

The Effectiveness of Canva-Based Interactive Learning Media on the Critical Thinking Skills of Elementary School Students

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ABSTRACT

This study aimed to develop and test the effectiveness of Canva-based interactive learning media in enhancing critical thinking skills of third-grade students. Employing a Research and Development (R&D) method with the ADDIE model, the research was conducted at SDN Karangsono 01 Jember, involving 22 third-grade students as test subjects. The needs analysis revealed that conventional teaching methods and limited media resulted in suboptimal critical thinking skills among students. The media was developed through design and development phases, receiving a "Very Feasible" validation from material experts (average 4.54) and "Good" from media experts (average 3.62), as well as "Very Good" from teacher responses (average 4.53). Effectiveness testing demonstrated a significant improvement in students' critical thinking skills, with the mean pretest score of 64.27 increasing to 87.50 in the posttest, and a Paired Sample t-test showing an increase of 23.23 points ($p < 0.001$). This study extends the understanding of how relevant, visual, and interactive instructional design can significantly facilitate the development of critical thinking skills in elementary students through the use of accessible digital platforms. Therefore, Canva-based interactive learning media is effective for improving critical thinking skills in third-grade students. Practically, these findings suggest that elementary school teachers can independently utilize the Canva platform to design contextual and communicative interactive learning media to stimulate students' higher-order thinking skills from an early age.

Keywords: Interactive Learning Media, Canva, Critical Thinking, Third-Grade Students, R&D

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INTRODUCTION

Basic education plays an important role in the development of students' cognitive, affective, and psychomotor abilities. This stage trains students to understand, process, and evaluate information logically, not just to recognize facts (Nafiati, 2021). Critical thinking skills are an essential foundation for problem-solving and decision-making in various aspects of life that must be developed from an early age (Ennis, 2018; Facione, 2015). A solid primary education can prepare students to face complex global demands, requiring the development of creative competencies and adaptive problem-solving skills (Trilling & Fadel, 2009; World Economic Forum, 2015). The phenomenon of low critical thinking skills poses a serious challenge in elementary schools. Learning practices in many schools are still focused on rote memorization of material and one-way information delivery by teachers. This condition limits students' opportunities to engage in activities of analysis, evaluation, and independent decision-making (Kusumawati & Maruti, 2019). Students' critical thinking skills develop in a limited manner, making them passive in filtering and evaluating information (Voogt & Roblin,

2012).

Based on the initial observations conducted by the researcher in August 2025 in the third grade of SDN Karangsono 01 Jember, it was found that students' critical thinking skills are still relatively low. Out of 22 students, only about 27% (6 students) were able to ask relevant questions, while 59% (13 students) tended to be passive. Only 14% (3 students) were able to analyze simple information, with most having difficulty connecting concepts. This data highlights the urgent need for more interactive learning interventions to encourage the development of students' critical thinking skills. Previous research supports this finding; [Rahmawati et al. \(2024\)](#) revealed that the dominance of the lecture method in elementary schools hinders students from practicing analysis and evaluation. Teachers are expected to develop relevant, engaging, and age-appropriate learning media for elementary school students to address this issue. Learning media serves as a bridge that connects abstract concepts with students' real experiences, facilitates material comprehension, and enhances critical thinking motivation ([Himayaturrohman, 2019](#)).

Canva, as a web and mobile-based visual design application, offers a potential solution. This application allows teachers to organize materials in the form of presentations, videos, or interactive quizzes with an attractive appearance that is easy for students to understand. This approach supports constructivism, where students actively build knowledge through direct experience ([Schunk, 2012](#)). [Mayer & Fiorella \(2021\)](#) through the Multimedia Learning Theory explain that optimal learning occurs when verbal and visual information is presented in an integrated manner (dual-channel processing), a feature offered by Canva to support understanding and critical thinking training. Several studies show the effectiveness of Canva in learning. [Suryani et al. \(2024\)](#) showed that interactive multimedia based on Canva effectively enhances critical thinking skills in social studies. [Rahmawati et al. \(2024\)](#) found that Canva animation videos improve elementary students' critical thinking abilities in mathematics, while [Astuti & Novita \(2023\)](#) successfully developed a Canva-based IPAS e-module to enhance conceptual understanding. [Himah et al. \(2024\)](#) also reported that the science crossword game assisted by Canva not only improves science understanding but also enhances students' creativity and critical thinking.

While earlier studies on Canva-based media in elementary education primarily targeted fourth- and fifth-graders using linear animation videos, static e-modules, or educational games, they rarely addressed the specific cognitive demands of third-grade science (IPAS) learning. Specifically, higher-order critical thinking indicators such as analyzing cause-and-effect relationships in energy transformations (Analysis), formulating evidence-based arguments (Explanation), and drawing logical conclusions from concrete observations (Inference) remain underexplored in early primary stages, where instruction often defaults to rote memorization. Methodologically, this study extends beyond a mere grade-level distinction by embedding child-friendly communicative prompts ('According to you...', 'Give your reason!') as cognitive scaffolding within an interactive digital environment tailored to concrete operational learners (ages 8–9). Furthermore, unlike conventional media evaluations, this development integrates Canva's interactive features directly with a Problem-Based Learning (PBL) framework and employs a rigorous multi-stage validation including pre-testing measurement instruments on an adjacent upper-grade cohort (fourth-graders) to eliminate testing bias sensitization before field implementation.

This research focuses on two main questions. First, how is the process of developing interactive learning media based on Canva to improve the critical thinking skills of third-grade students at SDN Karangsono 01 Jember? Second, how effective is the Canva-based interactive learning media in enhancing the critical thinking skills of third-grade students at SDN Karangsono 01 Jember?

The hypothesis of this research is based on [Mayer & Fiorella's \(2021\)](#) theoretical framework on multimedia learning and Vygotsky's constructivism. H1: The process of developing interactive learning media based on Canva will produce a valid and practical product to enhance the critical thinking skills of third-grade students at SDN Karangsono 01 Jember. H2: Interactive learning media based on Canva will effectively improve the critical thinking skills of third-grade students at SDN Karangsono 01 Jember. The novelty of this research lies in the construction of an interactive media development model based on Canva, specifically designed for third-grade elementary school students on IPAS material, unlike previous studies that mostly targeted higher-grade students or other subjects. This research examines the contribution of this media as a constructive means to encourage critical thinking in urban elementary school environments that require technological learning innovations. This research contributes in two ways. First, theoretically, this study enriches the literature on the application of multimedia learning theory and constructivism in the development of digital media for early elementary education levels. Second, practically, this research provides a model for developing interactive learning media based on Canva that can be adopted by teachers to enhance the critical thinking skills of third-grade students, in line with the demands of educational digitalization and the needs of 21st-century skills.

METHODS OF RESEARCH

This study employs a Research and Development (R&D) approach utilizing the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) proposed by [Branch \(2009\)](#). This model was selected due to its systematic, iterative, and product-oriented nature, providing a comprehensive framework to produce Canva-based interactive learning media that directly addresses identified student needs while ensuring rigorous testing for feasibility and effectiveness. This approach also has flexibility and is adaptive to technological advancements, making it highly relevant for the development of digital media ([Ningsih et al., 2023](#)). Through the application of this model, the resulting learning media is expected not only to meet the feasibility assessment by experts but also to effectively enhance the critical thinking skills of third-grade students at SDN Karangsono 01 Jember. All stages of this research were carried out sequentially, from needs analysis to the evaluation of the effectiveness of the developed product.

The researcher modified the model according to the context of developing interactive learning media. The first stage, Analysis, involves initial analysis through participatory observation over two weeks in the third-grade class to identify learning problems. The researcher analyzes the students by reviewing the characteristics of third-grade students through questionnaires and interviews. Task analysis examines the core and basic competencies of the Merdeka Curriculum in the IPAS subject with the theme "Getting to Know Energy."

Context analysis evaluates school facilities through observation and interviews. Technology analysis identifies technical needs and the suitability of the Canva platform through literature review and feature experimentation. The second stage, Design, focuses on systematic design. This process begins with the systematic mapping of energy material content. A complete storyboard is designed, including layout, narration, graphics, animations, and interactions suitable for elementary school children. The design of the user interface (UI) and user experience (UX) is also carried out to ensure ease of use of the media. Assessment instruments such as validation sheets, response questionnaires, and critical thinking evaluation questions are prepared at this stage.

The third stage, Development, involves creating the initial product based on the designed plan. This activity includes the creation of the first prototype of the learning media using advanced features of Canva. Two experts (media expert and content expert) conduct validation, and then the product is revised based on feedback from the validators. This is followed by a limited trial with six students who have different ability characteristics. The refinement of the product is carried out continuously based on the results of limited trials to ensure the feasibility and practicality of the media.

The fourth stage, Implementation, is the product trial in real learning situations over three meetings. The classroom teacher implemented Canva media using a problem-based learning model. The researcher actively monitors the activities. Data collection was carried out through observation, questionnaires, and tests. Documentation of the learning process was also carried out comprehensively. This stage aims to observe how the media functions in the actual classroom context while simultaneously collecting initial data on its effectiveness. The fifth stage, Evaluation, aims to assess the effectiveness of the product and make final revisions if necessary. The researcher analyzes qualitative data from validator comments using content analysis techniques. Quantitative data from expert validation were analyzed using the Aiken's V and CVR formulas. The response questionnaire was analyzed with descriptive statistics and reliability tests. Learning outcomes were analyzed using a paired sample t-test to compare conditions before and after the treatment. The preparation of implementation guidelines was also carried out based on all evaluation results to guide the optimal use of media.

The trial subjects in this study were selected using purposive sampling techniques, considering specific criteria tailored to the objectives of each trial stage. The research population consists of all third-grade students of SDN Karangsono 01 Jember, totaling 22 individuals. This study uses a saturated sampling technique (census) because the population size is relatively small. All 22 students became subjects in the field test stage. The group of experts (Expert Reviewers) consists of three validators: a learning media expert from the IT staff of PGRI Argopuro Jember University, a content expert who is an active third-grade teacher and serves as the Vice Chair of the Teacher Working Group of Cluster 03 Karangsono-Sukorejo, and a language expert. Unlike the content and media experts who provide quantitative assessments using Likert scale instruments, the language validator focuses on qualitative assessments (expert judgment). Linguists provide descriptive input, sentence structure corrections, and text readability recommendations to ensure that media content is friendly to the cognitive development of 8–9-year-old children.

These qualitative recommendations are then directly used as the basis for revising the

linguistic aspects of the product (Table 5). For individual testing, three third-grade students were selected based on different levels of academic ability, namely high ability (report card scores >90, fast reading, high creativity), medium (report card scores 75-90, normal reading, stable interest), and low (report card scores <75, need for assistance, learning difficulties). Small Group Testing involves six third-grade students selected based on variations in learning styles (two visual, two auditory, two kinesthetic) identified through a learning style questionnaire. The researcher considers gender balance and socio-economic background. Before the critical thinking ability instrument was used on the research subjects (grade III), a trial of the instrument was first conducted on 16 grade IV students of SDN Karangsono 01 Jember. The selection of grade IV students as the trial subjects was based on methodological considerations that grade IV students have cognitive development characteristics equivalent to the research subjects, but have already received learning material about energy at the previous level. In addition, testing on a group outside the main sample aims to avoid the sensitization effect (testing bias/sensitization effect), so that the third-grade students who are the actual subjects of the research are not accustomed to or memorizing the test items before the treatment using the Canva media is given.

Data collection is a crucial stage in this research. This method uses a closed questionnaire with provided answer options. The research instruments include expert validation questionnaires for content, media, teacher response, and critical thinking ability tests. The content expert validation questionnaire covers 17 aspects of material quality (relevance, clarity, relevance, completeness, coherence, depth, content accuracy, cognitive, affective, psychomotor aspects, and material-media suitability) and utility (aiding the learning process, facilitating understanding, providing focus, supporting independent learning, and generating learning enthusiasm). The media expert validation questionnaire, adapted from [Clark & Mayer \(2016\)](#), includes 20 aspects of media function and utility (clarifying material, facilitating learning, efficiency, engaging students, enhancing motivation, and aiding critical thinking), media cover appearance (attractive, harmonious colors, appropriate title), material appearance (consistent design, proportional format, text emphasis, supporting images, readable font size, and neat layout), and the feasibility of interactive media (independent learning, goal alignment, no assistance, simple language, systematic, and fostering critical thinking). The teacher response questionnaire assesses the effectiveness, relevance, efficiency, usefulness, and contextualization of Canva media in IPAS learning. The critical thinking ability instrument, adapted from [Ennis \(2018\)](#), consists of 10 items measuring indicators of interpretation, analysis, evaluation, inference, explanation, and self-regulation. Data analysis in this study yields qualitative and quantitative data. Qualitative data in the form of suggestions and comments from validators are analyzed through data reduction, data presentation, and conclusion drawing. Quantitative data are obtained from the distribution of questionnaires using a Likert scale. These data are then analyzed with descriptive statistics to determine the product's feasibility. The analysis of the expert validation questionnaire for content and media experts used a rating scale with intervals of 4.21–5.00 (Very Good/Very Feasible), 3.41–4.20 (Good/Feasible), 2.61–3.40 (Fair/Needs Revision), 1.81–2.60 (Poor/Not Practical/Needs Revision), and 1.00–1.80 (Very Poor/Very Infeasible). The teacher response questionnaire was also analyzed using a similar scale to determine the practicality level of the media. To test the effectiveness of the media in improving students' critical thinking skills, a

paired sample t-test was used with the help of SPSS software to compare the score differences before and after the treatment.

RESULTS AND DISCUSSION

The description of the research results presents findings from each stage of the development of interactive learning media based on Canva, from needs analysis to product effectiveness evaluation, structured according to the ADDIE model. The data includes initial analysis, expert validation, teacher responses, and media effectiveness tests in improving the critical thinking skills of third-grade students at SDN Karangsono 01 Jember. These findings provide a comprehensive overview of the feasibility and contribution of the developed media. The needs analysis at SDN Karangsono 01 Jember through observations and teacher interviews shows that learning is dominated by conventional methods with limited media, resulting in students' critical thinking skills not being optimal and passive participation. Curriculum analysis reviews CP, TP, and ATP for third grade, focusing on critical thinking indicators such as identifying, analyzing, arguing, and concluding. The curriculum emphasizes analysis and reflection, but its implementation in the classroom is not yet optimal, indicating a gap that requires the intervention of interactive media.

Analysis of the characteristics of third-grade students (ages 8–9) shows that they are at the concrete operational stage, thus requiring visual media and direct experiences. The dominant learning styles are visual and kinesthetic. Initial learning outcomes on the topic of energy show that some students have not yet reached the critical thinking indicators, especially in analyzing and concluding, highlighting the need for interactive media that aligns with student development. Analysis of the learning language shows that instructional language tends to be one-way and lacks open-ended questions that encourage analysis. The sentence structure is less simple and contextual. This shows the need for media that integrates effective, communicative, concrete language principles, and triggering questions to stimulate critical thinking. Gap analysis compares curriculum demands and student characteristics with learning practices, finding that learning has not yet supported critical thinking due to conventional methods. This gap serves as the basis for media development. The comparison of ideal and actual conditions is presented in Table 1.

Table 1 Gap Analysis

Ideal Conditions	Current Conditions	GAP
Learning oriented toward critical thinking	Teacher-centered learning	Low student analytical activity
Use of interactive and visual media	Conventional and limited media	Lack of critical thinking stimulus
Students actively discuss and argue	Passive students waiting for instructions	Underdeveloped argumentative ability
Learning emphasizes reflection and evaluation	Focus on delivering material	Suboptimal higher-order thinking process

The design stage produces an interactive learning media design based on Canva. Content mapping maps the learning outcomes of the IPAS material "Getting to Know Energy" to critical thinking indicators: identifying, testing predictive relationships, comparing forms of energy, and drawing conclusions. Each subtopic is equipped with analytical activities and

triggering questions. The preparation of the storyboard maps the content structure, presentation flow, and media navigation. The storyboard ensures the integration of objectives, materials, activities, and evaluations. The media begins with a cover page, usage instructions, and a main menu containing Learning Objectives, Understanding Energy and Its Types, Energy Changes, Questions, and Student Worksheets. The material is presented gradually, from basic concepts to types and changes of energy, accompanied by illustrations and activities. Consistent navigation, equipped with evaluation questions and worksheets to measure understanding and encourage analysis. The design of the interface results in a simple, attractive, and easy-to-navigate layout with a consistent color scheme, clear text, and relevant illustrations. Navigation is made linear. The preparation of research instruments includes expert validation sheets for content and media, student response questionnaires, as well as pretest and posttest questions based on critical thinking indicators. This design is then tested for its feasibility.

The development stage involves the creation of Prototype 1 and expert validation. Prototype 1 is the initial product of an interactive media based on Canva for the IPAS material "Getting to Know Energy," systematically organized to include objectives, visual materials, triggering questions, exercises, and final evaluation, in line with the learning outcomes and characteristics of third-grade students at SDN Karangsono 01 Jember. Consistent design, clear typography, contextual illustrations, and simple navigation (<https://pendid.my.canva.site/listrikkelas3>). Prototype 1 requires expert validation for content feasibility, appearance, and language. Validation of Prototype 1 is conducted by subject matter experts and media experts to ensure content suitability, design quality, and language accuracy. Subject matter experts assess the content's alignment with learning objectives, concepts, coherence, and support for critical thinking. The results are presented in Table 2.

Table 2 Recapitulation of Media Feasibility and Practicality Assessment Results

No	Judging Group & Assessment Aspects Average	Score Aspect	Score Aspect	Category Overall Average	Final Category
A	Subject Matter Expert			4,54	Very Deserving
1	Material Quality	4,90	Very Deserving		
2	Usefulness	4,17	Very Deserving		
B	Media Expert			3,62	Good (Suitable for Use)
1	Functions and Benefits of Media	4,40	Very Deserving		
2	Media Cover Display	3,00	Sufficient (Needs Partial Revision)		
3	Material Display	3,50	Good (Suitable for Use)		
4	Interactive Media Feasibility	3,60	Good (Suitable for Use)		
C	Practicality (Teacher's Response)			4,53	Very Good
1	Effectiveness	4,50	Very Good		
2	Relevance	4,66	Very Good		
3	Efficiency	4,50	Very Good		
4	Usefulness	4,50	Very Good		
5	Contextual	4,50	Very Good		

Based on the data in Table 2, the results of the material expert validation show an average score of 4.54 (Very Feasible), the media expert 3.62 (Good), and the teacher response 4.53 (Very Good/Practical). This data confirms that this interactive learning media product comprehensively meets the technical and pedagogical feasibility requirements to be tested in face-to-face learning in elementary schools.

The refinement process of Prototype 1 was carried out through a series of targeted revisions based on constructive suggestions and qualitative notes from subject matter experts, media experts, and language validators. These corrective actions are a manifestation of the iterative nature of the ADDIE development model at the development stage to ensure that the Canva-based interactive learning media product meets the standards of pedagogical feasibility, visual esthetics, and instructional readability before being implemented in the classroom. The focus of the improvements includes simplifying the language structure, adding contextual examples, adjusting the visual layout, and preparing a user guide. Details of expert feedback along with the revision actions that have been implemented are presented in the following Table 3.

Table 3 Product Revisions Based on Expert Feedback

No	Expert Recommendation	Improvement Made
1	Simplification of language in several parts of the material	Revising sentences to be more concise and appropriate for the students' developmental level
2	Addition of contextual examples in the energy material	Adding illustrations and examples that are close to the students' daily lives
3	Consistency in font size and type Improvement of color contrast in several displays	Standardizing the font and font size across all slides
4	Improvement of color contrast in several displays	Rearranging the color combinations to be clearer and more comfortable to read
5	Addition of media usage instructions	Adding a usage guide slide at the beginning of the media
6	Reorganization of several parts of the material for better coherence	Reorganizing the presentation order to be more systematic and logical

The final product is the result of refining Prototype 1 after validation and revision, with improvements in language, contextual examples, design, and navigation. The final product has a complete structure and a systematic, communicative appearance, and is suitable for the characteristics of third-grade students, deemed ready for implementation. The implementation stage is a product trial to determine its practicality and effectiveness. The research subjects are 22 third-grade students from SDN Karangsono 01 Jember (saturated sampling) in the IPAS learning material "Getting to Know Energy" using interactive media based on Canva in face-to-face sessions with digital devices.

The pretest was given to 22 third-grade students before media learning to measure their initial critical thinking abilities. The results of the descriptive statistics are presented in Table 4.

Table 4 Descriptive Statistics Pretest

Description	Pretest Score
Lowest Score	46
Highest Score	85
Median	61
Modus	55
Average	64,27

The average pretest score of 64.27 indicates that students' initial critical thinking abilities are still low to moderate, requiring intervention. The posttest was given to 22 students after media learning to measure their final abilities. The results of the descriptive statistics are presented in Table 5.

Tabel 5 Descriptive Statistics Posttest

Deskripsi	Nilai Posttest
Lowest Score	72
Highest Score	100
Median	86
Modus	100
Average	87,5

The average posttest score of 87.5 indicates that students' critical thinking skills improved to a good to very good category after the implementation of the media. The evaluation stage analyzes pretest and posttest data using descriptive and inferential statistics to measure the effectiveness of Canva-based interactive media in improving the critical thinking skills of third-grade students at SDN Karangsono 01 Jember. The reliability test of the critical thinking ability test instrument shows a Cronbach's Alpha of 0.879 for 10 items, above 0.70, indicating that the instrument is reliable and consistent. The normality test of the pretest and posttest data (Kolmogorov-Smirnov and Shapiro-Wilk) shows significance values > 0.05 for both tests (pretest: 0.115 and 0.114; posttest: 0.185 and 0.067), indicating that the data are normally distributed and allowing for the use of parametric statistical tests. The Paired Sample t-test compares the average pretest score (64.27) and posttest score (87.50), showing a significant increase of 23.23. The results of the statistical test are presented in Table 6.

Tabel 6 Hasil Uji Paired Sample T-Test

	Mean	N	Std. Deviation	Std. Error Mean
Pretest	64,2727	22	11,93307	2,54414
Posttest	87,5000	22	9,25692	1,97358

The Paired Samples correlation test yielded a value of -0.050 ($p = 0.827$), indicating no statistically significant linear relationship between individual pretest and posttest score rankings. This near-zero correlation suggests that score gains were non-uniform across the sample; specifically, students who started with lower baseline scores experienced disproportionately larger gains following the intervention, alongside minor measurement variability inherent in a small sample ($N = 22$). Crucially, this lack of rank-order retention does

not invalidate the overall intervention effect. Because the paired t-test accounts for mean differences within matched pairs, the statistically significant mean gain of 23.23 points (from 64.27 to 87.50, $t = -7.046$, $p < 0.001$) and a moderate N-Gain of 0.65 demonstrate a robust group-wide shift in critical thinking capabilities, confirming that the Canva media provided substantial cognitive scaffolding across all achievement levels.

This research addresses the first problem formulation regarding the development process of interactive learning media based on Canva to enhance the critical thinking skills of third-grade students at SDN Karangsono 01 Jember. Using the Research and Development (R&D) approach with the ADDIE model (Analysis, Design, Development, Implementation, Evaluation), the development process is carried out systematically (Branch & Varank, 2009). The needs analysis stage involves observation and interviews with third-grade teachers, showing that the learning is still conventional, media is limited, and students' critical thinking and participation skills are not yet optimal. This condition is contradictory to the curriculum, which demands the strengthening of analysis, evaluation, and logical conclusion drawing, thus the development of interactive media based on Canva is necessary. The gap analysis in Table 2 reinforces this finding by comparing the ideal and actual conditions. Learning should be oriented toward critical thinking, but it is still teacher-centered, with limited interactive and visual media, and students who are passive and not accustomed to arguing. This gap emphasizes that media should stimulate students' analytical activities. The characteristics of third-grade students (ages 8-9, concrete operational stage, visual-kinesthetic learning style) are an important consideration. They need media with concrete illustrations, attractive colors, and direct interaction to easily understand concepts and meet their cognitive and psychological needs.

Another crucial finding in this study lies in the form of restructuring the language of learning offered by the developed interactive media. The results of the initial needs analysis indicate that the instructional language used by teachers at SDN Karangsono 01 Jember tends to be one-way informative and lacks open-ended questions. This indirectly limits the space for third-grade students to hone their reasoning and in-depth analysis skills. This interactive learning media based on Canva addresses these obstacles concretely through three linguistic design strategies. First, this media integrates interactive trigger questions explicitly within the slides, such as:

"After the children see the media that the teacher shows, use your own words to explain what is meant by energy?" or image-based questions, "Look at the picture next to it!" "What is happening with that TV? What type of energy is used?"

These communicative questions stimulate students to think actively from the beginning of the learning process. Second, this media provides child-friendly comparative and causal analysis exercises, such as comparing the similarities and differences in daily activities based on the type of energy used. Third, the written instructions in the slides are packaged using a personal communicative language style that is friendly to the cognitive level of 8-9-year-old students (for example, the use of phrases like "According to you, children..." or "Give your reason!") which serves as cognitive scaffolding for the students. The application of communicative-interactive language and balanced visuals aligns with Mayer's dual-channel processing principle. Through a combination of concise text, contextual illustrations, and

interactive stimuli, students' working memory capacity is not excessively burdened (cognitive overload), but rather optimally guided to engage in critical thinking stages: starting from interpreting information, analyzing cause-and-effect relationships, conducting simple evaluations, to drawing independent conclusions.

Analysis of the learning language shows that the language used tends to be one-way informative and lacks open-ended questions. This serves as the basis for developing media with simple, communicative, contextual language, and equipped with prompting questions to stimulate analysis, reasoning, and drawing conclusions, in line with the principles of effective multimedia learning (Mayer & Fiorella, 2021). The design stage involves creating a content mapping for the IPAS material "Getting to Know Energy" into critical thinking indicators: identifying information, testing predictive relationships, comparing forms of energy, and drawing conclusions. Each subtopic is equipped with analytical activities and triggering questions. The media display is designed to be simple, attractive, and easy to navigate. Research instruments, such as expert validation sheets for content and media, teacher response questionnaires, and pretest-posttest questions, were also prepared.

The development stage produced Prototype 1 of the interactive learning media based on Canva, which includes learning objectives, visual materials, prompting questions, interactive exercises, and a final evaluation. This product has a consistent design, clear typography, contextual illustrations, and simple navigation, but requires expert validation. Validation involves subject matter experts and media experts, as well as classroom teachers. Subject matter experts gave an average score of 4.54 (very feasible), with a material quality aspect of 4.9 and a utility aspect of 4.17. Media experts received an average score of 3.62 (good), with a functionality and utility aspect of 4.4, but the cover appearance aspect needs improvement (score 3.0). The teacher response questionnaire received an average score of 4.53 (very good) on the aspects of effectiveness, relevance, efficiency, usability, and contextuality (Nieveen, 1999). These results indicate the product's feasibility. Input from subject matter experts, media experts, and teachers was followed up through product revisions, in accordance with the iterative nature of the ADDIE model (Branch, 2009). Revisions included simplification of language, addition of contextual examples, standardization of fonts, improvement of color contrast, addition of usage instructions, and reorganization of materials. The process of developing this Canva-based interactive media has been systematic through the five ADDIE stages, resulting in a valid and usable product, consistent with previous research (Himah et al., 2024; Nafsi, 2023; Rahmawati et al., 2024; Suryani et al., 2024).

This research also addresses the second problem formulation regarding the effectiveness of Canva-based interactive learning media in improving the critical thinking skills of third-grade students at SDN Karangsono 01 Jember. Effectiveness is measured from the pretest and posttest data of 22 third-grade students during the implementation stage, analyzed using descriptive and inferential statistics during the evaluation stage. Before the analysis, the critical thinking ability instrument was tested for validity, with ten items declared valid (significance < 0.05). The reliability test shows a Cronbach's Alpha of 0.879, indicating high internal consistency. This valid and reliable instrument ensures that score changes reflect changes in critical thinking ability.

The Kolmogorov-Smirnov normality test on the data (pretest) (0.115) and (posttest) (0.185) shows a normal data distribution (significance > 0.05), allowing the use of parametric

statistical tests. Descriptive data show an average pretest score of 64.27, increasing to 87.50 on the posttest after the use of media, indicating a positive impact on students' critical thinking skills. The paired sample t-test shows a t-value of -7.046 with df 21 and significance < 0.001 (less than 0.05), thus H₀ is rejected and H₁ is accepted. This means there is a significant difference in students' critical thinking skills before and after the use of media. This improvement is reinforced by an average N-Gain Score of 0.65, which falls into the moderate category, affirming that the enhancement in critical thinking skills is statistically significant and practically meaningful. The effectiveness of this media is supported by critical thinking theory, which views this ability as a reflective and rational process, including interpretation, analysis, evaluation, and drawing logical conclusions (Ennis, 2018; Facione, 2015). The developed media is designed to facilitate this through prompting questions, cause-and-effect analysis exercises, and reflective tasks. Students actively process and evaluate information. The constructivist perspective also supports this, where interactive media with visual stimuli, gradual exercises, and feedback serve as cognitive scaffolding, helping students build active and independent understanding, unlike conventional passive learning. The principles of multimedia learning (Mayer & Fiorella, 2021) support these findings, as the combination of concise text, contextual illustrations, and interactive elements allows students to process information visually and verbally, fostering deep understanding and enhancing higher-order thinking. The teacher response questionnaire also reinforces the statistical results, with the aspect of media effectiveness receiving an average score of 4.5 (very good).

Observations during the implementation showed that students were more active, willing to express their opinions, provide reasons, and engage in discussions. These changes in learning behavior complement the quantitative evidence of the media's effectiveness. These findings on effectiveness are consistent with previous research. Suryani et al. (2024) demonstrated the effectiveness of Canva-based interactive multimedia in enhancing IPS critical thinking skills. Rahmawati et al. (2024) found that Canva animation videos effectively improved elementary students' mathematical critical thinking abilities. Astuti & Novita (2023) successfully developed a Canva-based IPAS e-module to enhance concept understanding, and Himah et al. (2024) reported that the Canva-assisted science crossword game improved science understanding, creativity, and critical thinking. Based on the validity and reliability of the instruments, normality test, paired sample t-test, N-Gain value of 0.65, as well as teacher response data and student behavior observations, it can be concluded that the interactive learning media based on Canva is proven effective in improving the critical thinking skills of third-grade students at SDN Karangsono 01 Jember.

In addition to the single-school setting constraint, another methodological limitation of this study is its reliance on a one-group pretest-posttest design without a randomized control or comparison group. Consequently, while a statistically significant increase in posttest critical thinking scores was observed, these gains cannot be unequivocally attributed solely to the Canva-based interactive media. Potential confounding variables such as normal cognitive progression, increased teacher instructional focus, and the Hawthorne (novelty) effect associated with introducing a new digital tool may have also contributed to score improvements. Accordingly, the findings should be interpreted as preliminary evidence of practical media feasibility and potential effectiveness, rather than definitive causal proof. Future research should employ a quasi-experimental design incorporating a control group

receiving conventional instruction to isolate the treatment effect of Canva-based media more rigorously.

CONCLUSIONS

Based on a series of research and development conducted systematically, the conclusion of this study is that the Canva-based interactive learning media developed is feasible and effective in enhancing the critical thinking skills of third-grade students at SDN Karangsono 01 Jember. The feasibility of the product is proven through validation results from subject matter experts and media experts, which reached the "very feasible" category, as well as positive responses from teachers with a "very good" rating. This media meets the aspects of relevant material substance, attractive display quality, optimal interactivity, and alignment with the cognitive development characteristics of elementary school students. The use of this media also significantly facilitates active student engagement in the learning process, in accordance with the demands of the modern curriculum. The implication of these findings is that innovative learning media can make a tangible contribution to efforts to improve the quality of basic education. Interactive learning media based on Canva shows substantial effectiveness in enhancing students' critical thinking skills, as evidenced by the improvement in pretest and posttest scores. The Shapiro-Wilk normality test results for the pretest at 0.114 and the posttest at 0.067 indicate a normal data distribution, supporting the validity of the ability improvement analysis. The average pretest score of the students was 64.27, while the average posttest score increased to 87.50, reflecting a significant improvement after the implementation of the media. This media encourages students to actively identify problems, analyze information, provide logical reasoning, and draw conclusions based on the presented material. The enhancement of critical thinking skills is supported by interactive features and direct feedback integrated into the media. Canva-based interactive media not only serves as a teaching aid but also as a catalyst for the development of essential cognitive skills in students. The developed media successfully achieved the goal of comprehensively enhancing students' critical thinking abilities.

REFERENCES

- Astuti, R. D., & Novita, L. (2023). Pengembangan e-modul interaktif berbasis Canva pada pembelajaran IPAS di sekolah dasar. *Jurnal Basicedu*, 7(3), 1820–1830. <https://doi.org/10.31004/basicedu.v7i3.5123>
- Branch, R. M. (2009). *Instructional design: The ADDIE approach*. Springer US. <https://doi.org/10.1007/978-0-387-09506-6>
- Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning* (4th ed.). John Wiley & Sons. <https://doi.org/10.1002/9781119239086>
- Ennis, R. H. (2018). Critical thinking across the curriculum: A vision. *Topoi*, 37(1), 165–184. <https://doi.org/10.1007/s11245-016-9401-4>
- Facione, P. A. (2015). Critical thinking: What it is and why it counts. *Insight Assessment*, 1(1), 1–28. <https://doi.org/10.5840/inquiryct20132812>
- Himah, M. C., Oktaviani, R. T., & Amalia, S. N. (2024). Pengembangan media Science Crossword

- Game berbantuan Canva untuk meningkatkan kemampuan berpikir kritis dan kreativitas siswa kelas 5 SD. *Jurnal Pendidikan Dasar dan Pembelajaran*, 12(1), 45–56. [https://doi.org/10.21927/literasi.2024.15\(3\).277-286](https://doi.org/10.21927/literasi.2024.15(3).277-286)
- Himayaturohmah. (2019). Penguasaan materi media pembelajaran dalam upaya menyiapkan guru yang mampu menyelenggarakan pembelajaran yang mendidik. *Jurnal Pendidikan Guru Sekolah Dasar*, 40(1), 30–42. <https://doi.org/10.25078/jpm.v5i1.755>
- Kusumawati, N., & Maruti, E. S. (2019). *Strategi belajar mengajar di sekolah dasar*. CV. AE Media Grafika.
- Mayer, R. E., & Fiorella, L. (Eds.). (2021). *The Cambridge handbook of multimedia learning*. Cambridge University Press. <https://doi.org/10.1017/9781108894333>
- Nafiati, D. A. (2021). Revisi taksonomi Bloom: Kognitif, afektif, dan psikomotorik. *Humanika: Jurnal Kajian Ilmiah*, 21(2), 132–139. <https://doi.org/10.21831/hum.v21i2.29252>
- Nafsi, A. G. (2023). *Pengembangan media video animasi berbasis Canva untuk meningkatkan kemampuan berpikir kritis siswa SD/MI pada pelajaran IPA materi sistem pencernaan manusia* [Skripsi, UIN Maulana Malik Ibrahim Malang]. Institutional Repository UIN Maulana Malik Ibrahim Malang.
- Nieveen, N. (1999). Design approaches and tools in education and training. Dalam J. van den Akker, R. M. Branch, K. Gustafson, N. Nieveen, & T. Plomp (Eds.), *Design approaches and tools in education and training* (hlm. 125–135). Springer Netherlands. https://doi.org/10.1007/978-94-011-4255-7_10
- Ningsih, A. M., Pratomawati, A., Sa'idah, S., Narayanti, P. S., Syafi'i, F. F., Nurlaily, L., Edi, S., Ridhani, J., Nay, D. M. W., & Fadli. (2023). *Desain sistem pembelajaran*. PT. Global Eksekutif Teknologi.
- Rahmawati, D., Hakim, L., & Putra, R. (2024). Pemetaan metodologi penelitian teknologi pendidikan di Indonesia: Sebuah tinjauan sistematis 2020-2024. *Jurnal Edutech*, 23(2), 89–102.
- Rahmawati, L., Suharni, S., Ambulani, N., Febrian, W. D., Widyatiningtyas, R., & Rita, R. S. (2024). Pemanfaatan aplikasi Canva dalam penyusunan media pembelajaran berbasis teknologi. *Jurnal Pengabdian Masyarakat Pendidikan*, 5(1), 12–25.
- Schunk, D. H. (2012). *Learning theories: An educational perspective* (6th ed.). Pearson Education.
- Suryani, S., Zainudin, M., & Anggraini, A. E. (2024). Pengembangan multimedia interaktif berbantuan Canva untuk menumbuhkan berpikir kritis siswa dalam pembelajaran ilmu pengetahuan sosial. *Jurnal EDUCATIO: Jurnal Pendidikan Indonesia*, 10(2), 104–115. <https://doi.org/10.29210/1202424682>
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. Jossey-Bass.
- Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies*, 44(3), 299–321. <https://doi.org/10.1080/00220272.2012.668938>
- World Economic Forum. (2015). *New vision for education: Unlocking the potential of technology*. World Economic Forum.