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THE EFFECT OF FLIPBOOK MEDIA ON ELEMENTARY SCHOOL STUDENTS' CRITICAL THINKING AND DESCRIPTIVE WRITING SKILLS

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Abstract

This study aimed to analyze the effect of flipbook media on the critical thinking and descriptive writing skills of fifth-grade elementary school students. This research used a quantitative approach with a quasi-experimental method and a nonequivalent control group design. The research subjects were 48 fifth-grade students of SD Negeri 12 Sungai Kunyit, consisting of 24 students in the experimental class and 24 students in the control class. The experimental class received instruction using flipbook media, while the control class used conventional media. Data were collected through critical thinking tests, descriptive writing tests, observation sheets, and documentation. The data were analyzed using descriptive statistics, the Shapiro–Wilk normality test, Levene's homogeneity test, independent samples t-test, and Cohen's d effect size. The results showed a significant difference between the experimental and control classes in both critical thinking and descriptive writing skills, with a significance value of 0.000 < 0.05. The effect size was large for critical thinking (d = 1.12) and descriptive writing (d = 0.95). Therefore, flipbook media was proven effective in improving students' critical thinking and descriptive writing skills. This study concludes that flipbook media can be used as an innovative digital learning resource to support Indonesian language learning and higher-order thinking skills in elementary schools.

Keywords

Critical Thinking, Descriptive Writing, Digital Learning, Elementary School, Flipbook Media.

INTRODUCTION

21st-century learning demands that students not only master factual knowledge (Hermawan &Sudin, 2025) but also critical thinking skills (Setiawan, 2023), creativity (M. T. Wahyuni et al., 2025), communication (Annisa, 2022), and collaboration (Haq et al., 2026). In the context of basic education, critical thinking skills are an important foundation (Halim, 2022), enabling students to analyze information (Putri et al., 2024), conclude (Aryani & Hadi, 2025), and make rational decisions (Rany (Rany et al., 2025). On the other hand, descriptive writing skills help students express ideas coherently (Mahbub, 2024) and clearly (Rahmawati, 2023). The results of initial observations in elementary schools show that lecture methods and the use of static textbooks still dominate Indonesian language learning. This condition results in relatively low student involvement, so critical thinking skills and the quality of descriptive writing have not developed optimally. Students tend to have difficulty identifying details about objects, organizing ideas, and composing effective descriptive sentences.

The development of information technology provides opportunities for teachers (Fricticarani et al., 2023) to take advantage of digital learning media (Kuntari, 2023) that are more interactive (Permana et al., 2024) and interesting (Waruwu et al., 2024). The integration of technology in learning not only functions as a means of delivering material (Khairani et al., 2025) but also as a strategy to improve the quality of the learning process (Said et al., 2026). Based on the theory of constructivism, knowledge is built through learning experiences (Rizki et al., 2025) that involves observing activities (Nababan et al., 2026), exploring (Alfadhilah, 2025), interpreting (Aqilla et al., 2024), and connecting information with the experiences students have (Shawn & Scott, 2024). Therefore, the use of interactive digital media is believed to create a more meaningful learning environment (Nizaar, 2025) and to support the development of high-level thinking skills (Sari et al., 2026).

One medium that has the potential to increase learning engagement is digital flipbooks (Purnomo et al., 2024). Flipbooks are interactive learning media (Rosmiati et al., 2024) that present the text (Ayuardini, 2023), image (Qomah & Khosiyono, 2022), audio (Jafnihirda et al., 2023), video (Yulianto, 2022), and animation (Saputra et al., 2024) in digital book format (Stuart & Anas, 2023) that can be turned the page virtually (Simanjuntak et al., 2026). These interactive characteristics are thought to increase attention (Amalia, 2023), motivation (Wijayanti & Isnawati, 2023), and student participation in the learning process (Kholil et al., 2025). In learning to write descriptively (Arjuni et al., 2026), a flipbook can present learning objects more concretely (Oktaviana et al., 2026) through a

combination of texts (Nurlaeli, 2026), illustration (Hendrawati, 2026), animation (Banjarnahor et al., 2026), audio (Dwihana et al., 2026), and complementary videos (Siringoringo & Amdani, 2026). The presentation of information that is multimodal helps students understand the characteristics of objects (Zarra, 2026) more complete so that it makes it easier for them to identify details (Asmayanti & Yudianda, 2026), develop an idea (Fatah et al., 2026), and compile systematic descriptive writing (Rohman & Indihadi, 2026). In addition, the exploration activity of the contents of the flipbook provides an opportunity for students to observe (Juhri & Damayanti, 2026), ask questions (E. T. Wahyuni et al., 2023), analyze information (Prananda et al., 2025), compare various facts (Kubayan et al., 2025), and draw conclusions independently (Amaliyah et al., 2023). These activities align with indicators of critical thinking ability (Mujiatun et al., 2025). So, flipbook media has the potential to develop both critical and descriptive writing skills simultaneously (Fadiyah et al., 2024).

Previous research has shown that interactive digital media can improve learning outcomes and activities (Alhafid & Nora, 2020; Ali et al., 2025; Nursella, 2024). Research (Landina & Agustiana, 2022) shows that case-based flipbook media is declared feasible and valid for use in science learning in grade V elementary school. Findings (Purnama Sari & Jupriyanto, 2026) show that flipbook-based interactive learning media have a significant effect on improving the critical thinking skills of grade V elementary school students. However, studies that specifically examine the influence of flipbooks on the critical-thinking and descriptive writing skills of elementary school students remain limited. Therefore, this research is important to fill the gap. The purpose of this study is to analyze the influence of flipbook media on the critical-thinking and descriptive-writing abilities of grade V elementary school students.

METHOD

This study uses a quantitative approach with the quasi-experimental method because the researcher cannot randomize subjects in a class that has already formed (Anantasia & Rindrayani, 2025). The research design used is a Nonequivalent Control Group Design, which involves two groups: the experimental class and the control class. Both groups were given a pretest to assess initial ability, and then the experimental class learned using flipbook media, while the control class learned using conventional media. After the treatment was completed, both groups were given a posttest to determine changes in critical thinking skills and descriptive writing skills.

The research was carried out at SD Negeri 12 Sungai Kunyit, Mempawah Regency, West Kalimantan in the even semester of the 2025/2026 school year. The research population is all students of class V, which consists of two classes. The sampling technique is saturated (total) sampling, as the entire population is used as the research sample. The VA class of 24 students was designated as an experimental class, and the VB class of 24 students was designated as a control class, based on equality of academic characteristics, as indicated by the average Bahasa Indonesia score in the previous semester.

The free variable in this study was flipbook media, while the bound variable included critical thinking ability and descriptive writing ability. The flipbook media used was developed according to descriptive writing materials in Indonesian subjects. Flipbooks contain text, images, videos, audio, animations, interactive exercises, and evaluations that students can access through computers and smartphones. Learning using flipbooks was carried out over four meetings, with the same learning sequence at each meeting: orientation, exploration of materials using flipbooks, discussions, exercises, presentation of results, and reflection.

The research instruments include critical-thinking ability tests, descriptive-writing ability tests, observation sheets, and documentation. The critical thinking ability test is prepared as descriptive questions that refer to indicators of critical thinking ability, namely, providing simple explanations, building basic skills, making inferences, providing further explanations, and developing strategies and problem-solving tactics. The descriptive writing ability test is a descriptive essay task based on the observed object, with assessment using rubrics that include content, writing organization, word choice, language use, and writing mechanics. In addition, observation sheets are used to document the implementation of the learning process and student activities during the use of flipbook media. In contrast, documentation in the form of photos of learning activities, student attendance lists, learning tools, and student work results serves as supporting data to strengthen the research findings. Before being used in research, all instruments undergo content validity tests by experts and reliability tests to ensure they have adequate validity and consistency in measuring research variables.

Before use, all instruments are validated by three experts: material experts, media experts, and learning evaluation experts. The level of content validity was analyzed using Aiken's V, while the empirical validity of the question item was analyzed using Pearson's Product-Moment correlation. The reliability of the instrument is calculated using Cronbach's Alpha, with the criterion

that the instrument is declared reliable if the reliability coefficient is greater than 0.70.

The research procedure consists of three stages. The first stage is preparation, including the development of learning tools, the creation of flipbook media, the development of research instruments, the validation of instruments, and the testing of instruments. The second stage is implementation, namely the provision of pretests, the implementation of the treatment in each class for four meetings, and the provision of posttests. The third stage is data analysis, which involves processing research results to test research hypotheses.

The data was analyzed in stages using IBM SPSS Statistics version 26. The analysis begins with descriptive statistics to obtain the mean, standard deviation, maximum, and minimum. Furthermore, a prerequisite test was carried out, including a normality test using the Shapiro–Wilk test and a homogeneity of variance test using Levene's Test. If the data meet the assumptions of normality and homogeneity, hypothesis testing is carried out using an independent-samples t-test on the posttest scores for each variable. In addition, paired samples were tested with a t-test to determine the improvement in ability before and after treatment in each group.

The magnitude of the influence of flipbook media use was calculated using Cohen's d (effect size) with interpretations: small (0.20–0.49), medium (0.50–0.79), and large (≥ 0.80). The significance level of the study was set at 0.05. The research hypothesis is accepted if the significance value (Sig.) is < 0.05.

Research Hypothesis

Based on the research objectives and variables studied, the hypothesis in this study was formulated to test the influence of the use of flipbook media on the critical-thinking and descriptive-writing abilities of grade V elementary school students. The research hypothesis is compiled as follows.

H_{01}: There was no significant difference in critical thinking skills between students who learned using flipbook media and students who learned using conventional media.

H_{11}: There is a significant difference in critical thinking skills between students who learn using flipbook media and students who learn using conventional media.

H_{02}: There was no significant difference in descriptive writing skills between students who learned using flipbook media and students who learned using conventional media.

H_{12}: There is a significant difference in descriptive writing skills between students who learn using flipbook media and students who learn using conventional media.

Thus, an alternative hypothesis in this study states that the use of flipbook media has a significant effect on the critical-thinking and descriptive-writing abilities of grade V elementary school students. The hypothesis was tested by comparing posttest results between the experimental and control classes using *an independent-samples t-test* at a significance level of 0.05. H_1 is accepted if the significance value is less than 0.05, while H_0 is accepted if the significance value is greater than 0.05.

FINDINGS AND DISCUSSION

Findings

Table 1. Expert Validation

No	Instruments	Validator	Aiken's V Rating	Categories
1.	Critical Thinking Test	Material Expert	0,89	Highly Valid
2.	Descriptive Writing Test	Linguist	0,91	Highly Valid
3.	Observation Sheet	Evaluation Expert	0,87	Highly Valid

Based on expert validation results, all research instruments were classified as very valid. The critical thinking ability test, validated by a subject matter expert, obtained an Aiken's V score of 0.89; the descriptive writing ability test, validated by a linguist, obtained a score of 0.91; and the observation sheet, validated by an evaluator, obtained a score of 0.87. These results show that all instruments have met the content validity criteria and are suitable for use as data-collection tools in the research.

Table 2. Descriptive Statistics

Groups	Tests	N	Red	SD	Min	Max
Experiments	Pretest	24	61,04	6,12	50	72
Experiments	Posttest	24	85,21	6,34	72	96
Controls	Pretest	24	60,96	6,28	49	71
Controls	Posttest	24	76,13	7,15	60	90

Based on the descriptive statistics, there were 24 students in each of the experimental and control classes. During the pretest, the average initial ability of students in the experimental class was 61.04 with a standard deviation of 6.12, while in the control class it was 60.96 with a standard deviation of 6.28. The results showed that the two groups had relatively equal initial abilities before receiving the learning treatment.

After the implementation of learning, the average posttest score in the experimental class increased to 85.21 with a standard deviation of 6.34. In contrast, in the control class, it increased to

76.13 with a standard deviation of 7.15. The minimum and maximum values in the experimental class were 72 and 96, respectively, while in the control class were 60 and 90. The increase in average scores in both groups showed the development of students' abilities after the learning process. However, the increase in the experimental class was higher than in the control class. These results indicate that the use of flipbook media makes a more effective contribution to improving students' critical thinking and descriptive writing skills than conventional learning.

Table 3. Normality Test

Groups	Sig. Shapiro-Wilk	Remarks
Experiments	0,200	Normal
Controls	0,132	Normal

Based on the results of the normality test using the Shapiro–Wilk test, the significance values were 0.200 for the experimental class and 0.132 for the control class. Since both significance values are greater than 0.05, the data in both groups are normally distributed. Thus, the data meet one of the prerequisites for parametric hypothesis testing.

Table 4. Homogeneity Test

Variable	Sig. Levene	Remarks
Critical Thinking	0,451	Homogeneous
Descriptive Writing	0,372	Homogeneous

Based on the results of the homogeneity test using Levene's Test, the significance value for the variable of critical thinking ability was 0.451, and descriptive writing ability was 0.372. The two significance values are greater than 0.05, so it can be concluded that the variances of the data in both groups are homogeneous. Thus, the data meet the prerequisites for hypothesis testing using parametric tests.

Table 5. Hypothesis Test

Variable	T	Sig. (2-tailed)	Verdict
Critical Thinking	4,621	0,000	H_1 Accepted
Descriptive Writing	5,103	0,000	H_1 Accepted

Based on the results of the independent-*samples t-test*, a significance value (Sig. 2-tailed) of 0.000 was obtained for the variables of critical thinking ability and descriptive writing ability. The value is less than 0.05, so H_1 is accepted, and H_0 is rejected. Thus, there is a significant difference between the experimental and control classes. These results show that the use of flipbook media has

a significant effect on the critical-thinking and descriptive-writing abilities of elementary school grade V students.

Table 6. Effect Size

Variable	Cohen's d	Interpretation
Critical Thinking	1,12	Large
Descriptive Writing	0,95	Large

Based on the results of the effect size calculation using Cohen's d, a value of 1.12 was obtained for the variable of critical thinking ability and 0.95 for descriptive writing ability. Both values fall in the large category, indicating that the use of flipbook media has a strong influence on students' critical and descriptive writing skills.

Figure 1. Media Flipbook

The image is an interactive digital flipbook learning media poster that raises a children's story entitled "Little Rabbit and Pigeon". This Flipbook media depicts a digital-based learning innovation that combines children's stories with technology (video, animation, and audio) to make them more interesting, interactive, and accessible to students.

Discussion

The results of the study show that the use of flipbook media has a positive and significant effect on the critical-thinking ability of grade V students at SD Negeri 12 Sungai Kunyit. This is evidenced by the results of the independent samples t-test, which show a significance value of 0.000 (< 0.05) and a t-value of 4.621. In addition, the effect size calculation yielded a Cohen's d of 1.12, which falls in the large category. These findings show that learning with flipbook media improves students' critical thinking skills more effectively than conventional learning (Setiawan, 2023; Halim, 2022).

The improvement in students' critical thinking skills occurs because flipbook media presents learning materials interactively through a combination of text, images, audio, video, animation, and exercises integrated into a single medium (Nizaar, 2025). The presentation of interesting material allows students to be more active in observing, analyzing, evaluating, and drawing conclusions from the information obtained during learning (Rizki et al., 2025; Nababan et al., 2026; Aqilla et al., 2024). In addition, discussion and problem-solving activities during the use of flipbooks provide opportunities for students to develop higher-order thinking skills (Sari et al., 2026), such as making inferences, offering further explanations, and developing problem-solving strategies.

The study's results also show that flipbook media has a positive and significant effect on students' descriptive writing skills. This is shown by the results of the hypothesis test, which yielded a significance value of 0.000 (< 0.05) and a t-value of 5.103. The magnitude of the influence of the use of flipbook media on descriptive writing skills is indicated by Cohen's d value of 0.95, which falls in the large category.

The improvement of students' descriptive writing skills is supported by the characteristics of flipbook media, which present learning objects more concretely and interestingly (Oktaviana et al., 2026; Hendrawati, 2026; Dwihana et al., 2026; Siringoringo & Amdani, 2026). The pictures, videos, and illustrations in the flipbook help students gain a clearer understanding of the object being described. This condition makes it easier for students to develop ideas, choose the right vocabulary, and arrange sentences sequentially and systematically. In addition, the use of interactive media can increase students' motivation to learn (Amalia, 2023; Wijayanti & Isnawati, 2023; Kholil et al., 2025), thereby making them more enthusiastic about completing writing tasks. Thus, students can produce better descriptive writing in terms of content, writing organization, word choice, language use, and writing mechanics (Mahbub, 2024; Rahmawati, 2023).

The results of this study are consistent with the multimedia learning theory proposed by Mayer, which holds that learning is more effective when information is presented through a combination of verbal and visual elements. Flipbook media integrates various forms of information representation, such as text, images, audio, and video, helping students build a deeper understanding of the learning material. When students acquire information through various sensory channels, information processing becomes more efficient, thereby improving critical and writing skills (Khairani et al., 2025; Said et al., 2026).

The findings of this study also support previous research showing that the use of flipbook media can improve learning outcomes, motivation, critical thinking skills, and language skills of elementary school students (Alhafid & Nora, 2020; Nursella, 2024; Ali et al., 2025). Previous studies have shown that interactive digital learning media (Rosmiati et al., 2024) can create a more interesting and meaningful learning experience than conventional media. Therefore, the results of this study further strengthen the empirical evidence that flipbook media is an effective learning innovation for Indonesian language subjects in elementary schools.

The results of this study have theoretical and practical implications. Theoretically, this study contributes to the development of research on the use of digital learning media to improve critical thinking and descriptive writing skills among elementary school students (Fadiyah et al., 2024). The findings of the study show that flipbook media can be an effective learning media alternative in supporting the implementation of 21st-century learning that emphasizes high-level thinking skills and literacy (Setiawan, 2023; M. T. Wahyuni et al., 2025; Annisa, 2022; Haq et al., 2026).

In practical terms, the results of this study provide recommendations for teachers to use flipbook media as a learning innovation to improve the quality of student learning processes and outcomes. The use of flipbooks allows teachers to present material in a more interesting, interactive, and easily accessible way through various digital devices (Purnomo et al., 2024; Permana et al., 2024). In addition, schools can support the implementation of flipbook media by providing adequate technological facilities and infrastructure. For future researchers, this research can serve as a reference for developing flipbook media across different materials and educational levels to obtain broader findings on the effectiveness of digital learning media.

CONCLUSION

This study demonstrates that the use of flipbook media has a positive and significant effect on the critical-thinking and descriptive-writing abilities of grade V students at SD Negeri 12 Sungai Kunyit. The results of the hypothesis test showed a significant difference between the classes using flipbook media and those using conventional learning, with a significance value of 0.000 (< 0.05) for both variables. In addition, the effect size calculation showed a strong influence on critical thinking skills (Cohen's d = 1.12) and descriptive writing skills (Cohen's d = 0.95).

The improvement of students' critical thinking and descriptive writing skills is supported by the characteristics of flipbook media, which can integrate text, images, audio, video, animation, and

interactive exercises into a single learning medium. The presentation of more interesting and contextual material encourages students' active involvement in the learning process, helping them understand the material more deeply, develop analytical skills, and organize ideas into better descriptive writing.

The findings of this study strengthen the theory of multimedia learning, which emphasizes the importance of integrating visual and verbal elements to improve learning quality. In practice, flipbook media can be used as an effective alternative digital learning medium to support the development of high-level thinking and writing skills among elementary school students. Further research is suggested to test the effectiveness of flipbook media across materials, education levels, and broader sample coverage to obtain stronger generalizations of results.

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