mulyasa and Wardan (2014) assert, education continuously shapes human life from beginning to end. In the context of 21st-century learning, educators are expected to adopt innovative approaches and integrate technology into their

teaching practices. This transformation aims to create a more engaging, meaningful, and dynamic learning experience that fosters student participation, supports potential development, and enhances comprehension.

In the modern educational landscape, teachers face the dual challenge of mastering pedagogical content while navigating rapidly evolving technological advancements. The role of education has expanded beyond knowledge transfer; it now serves as a medium for character-building and cognitive development. According to the Indonesian Dictionary (KBBI), learning is an effort to acquire knowledge or skills through study, practice, or experience, which may result in behavioral changes, consciously or unconsciously. From this definition, learning is an active and continuous process to acquire knowledge, skills, and transformative experiences.

Learning media are essential tools in the educational process, facilitating the communication of messages and instructional content. Synthia (in Juwairiah, 2013) states that any medium that carries educational messages can be considered learning media. These include audio, visual, audiovisual, and graphic materials, all of which aim to enhance the variety and effectiveness of instruction, reduce student boredom, and support meaningful learning. From the perspectives presented, it is evident that learning media are integral to effective teaching and learning and should be utilized as unified components of the instructional process.

Thinking ability, particularly critical thinking, is a fundamental cognitive skill in the educational context. It enables learners to process information, apply knowledge, solve problems, and make informed decisions. Sulthoniyah (2017) defines thinking as an individual's capacity to recall, evaluate, and make judgments in response to various problems. Windarti (2021) emphasizes the need for stimuli in the learning process to optimize student engagement and comprehension. Consequently, critical thinking must be a central focus of curriculum development. In Indonesia's independent learning curriculum (Kurikulum Merdeka), critical thinking is one of the core competencies required to thrive in a complex and dynamic world. The effective integration of technological tools and instructional resources can significantly support cultivating these skills among students.

Technology has emerged as a powerful enabler of improved educational experiences in this digital era. One of the innovative tools in modern pedagogy is animated video-based learning media. Animated videos attract considerable attention from educators as they provide a visually appealing, structured, and effective means of delivering instructional content. These videos consist of carefully sequenced moving images arranged according to a narrative or storyline (Cici et al., 2022; Deu & Chandra, 2022; Yeninar & Tandi, 2022). Prior studies have highlighted the positive impact of animated video media in enhancing students' critical thinking skills, particularly at the elementary education level. Animated videos engage students visually and offer a multisensory learning experience that enhances content retention and conceptual understanding (Rochmania & Restian, 2022; Desi, 2022; Lismawati, 2023).

The primary objective of this study is to investigate the effectiveness of animated video media in increasing elementary school student's interest in learning and enhancing their critical thinking skills. Specifically, the study aims to determine whether integrating animated videos into learning can foster student engagement and improve cognitive outcomes. Additionally, the research seeks to identify and address existing challenges in implementing learning media within elementary education. The findings are expected to offer

valuable insights and contribute to developing more effective teaching strategies, thereby supporting educators in optimizing animated video media to strengthen students' critical thinking competencies.

## Literature Study

Education is a fundamental and enduring element in human life. It plays a crucial role in improving the quality of life and shaping individuals from early childhood through adulthood. Education has been instrumental in influencing human development across various cognitive and social dimensions. As emphasized by Mulyasa and Wardan (2014), in the 21st century, teachers are expected to demonstrate greater innovation in instructional delivery and to integrate available technological resources to enhance the learning process. These efforts aim to create a more creative, meaningful, and engaging learning environment that fosters student participation, supports the development of learners' potential, and ensures a deep understanding of the instructional content.

In today's modern era, the role of teachers has become increasingly complex due to the rapid advancement of technology. Educators are not only expected to master subject content but also to adapt to the digital transformation of education. Education is a vital pathway through which individuals become more literate, creative, and critical thinkers with improved character and a broader scope of knowledge. Learning is a transformative process in education that contributes significantly to developing an individual's character and identity. According to the Indonesian Dictionary (*Kamus Besar Bahasa Indonesia*), learning is an effort to acquire knowledge or intelligence, practice specific skills, and experience changes in behavior or responses due to those experiences. From this definition, learning is a conscious and structured process aimed at obtaining knowledge and experience, with the potential to influence an individual's behavior either intentionally or subconsciously.

Learning media serve as tools to facilitate the delivery of educational content and messages during the learning process. Synthia (as cited in Juwairiah, 2013) explains that any medium that conveys instructional messages can be classified as learning media. These media may include audio, video, audiovisual aids, images, and other formats that enhance the effectiveness and variety of teaching. The use of learning media helps reduce monotony and increase student engagement. Therefore, learning media are an inseparable component of a successful and dynamic learning process.

Thinking ability, particularly in the form of critical thinking, is a key cognitive skill necessary for effective learning. It allows learners to comprehend information, apply knowledge, and solve complex problems. Sulthoniyah (2017) defines thinking as an individual's capacity to recall, reflect, and make decisions in response to encountered problems (p. 8). Thinking skills support students' ability to analyze, synthesize, and evaluate information. Windarti (2021) also highlights that learning requires appropriate stimuli to function optimally. As such, critical thinking should be prioritized in curriculum development. The Merdeka Belajar (Independent Learning) curriculum in Indonesia underscores the need for critical thinking as a core competence that students must develop to navigate an increasingly dynamic and complex world. In addition, integrating technological tools and other educational resources is vital for cultivating these critical thinking abilities.

Technology has become a powerful means to enhance educational processes and create more interactive and engaging learning experiences in the digital age. One technological innovation that has gained prominence in recent years is animated video-based learning media. Teachers and educators increasingly favor animated videos as practical instructional tools in the modern classroom. These videos consist of moving images of carefully designed visual elements structured by a specific narrative (Cici et al., 2022; Deu & Chandra, 2022; Yeninar & Tandil, 2022). Previous studies have emphasized the significant role of animated videos in enhancing students' critical thinking skills, particularly in elementary education. Such media engage students visually and offer a multisensory learning experience that improves knowledge retention and supports a more profound understanding of the material (Rochmania & Restian, 2022; Desi, 2022; Lismawati, 2023).

The primary objective of this study is to examine the effect of using animated video media on elementary school student's interest in learning and their critical thinking abilities. This research aims to explore whether the implementation of animated video learning media can enhance student engagement and improve cognitive outcomes in classroom learning. Moreover, the study seeks to identify existing challenges in using instructional media within the elementary school setting. The findings of this research will likely provide meaningful and practical contributions to educators and education stakeholders, especially about the effective use of animated video learning media as a strategy for enhancing students' critical thinking skills.

## **Research Methods**

This study utilized an accurate experimental method with a pretest-posttest control group design. This design was chosen to assess the effect of the intervention on the experimental group compared to the control group, which did not receive any treatment and continued with regular instruction. The control group followed the standard teaching method without additional intervention, while the experimental group was taught using animated video media.

The population for this research consisted of fourth-grade elementary school students who were divided into two groups: the control group and the experimental group. Each group consisted of 23 students, resulting in a total sample of 46 students—23 students in the control group and 23 students in the experimental group. Both groups were at the same educational level and studied the same topic: the human organ system.

The data collection methods included testing and documentation. The test consisted of 20 multiple-choice questions and was administered to the control and experimental groups. Two tests were given to each group. The validity of the test instrument was ensured by validating the content and the items, testing the difficulty level, and analyzing the data using the SPSS 26 software. This analysis was conducted to ensure the reliability and appropriateness of the test items.

This methodology is expected to help students develop a more critical approach to evaluating the learning content, ultimately enabling them to engage in more effective learning practices in the future.

## **Results**

This study used 46 students as samples in grade IV of elementary school. After conducting the entire research series and from the research results, cognitive learning outcomes were obtained consisting of

pretest and posttest scores for the experimental and control classes. The test was a pretest given to students before the learning was treated. The second test was a posttest given to students after the learning received treatment using animated video media. The test used 20 multiple-choice questions. Based on the pretest and posttest scores, the following data were obtained:

Table 1 Summary of pretest results for experimental and control classes

	Class Experiment	Class Control
Number of Students	23	23
Average	79.13	74.13
Median	80.00	75.00
Variance	44.664	44.664
Max value	90	85
Min value	70	65
Standard deviation	6.683	6.683

Table 1 shows that Based on the pretest analysis, the experimental class had a highest score of 90 and a lowest score of 70. In comparison, the control class scored 85 and a lowest of 65. The average pretest score in the experimental class was 79.13, while the control class had an average score of 74.13, resulting in a 5-point difference between the two. This indicates that the initial academic ability of the experimental class was higher than that of the control class. The comparison of the average pretest scores of the experimental and control classes is presented in the following histogram.

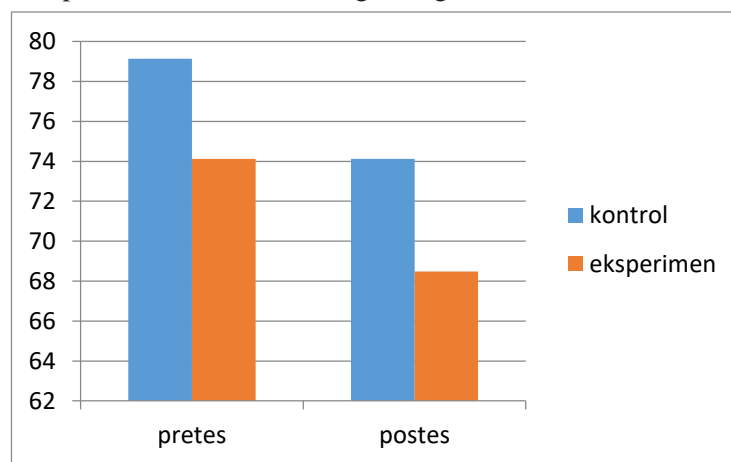


Table 3 posttest scores

Figure 1 comparison of the percentage of average pretest scores for the experimental and control classes

After the pretest was given, learning was carried out using animated video media in the experimental class, while the control class carried out regular learning using book media. After the learning was carried out, a posttest was given with the same questions as the pretest questions and the following posttest data were obtained:

Table 2 Summary of posttest results for the experimental and control classes

	Class Experiment	Class Control
Number of Students	23	23
Average	74.13	71.70
Median	75.00	70.00
Variance	44.664	63.403
Max value	85	89
Min value	65	60
Standard deviation	6.638	7.963

Based on the posttest results, the experimental class achieved a highest score of 85 and a lowest score of 65. In the control class, the highest score was 89, while the lowest was 60. The average score for the experimental class was 74.13, whereas the control class had an average of 71.70, resulting in a difference of 2.43 points between the two. Therefore, the final performance of the experimental class was superior to that of the control class. The comparison of the average posttest scores of the experimental and control classes is presented in the following histogram.

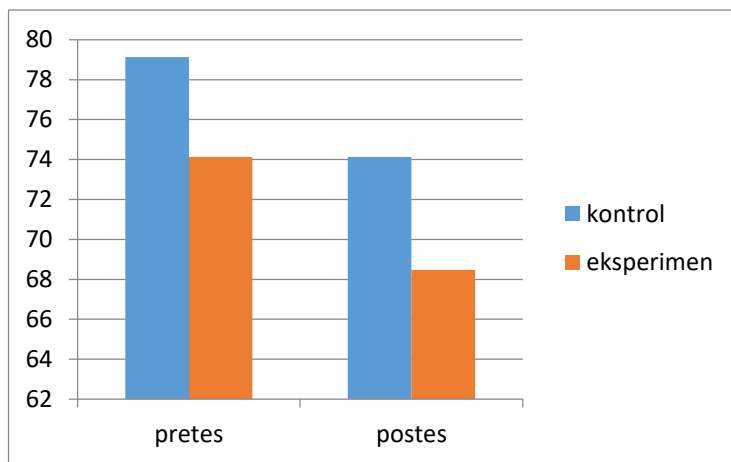


Figure 2 Comparison of the percentage of the average scores obtained in the post-test by the experimental and control classes.

The data analysis in this study involved prerequisite tests and hypothesis testing. The prerequisite tests consisted of normality and homogeneity tests. The normality test aimed to determine whether the data followed a normal distribution. This test was conducted using SPSS version 25, applying the Kolmogorov-Smirnov method. According to the criteria, if the significance value (sig) is greater than 0.05, the data is considered normally distributed; if the sig value is less than 0.05, the data is not normally distributed.

Table 3 normality test

**Tests of Normality**

Kelas	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			
	Statistic	Df	Sig.	Statistic	Df	Sig.	
Postest	class control	,139	23	,200	,933	23	,128
	class eksperimen	,160	23	,129*	,907	23	,0,35

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The data above shows the sig value in each class based on the kolmogorov-smirnov test > 0.05, meaning that the data obtained from the results above, both pretest and posttest, experimental and control classes have a data distribution that is normally distributed. Furthermore, a homogeneity test will be carried out which is tested using the SPSS 26 application. Presented in the following table: discussion

Table 4 homogeneity test

**Test of Homogeneity of Variances**

		Levene Statistic	df1	df2	Sig.
Postest	Based on Mean	,052	1	44	,821
	Based on Median	,0,36	1	44	851
	Based on Median and with adjusted df	,036	1	43.407	851
	Based on trimmed mean	,051	1	44	,822

Based on the table above, the sig value obtained is 821, which means it is greater than the draft significance of 0.05, which indicates a data distribution that has homogeneous variance.

Table 5 ANOVA test

**ANOVA Table**

		Sum of Squares	Df	Mean Square	F	Sig.
posttest kelas *	Between Groups (Combined)	367.391	1	367.391	8.489	,006
	Within Groups	1904.348	44	43.281		
	Total	2271.739	45			

The table above shows that the posttest or final value shows a significant ANOVA of 0.06 greater than the significance level of 0.05, thus it can be concluded that learning using animated video teaching media affects the ability of

**Discussion**

This study was conducted in class VI in an elementary school with 46 students divided into two classes, each consisting of 23 students: 23 in the control class and 23 in the experimental class. The instrument in the study used multiple-choice questions. Before the questions were given to the subjects or students, a trial was carried out by testing the validity, reliability, level of difficulty, and discrimination power of the instrument, which was calculated using Microsoft Excel. There were 20 questions whose validity was tested, and then the questions were given to the experimental and control classes two (2) times, namely in the pretest. In the early stages of this study was conducted by testing students' initial abilities by distributing 20 pretest questions to the experimental class and the control class without doing anything to the students or without providing any material beforehand; the material used in the questions was theme 9, sub-theme one entitled human organs with science learning. The learning in both classes was different; in the experimental class, it was done by showing animated videos using an LCD projector. When the video was played and aired, the classroom atmosphere was more conducive; all students paid attention and listened carefully to the video that was being shown. After the video was shown, students were given time and opportunity to analyze and ask questions about what they had not understood from the video, student learning, and student learning outcomes significantly. This is supported by data from learning in the control class using book media and direct explanations regarding the learning material. However, when the material was given, some students did not pay attention and were busy themselves, causing the classroom atmosphere to be less conducive, which disturbed students' concentration; this caused students not to understand the material given or delivered. After each class receives the material and learning by giving a posttest, the posttest is carried out to test the understanding and abilities of both classes by giving the same questions as the pretest above.

Based on the posttest results, the experimental class's average score was higher than that of the control class. This indicates that students' scores improved after the learning sessions and materials were provided, especially with animated video learning media. Once the pretest and posttest data were collected, normality,

homogeneity, and hypothesis tests were conducted. The normality test, performed using SPSS 26, showed that both the pretest and posttest scores were normally distributed, as indicated by the significance values greater than the threshold in both classes.

The findings demonstrate that learning supported by animated videos is more appealing to many students and more effective in enhancing their creativity and thinking skills than traditional book-based media. Therefore, using animated video media, science learning about human organs is more effective. This method also helps teachers convey the content more efficiently during lessons. According to Adam and Muhammad (2015), learning media include physical or technical tools that assist teachers in delivering material effectively to achieve learning objectives. Alifa et al. (2021) also state that animated videos help students grasp abstract concepts more clearly, reducing the need for mere imagination. Thus, animated video media can address the learning challenges students often face.

This research aligns with the findings of Sonia et al. (2021), who studied the impact of animated videos on science learning outcomes among fourth-grade students at SD Negeri 08 Sungai Rumbai. Their results also showed that students achieved higher posttest scores than pretest scores. Animated video-based learning increased student engagement, improved material comprehension, and led to better academic performance. It also enabled more independent and engaging learning experiences. Overall, animated video media positively influenced the classroom environment, making students more enthusiastic and interested in the learning process due to its varied and engaging nature.

This study is also relevant to the study conducted by Laily Rahmayanti and Farida Istianah (2018); the study aims to determine the effect of using animated video media on the learning outcomes of grade 5 students of SDN Se-Gugus Sukodono Sidoarjo. The results of the study showed that there was an effect of using animated video media on student learning outcomes; student responses during learning became more active because, with animated video media, the learning atmosphere became more fun and not dull, besides making it easier for students to understand the material so that student learning outcomes increased. This study is also in line with the study conducted by Nur Aini ddk (2021); this study aims to determine the effect of Animated Video Media on the Science Learning Outcomes of Grade IV Students of SDN 20 Pagi East Jakarta. This study's results indicate a positive and higher and more significant influence on student learning outcomes using animated video media compared to PowerPoint media.

Another study is "The Effect of Media Use on Science Learning Outcomes of Grade IV Students of Ngoto Bantul Elementary School, Yogyakarta" by Chusnul Al Fasyi in 2015, which uses animated video media on the material of the appearance of the earth, moon, and sun. In this study, video media has a very positive effect on student learning outcomes. So that students find it easier to understand learning with the help of animated video media.

## **Conclusion**

Based on the research conducted, it was found that the use of animated video learning media significantly impacts student learning outcomes at one of the elementary schools. The considerable difference in the average post-test scores between the experimental and control classes evidences this. The findings also suggest that animated video media can increase student engagement, creating a more enjoyable classroom environment. Furthermore, animated videos can stimulate students' creativity and critical thinking skills.

---

Therefore, animated video-based learning has a strong positive effect on the learning outcomes of sixth-grade students, particularly on the topic of human organs.

## References

- Adam, T., & Muhammad. (2015). Pengaruh media video animasi terhadap hasil belajar IPA siswa kelas IV SDN 20 Pagi Jakarta Timur. *Nusantara: Jurnal Pendidikan dan Ilmu Sosial*, 3(3), 824.
- Aini, N., Zuliani, R., & Rini, C. P. (2021). Pengaruh media video animasi terhadap hasil belajar IPA siswa kelas IV SDN 20 Pagi Jakarta Timur. *NUSANTARA*, 3(3), 417–426. [https://doi.org/10.36088/nusantara.v3i3.1505&#8203;:contentReference\[oaicite:6\]{index=6}](https://doi.org/10.36088/nusantara.v3i3.1505&#8203;:contentReference[oaicite:6]{index=6})
- Al Fasyi, M. C. (2015). Pengaruh penggunaan media video terhadap hasil belajar IPA siswa kelas IV SD Negeri Ngoto Bantul Yogyakarta. *Jurnal Pendidikan Guru Sekolah Dasar*, Edisi 16 Tahun ke IV, September 2015.
- Friska, S. Y., Amanda, M. T., Novitasari, A., & Prananda, G. (2021). Pengaruh video animasi terhadap hasil belajar siswa muatan pembelajaran IPA kelas IV di SD Negeri 08 Sungai Rumbai. *PENDIPA Journal of Science Education*, 6(1), 250–255. [https://doi.org/10.33369/pendipa.6.1.250-255&#8203;:contentReference\[oaicite:4\]{index=4}](https://doi.org/10.33369/pendipa.6.1.250-255&#8203;:contentReference[oaicite:4]{index=4})
- Friska, S. Y., Amanda, M. T., Novitasari, A., & Prananda, G. (2022). Pengaruh video animasi terhadap hasil belajar siswa muatan pembelajaran IPA kelas IV di SD Negeri 08 Sungai Rumbai. *PENDIPA Journal of Science Education*, 6(1), 250–255. [https://doi.org/10.33369/pendipa.6.1.250-255&#8203;:contentReference\[oaicite:14\]{index=14}](https://doi.org/10.33369/pendipa.6.1.250-255&#8203;:contentReference[oaicite:14]{index=14})
- Lubis, R. R., & Rekan. (2021). Pengembangan media e-learning IPA berbasis tematik interaktif untuk mengembangkan kemampuan berpikir kreatif siswa. *Jurnal Sintasis: Pendidikan Guru Sekolah Dasar, IPA, IPS, dan Bahasa Inggris*, 3(2).
- Prananda, G., Friska, S. Y., & Susilawati, W. O. (2020). Pengaruh video animasi terhadap hasil belajar siswa muatan pembelajaran IPA kelas IV di SD Negeri 08 Sungai Rumbai. *PENDIPA Journal of Science Education*, 6(1), 250–255. [https://doi.org/10.33369/pendipa.6.1.250-255&#8203;:contentReference\[oaicite:10\]{index=10}](https://doi.org/10.33369/pendipa.6.1.250-255&#8203;:contentReference[oaicite:10]{index=10})
- Rahmayanti, L., & Istianah, F. (2018). Pengaruh penggunaan media video animasi terhadap hasil belajar siswa kelas V SDN se-Gugus Sukodono Sidoarjo. *Jurnal PGSD*, 6(4), 429–439. Tersedia di: [https://jurnalmahasiswa.unesa.ac.id/index.php/jurnal-penelitian-pgsd/article/view/23606/21581&#8203;:contentReference\[oaicite:8\]{index=8}](https://jurnalmahasiswa.unesa.ac.id/index.php/jurnal-penelitian-pgsd/article/view/23606/21581&#8203;:contentReference[oaicite:8]{index=8})
- Suwarno, T., & Rekan. (2017). Pengaruh media video animasi terhadap hasil belajar IPA siswa kelas IV SDN 20 Pagi Jakarta Timur. *Nusantara: Jurnal Pendidikan dan Ilmu Sosial*, 3(3), 419.
- Tegeh, I. M. (2019). Pelatihan pengembangan media pembelajaran model 4D pada guru sekolah dasar. *Jurnal Pengabdian Kepada Masyarakat (JPKM) LPPM AL-MAKSUM LANGKAT*, 2(1), 15.

