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Development of Canva-Based Interactive Learning Media for Mixed Fractions in Elementary School

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Abstract
The development of interactive learning media is crucial in elementary mathematics education, as abstract concepts often challenge students' comprehension. This study focused on creating Canva-based interactive learning media for mixed-fraction topics that met validity, practicality, and effectiveness criteria. The ADDIE model was implemented in three elementary schools. The results showed that the media validation score increased significantly from 58% to 93.9%. Teacher and student response rates were also very high, reaching 94% and 91.5%, respectively. Furthermore, student learning outcomes improved significantly from an average score of 33.84285 to 86.592885 with an N-Gain score of 0,8041009763 categorized as high. These findings indicate that Canva-based interactive learning media are highly valid, practical, and effective for mathematics instruction. In addition, the integration of visual elements, animations, and interactive features enhances student engagement and helps them better visualize complex concepts such as mixed fractions. The use of technology-based media also supports student-centered learning and increases active participation. Overall, Canva demonstrates strong potential as an innovative tool to improve learning outcomes and conceptual understanding among elementary school students.

Keywords: canva-based media; interactive learning media; learning outcomes; mixed fractions

INTRODUCTION

Mathematics is essential in fostering higher-order thinking and building a nation's human resources (Putri et al., 2024; Yanti & Fauzan, 2021). However, mathematics outcomes remain suboptimal in elementary education, indicating a need for improved early instruction. This study directly addresses this gap by developing and evaluating interactive, technology-based learning media using Canva to strengthen foundational mathematics skills among elementary students. (Putri et al., 2024). Elementary mathematics instruction is crucial for establishing students' basic concepts (Yerizon, 2021). During this stage, students are introduced to key areas such as numbers, arithmetic, measurement, statistics, probability, and problem solving, often through concrete-representational-abstract instructional methods. Mastery of these concepts at the elementary level facilitates understanding of advanced mathematics. (Setianingsih et al.; Pratiwi et al., 2025)

Despite the essential role of mathematics, Indonesian students demonstrate consistently low proficiency. In PISA 2022, their average score was 366, falling short of the OECD average. Only a small proportion reach high proficiency, underscoring the need for innovative instructional

methods. The abstract nature of mathematics contributes to students' difficulties, low motivation, and poor performance, particularly in areas like fractions and mixed numbers (Rizky et al., 2025). Currently, mathematics instruction in elementary schools mainly uses lecture-based methods with limited student participation. This minimal student engagement hampers deep conceptual understanding and contributes to student disengagement, clearly supporting the need for interactive instructional approaches (Zainil et al., 2022).

Learning media improves mathematics education (Mubarakah & Abdullah, 2024). Engaging media influence student engagement—behavioral, emotional, and cognitive aspects—and digital tools support these forms (Fauzan et al., 2023). Learning media such as pictures, videos, and audio help teachers deliver material. Well-chosen media increase student interest and clarify learning goals, making interactive media essential for mathematics instruction.Technological progress shifts learning toward digital methods, and the independent curriculum emphasizes technology to foster student engagement and creativity. Educational technology includes applications that improve accessibility and effectiveness, creating more engaging learning experiences (Novela et al., 2024; Melani, 2024).

Canva, an online graphic design platform, enables teachers to create engaging, accessible mathematics content with animations, images, videos, and interactive features. Educators widely adopt it for creating digital educational materials (Andika et al., 2025). Canva-based learning media can increase student interest and motivation by making lessons more interactive and improving conceptual understanding (Kinaya et al., 2024). However, previous research has not addressed Canva-assisted media specifically for grade V elementary students studying number elements, nor has it tailored content to students' unique learning needs. This research gap reinforces the importance of the current study (Zainil, 2024).

Observations at SDN 03 Bandar Buat, SDN 16 Padang Besi, and SDN 13 Batu Gadang show that schools provide facilities such as WiFi and projectors, yet teachers use technology in mathematics suboptimally. Most educators primarily use conventional or externally sourced materials instead of developing tailored digital content. Interviews with grade V teachers revealed that students struggle to understand number elements, with 71% displaying low achievement. Unengaging instructional methods make mathematics intimidating for them. Teachers need interactive Canva media to support understanding, increase interest, and implement technology-based learning in line with curriculum demands. Develop Canva-based mathematics learning media that are valid, practical, and effective for helping eighth-grade students improve their understanding of linear equations in two variables. The research utilized the ADDIE development model, encompassing analysis, design, development, implementation, and evaluation stages. This research is entitled “Development of Canva-Based Learning Interactive Media for Mixed Fraction in Elementary School”.

METHOD

Development Model

This research uses the Research and Development (R&D) approach. Development research is a research method used to produce educational products and to test the validity, practicality, and effectiveness of those products through systematic stages ranging from needs analysis to

product evaluation. R&D research aims to produce learning media that are suitable for use in the learning process and are able to improve student learning outcomes (Adeoye et al., 2024). In addition, development research is used to design, develop, and evaluate technology-based learning products through expert validation processes and field trials (Dilaines et al., 2024).

The development model used in this study is the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation. The ADDIE model was chosen because it offers systematic, flexible, and suitable steps for developing digital technology-based learning media. This model allows researchers to conduct an in-depth needs analysis before developing a product, ensuring that the media produced align with students' characteristics and learning needs (Bestari et al., 2025).

The ADDIE model allows evaluations at every stage, enabling the product to be revised on an ongoing basis. Compared to the Borg & Gall model, which has more complex steps and requires a long research time, the ADDIE model is simpler but still comprehensive. While the 4D model focuses more on the development of learning tools such as modules, this research focuses on the development of Canva-based interactive learning media. Therefore, the ADDIE model is considered more suitable for developing technology-based mathematics learning media in elementary schools (Varga et al., 2026).

The analysis stage identifies learning needs as the basis for media development. At this stage, the researcher analyzes the curriculum, student characteristics, and learning media needs. Researchers use the design stage to develop the learning media. During this stage, they compile learning objectives, determine basic competencies, and compile elementary school grade V mathematics materials. Next, they create a learning media storyboard that outlines the material flow, including slide displays, animations, images, videos, and practice questions. In addition, during this stage, researchers design instruments to collect data. They prepare material expert validation sheets, media expert validation sheets, linguist validation sheets, teacher response questionnaires, student response questionnaires, and pretest and posttest questions. They make media design more engaging by using colors, animations, and illustrations that align with the characteristics of elementary school students.

Researchers create Canva-based learning media during the development stage, following the design. They produce learning media that include mathematical materials, animations, pictures, learning videos, and interactive problem-solving exercises. The research team uses the Canva application to develop technology-based interactive learning media. They revise the learning media based on the validators’ suggestions and input, making them more suitable for instruction.

The research team carries out the implementation stage to test the developed learning media. According to a study by Anggun Kurnia and colleagues, teachers implement Canva-based interactive media in grade V elementary school classrooms to enhance learning. Researchers observe the classroom, monitor the media's use, and document encountered obstacles. In addition, during this stage, researchers collect practical data using questionnaires administered to teachers and students. To assess the effectiveness of the learning media, they administer a pretest before instruction and a posttest after using Canva-based learning media. Researchers use the pretest and posttest results to determine improvements in student learning outcomes.

The evaluation stage assesses the quality of the learning media through validity, practicality, and effectiveness. Validity is established by experts; practicality is determined by questionnaires; effectiveness is measured by student outcomes. Results determine if Canva-based learning media is suitable for elementary school math instruction.

SDN 03 Bandar Buat. The research was carried out in three schools, namely SDN 03 Bandar Buat, SDN 16 Padang Besi, and SDN 13 Batu Gadang at the needs analysis stage. Meanwhile, the product trial stage was carried out at SDN 03 Bandar Buat. The selection of the school is based on the similarity of student characteristics and the availability of supporting facilities for the use of technology-based learning media.

Product Trial

The test subjects in this development study were grade V students at SD Negeri 03 Bandar Buat who participated in the practicality test. In determining the research subjects, several criteria were considered, including: School conditions that are in line with the research needs, namely: (1) School conditions that align with the research needs, (2) The school's willingness to accept innovations, (3) No previous development of learning media using the Canva application at the school. The school's location is accessible to the author, (4) The school's location is accessible to the author. The data used in this study are primary, collected directly in the field. The first data comes from interviews and questionnaires validating interactive learning media created with Canva, conducted by validators or experts. Validators were selected from among lecturers who have expertise in their fields (Anita et al, 2022). The second dataset is practical data, obtained from questionnaires completed by teachers and students to assess the practicality of using the Canva application as a learning media.

Data Collection Instruments

In the assessment, instruments are needed to collect data that provide answers to the questions or formulations posed in the study (Astari et al., 2026). The validation instrument, in the form of an evaluation sheet, serves to obtain validity data for the developed learning media. This instrument focuses on two main specifications: material validation, which considers content feasibility, and design validation, which includes evaluation, layout, color selection, and image placement in the learning media. The validation instrument covers three aspects, namely material, media, and language validation. The validation process involved three validators consisting of a material expert, a media design expert, and a language expert. Each validator assessed the learning media according to their area of expertise using the validation sheet provided.

Table 1. Qualification of the Practicality of Learning Media

Percentage	Criteria	Description
86 - 100	Highly Valid	No Revision Required
76 - 85	Valid	No Revision Needed
60 - 75	Less Valid	Partial Revision
55 - 59	Not Valid	Revised
0–54	Very Not	Revised

Source: Oktaviandi & Masniladevi (2025)

The learning media practicality instrument is used to collect data on the practicality of learning media in the learning process, with the expectation that their use will have a positive impact on students. The practicality instrument was administered after the implementation of the

Canva-assisted interactive learning media. The practicality assessment involved two groups of respondents: Grade V elementary school teachers and students who used the learning media during the learning process. The teacher assessed ease of use, suitability of the material, clarity of instructions, and the benefits of the media in supporting teaching activities, while students assessed attractiveness, ease of use, clarity of the material, and their interest in using the learning media.

The assessment used a Likert scale with a score range of 1–5, where 1 = strongly disagree, 2 = disagree, 3 = fairly agree, 4 = agree, and 5 = strongly agree. Each response was scored and then summed to obtain the total score for each respondent. The scores were then converted to percentages to determine the practicality of the Canva-assisted interactive learning media. The percentage results were interpreted using practicality criteria to determine whether the developed learning media were practical for use in mathematics learning. High percentages indicate that the learning media are easy to use, attractive, and helpful in students' understanding of mathematical concepts.

Table 2. Categories of Learning Media Practicality

Percentage	Criteria
86 - 100	Very Practical
76 - 85	Practical
60 - 75	Less Practical
55 - 59	Not Practical
0–54	Very impractical

Source: Oktaviandi & Masniladevi (2025)

The learning media effectiveness instrument consists of a test that measures students' learning outcomes and determines the effectiveness of Canva-assisted interactive learning media. The test instrument was first reviewed and reliability tested to ensure it consistently measures students' understanding of the material. The effectiveness test was administered to Grade V elementary school students after the learning media met the practicality requirements.

The trial implementation was conducted in several steps. First, students were given a pretest before using Canva-assisted interactive learning media to assess their initial understanding of mathematical number concepts. Second, the learning process was carried out using the developed interactive learning media. During this stage, students learned the material through interactive slides, examples, and practice questions provided in the media. Third, after the learning process was completed, students were given a posttest with questions equivalent to the pretest to measure their learning outcomes after using the media.

The pretest and posttest consisted of a set of questions designed to assess students' mastery of the material. The pretest and posttest results were analyzed to determine improvements in student learning outcomes. The data were calculated using the N-Gain formula to measure the effectiveness level of the learning media. The effectiveness criteria were determined based on the N-Gain results to conclude whether the Canva-assisted interactive learning media was effective in improving students' understanding of mathematical number elements.

$$Normalized\ Gain = \frac{Posstest\ Score - Pretest\ Score}{Skor\ ideal - Pretest\ Score}$$

Table 4. Canva Effectiveness Categories

No	Gain Value Interval (g)	Category
1	0.00 – 0.30	Very Ineffective
2	0.31 – 0.70	Effective
3	0.71 – 1.00	Highly Effective

Source: Rifa`i et al. (2025)

RESULT AND DISCUSSION

Result

The researchers used the ADDIE model in conducting their research, and the following are the results of the research that has been conducted:

Analysis

At this stage, the researcher conducted observational studies and interviews at three different schools, namely SDN 03 Bandar Buat, SDN 16 Padang Besi, and SDN 13 Batu Gadang, to obtain an analysis of needs, curriculum analysis, analysis of student characteristics, and analysis of school facility availability.

a. Needs Analysis

The needs analysis stage was conducted to gather information on problems encountered in the mathematics learning process and students' abilities in learning mathematics, particularly fractions. The results of the analysis obtained by the researcher are as follows: (1) Students still find mathematics learning difficult because mathematics learning is scary and requires appropriate learning media; (2) Teachers often use textbooks and blackboards in learning rather than using technology in learning; (3) Teachers have not fully utilized the facilities provided by the school, such as projectors, Smart TVs, WiFi, and Chromebooks; (4) Teachers need interactive learning media to increase students' interest in learning mathematics.

b. Curriculum Analysis

The purpose of curriculum analysis is to obtain an overview of the design of learning media aligned with the school's curriculum, using the Canva application. The researcher analyzed the instructional materials presented by teachers, including learning outcomes and classroom objectives.

c. Analysis of Student Characteristics

To understand student characteristics, the author used interviews and observation. The characteristics of fifth-grade elementary school students are diverse. To meet students' needs, teachers must make learning enjoyable. The researcher obtained the following results: (1) student characteristics are diverse, so they still have difficulties in learning mathematics; (2) students are enthusiastic when learning using digital-based learning media or using projectors and smart TVs.

d. Analysis of School Facility Availability

The analysis of the availability of school facilities at SDN 03 Bandar Buat shows that the school has WiFi, 4 projectors, and 1 smart TV. SDN 16 Padang Besi has WiFi, 3 projectors, and

1 smart TV. The availability of these facilities enabled the researchers to conduct their research. This facilitated data collection and helped the research process run smoothly overall.

Design

The design stage focuses on developing Canva-based interactive learning media, informed by the needs analysis of Grade V elementary school mathematics instruction. During this phase, the media design is systematically prepared, encompassing storyboard development, content structure, navigation, and learning design. The storyboard functions as a guide for creating the Canva-based interactive learning media. It details the design of each slide, the sequence of material presentation, and the interactions incorporated within the media. The storyboard includes an opening slide with the title and learning identity, a learning objectives slide, an apperception slide to connect the material with students' experiences, a gradual presentation of mathematics content, example problem slides, interactive practice questions, evaluation slides, and closing slides. The storyboard is developed with careful consideration of images, animations, colors, and illustrations to engage students throughout the learning process.

The media's content is organized systematically to support students' comprehension of the material. The Canva-based learning media includes a cover, media identity, basic competencies and learning objectives, apperception activities, presentation of mathematics material, example problems, interactive exercises, evaluation, material summary, and a closing section. The structure progresses from simple to more complex concepts, enabling students to grasp mathematical concepts more effectively.

The navigation system is designed to facilitate students' interactive use of the learning media. The Canva-based learning media features a home button for returning to the main page, a next button for advancing to the subsequent slide, a back button for revisiting the previous slide, a material button for accessing the material page, a practice button for exercises, an evaluation button for assessments, and an exit button to conclude media use. The navigation employs visually appealing icons that are easily understood by elementary school students, enhancing both interactivity and user-friendliness.

The learning design within the Canva-based learning media aligns with the established stages of mathematics instruction in elementary schools. It comprises three phases: introduction, core activities, and closing. During the introduction, the media presents apperception activities, learning motivation, and learning objectives. The core activities involve a gradual presentation of material, supported by images, animations, and example problems, providing students with opportunities to comprehend mathematical concepts through engaging visual content. In the closing phase, the media offers a summary of the material and an evaluation component. Students complete evaluation questions to assess their understanding of the material. This structured approach aims to facilitate students' comprehension of mathematical concepts in an engaging and interactive manner.

Product Visualization and Documentation

To enhance product transparency, we present Ning media through visual representations developed using Canva. The media features structured slides, including a cover page, learning objectives, explanations of the material, example problems, interactive exercises, and evaluation

sections. We design each component with visual elements such as images, animations, and navigation buttons to facilitate student interaction. We choose colors and illustrations to align with the characteristics of elementary school students, enhancing engagement and motivation. The following figures show examples of the developed media, illustrating the main interface, dynamic material presentations, and interactive exercises.

Table 5. Components and Functions of Canva-Based Interactive Learning Media

No	Figure	Media Component	Description	Instructional Function
1.		Cover display of Canva-based interactive learning media.	The opening slide presents the title, subject identity, and visual design using bright colors and illustrations.	To attract students' attention and increase learning motivation at the beginning of the lesson.
2.		Example of material presentation in the learning media.	The material is presented using text, images, and step-by-step explanations of mixed fractions.	To help students understand abstract mathematical concepts through visual representation.
3.		Interactive exercise display in the learning media.	The media provides practice questions designed interactively with clear instructions.	To engage students actively and allow independent practice.
4.		Navigation buttons used in the learning media.	The media includes navigation buttons such as home, next, back, and exit with simple icons.	To support ease of use and interactive learning navigation.

Development

The development stage is a follow-up phase in the learning media design process, in which the initial design is systematically developed (Elfiza et al., 2025). At this stage, the learning media is refined based on analysis results and expert input to ensure its quality and suitability for the learning objectives. This development process aims to produce learning products suitable for learning in terms of content, appearance, and functionality, before they are further tested in the implementation stage (Eliyasni et al., 2021).

a. Product validation

In the first development stage, the necessary step is validation by experts in their respective fields. The experts include subject matter, media, and language experts who provide validation

questionnaires to develop high-quality interactive learning media. The following presents the results of the assessments by subject matter experts, media experts, and language experts.

Table 6. Product Validation

Validated Aspect	Before Revision	Category	After Revision	Category
Subject Matter	58	Not Valid	88	Highly Valid
Media Aspect	58	Not Valid	94	Highly Valid
Language Aspect	-	-	98	Highly Valid
Average	58	Not Valid	93.9	Highly Valid

Table 6 shows the validation results of Canva-assisted learning media for teaching number elements in Grade V elementary school. Before revision, the validation results from subject matter experts and media experts scored 58%, which was categorized as less valid and did not meet the validity criteria. After the product was revised based on the validators' suggestions, the validation score increased significantly. The subject matter aspect received a score of 88%, the media aspect 94%, and the language aspect 98%, all of which fall into the highly valid category.

The average score after revision was 93.9%, indicating that the Canva-assisted learning media falls within the highly valid category. These results show that the developed learning media have met the validity criteria for content, media design, and language. Therefore, the Canva-assisted learning media is appropriate for use in teaching mathematical number elements involving mixed fractions in Grade V elementary school.

b. Product testing

1) Presentation of data on the practicality test results of Canva-assisted media in mathematics learning in the fifth-grade elementary school.

Table 7. Practicality Test by Teachers

School	Percentage	Category
School 1	96 %	Very Practical
School 2	92 %	Very Practical
Average	94 %	Very Practical

Table 8. Practicality Test by Students

School	Percentage	Category
School 1	89.6 %	Very Practical
School 2	93.4 %	Very Practical
Average	91.5 %	Very Practical

2) Presentation of data on the effectiveness of Canva-assisted media in mathematics learning in the fifth-grade elementary school

Table 9. Practicality Test by Students

School	Pre Test	Description	Post Test	Description	N Gain Score	Category
School 1	34,4	Non-Mastery	86,4	Mastery	0.800761905	Highly Effective
School 2	33,2857	Non-Mastery	86,78571	Mastery	0.807440476	Highly Effective
Averange	33,84285	Non-Mastery	86,592855	Mastery	0.8041009763	Highly Effective

Implementation

The implementation stage of this research aims to apply interactive learning media developed in Canva for mathematics instruction in fifth-grade elementary school. This activity has been compiled into a teaching module for mathematics learning on mixed fractions: how to convert mixed fractions into common fractions, addition of mixed fractions, subtraction of mixed fractions, multiplication of mixed fractions, and division of mixed fractions, designed by the researcher. At this stage of implementation, it has been developed following testing in grade 5 at Bandar Buat 03 elementary school with (28 students) from January 14, 2026, to January 19, 2026. This media was also applied to the research subjects, namely Padang Besi 16 elementary school (25 students) on January 20, 2026 – January 22, 2026, and Batu Gadang 13 elementary school (25 students) on January 23, 2026. In the practicality stage, the researcher distributed practicality questionnaires to teachers and students regarding the product created by the researcher. During the effectiveness stage, the researcher administered pre- and post-tests to assess the product's effectiveness.

Evaluation

The evaluation stage is the final stage of the research. At the evaluation stage, the researcher assessed the entire learning process, from design through product implementation. The evaluation was conducted to ensure that the researcher's product was not only theoretically feasible but also demonstrated a positive impact on the learning process. This assessment is conducted by collecting data from various sources, including product validation, teacher responses, and student feedback. At this stage, the researcher analyzes the data collected during the implementation process to determine the extent to which the product meets the criteria of practicality and effectiveness in a broader context.

Data on practicality and effectiveness are collected from the implementing schools, where researchers present the conditions of product implementation. Practicality is assessed by measuring the ease of use of the product for teachers and students, as well as its integration into learning activities. Effectiveness is assessed to determine the impact of product use on improving student outcomes. The evaluation results from the implementing schools became the main indicator in determining the final success of the product developed by the researchers. The design stage of creating interactive learning media in Canva was based on the results of the mathematics learning analysis conducted in the fifth grade of an elementary school. The steps taken by the researcher in the design stage are as follows

Discussion

The findings of this study demonstrate that canva-assisted interactive learning media fulfill the criteria of validity, practicality, and effectiveness in elementary school mathematics instruction. Validation scores improved markedly from 58% (not valid) prior to revision to 93.9% (highly valid) following revision, confirming that the developed media meet standards for content feasibility, media design, and linguistic appropriateness. Practicality assessments revealed high usability, with average teacher and student response scores of 94% and 91.5%, respectively, both of which were classified as very practical. Effectiveness was evidenced by a substantial increase in student learning outcomes: average pretest scores rose from 33.84 (non-mastery) to 86.59

(mastery) on the posttest, and the n-gain score was 0.804, categorized as highly effective. These results indicate that canva-assisted interactive learning media can substantially improve students' understanding of mathematical concepts, particularly in mixed fractions.

The observed improvement in students' conceptual understanding is attributable to the capacity of digital learning media to facilitate meaningful and engaging educational experiences. Canva-based media incorporate visual elements, animations, and interactive exercises, enabling students to translate abstract mathematical concepts into more concrete forms. This approach aligns with the cognitive theory of multimedia learning, which posits that learning is enhanced when information is conveyed through multiple representations (Mayer, 2021; Makransky et al., 2021). Moreover, interactive digital environments foster increased student engagement and motivation, both of which are critical determinants of learning outcomes (Bond et al., 2020; Schindler et al., 2021). In mathematics education, digital visualization further supports students in bridging abstract and concrete concepts effectively (Bakker et al., 2021).

These results are corroborated by prior research demonstrating that digital learning media significantly enhance conceptual understanding and learning outcomes (Novela et al., 2024; Kinaya et al., 2024). Additional studies by elementary school teacher lecturers further substantiate these findings. For example, Eliyasni et al. (2021) reported that systematically designed interactive e-modules improve students' comprehension, while Habibi et al. (2021) found that technology-based learning increases student engagement and active participation. Desyandri et al. (2021) also emphasized the pivotal role of digital innovation in improving the quality of learning processes and outcomes in elementary education.

From a theoretical perspective, these findings are supported by constructivist learning theory, which states that students actively construct knowledge through interaction with their learning environment. The canva-based media developed in this study provide opportunities for exploration and interaction, thereby supporting meaningful learning. In addition, the cognitive theory of multimedia learning supports integrating text, images, and animations to enhance understanding (Mayer, 2021). The findings also align with the TPACK framework, which emphasizes integrating technology, pedagogy, and content knowledge for effective teaching (Koehler et al., 2022).

Despite these positive findings, several limitations should be acknowledged. This study was conducted in a limited number of schools, namely bandar buat 03 elementary school, padang besi 16 elementary school, and batu gadang 13 elementary school, which may limit the generalizability of the results. In addition, the study only focused on mixed fraction material, so the effectiveness of the media for other mathematical topics remains unexplored. The relatively short implementation period may also not fully capture the long-term learning impacts. Furthermore, this study has not examined the effect of digital media on higher-order thinking skills (HOTS), which are essential in 21st-century learning (Redecker, 2022).

Future research should broaden the scope by developing advanced digital learning media, including those incorporating artificial intelligence or gamification elements, to foster more adaptive and engaging learning environments. Subsequent studies should evaluate the effectiveness of these media in schools with diverse characteristics to enhance external validity.

Integrating canva-based learning media with learning management systems could also support blended learning and increase accessibility. Additionally, future investigations should address a wider range of mathematical topics and assess the impact of digital learning media on higher-order thinking skills to provide more comprehensive evidence of their effectiveness.

In addition to the empirical findings, this study also provides practical and theoretical contributions to the development of digital learning in elementary education. In practice, the canva-assisted media developed in this study can serve as an alternative instructional resource that is easy for teachers to implement without advanced technical skills, thereby supporting the integration of technology into classroom practices. Theoretically, this study reinforces the importance of combining pedagogical strategies with appropriate digital tools to enhance conceptual understanding, particularly in mathematics learning. These findings indicate that well-designed digital media are not merely supplementary tools but can function as essential components in facilitating effective and meaningful learning. Therefore, this study contributes to the growing body of literature emphasizing the role of technology integration in improving the quality of education, especially in elementary schools in the digital era.

CONCLUSIONS

Conclusions

This study concludes that Canva-assisted interactive learning media meet the criteria of validity, practicality, and effectiveness in elementary school mathematics learning. The validity increased from 58% (not valid) to 93.9% (highly valid) after revision, indicating that the media meet the standards of content, design, and language feasibility. In terms of practicality, the media are rated very practical by teachers (94%) and students (91.5%), indicating that they are easy to use and support the learning process. In terms of effectiveness, the media significantly improved student learning outcomes, as shown by the increase in average scores from 33.84 to 86.59 with an N-Gain of 0.804 in the high category. In addition, there is positive feedback from both teachers and students regarding the use of the media. Teachers perceive that the media helps deliver content more clearly and systematically, while also increasing student engagement. Meanwhile, students show increased interest, active participation, and better conceptual understanding. Therefore, Canva-assisted learning media are effective for teaching mixed fractions, although the findings are limited to validity, practicality, effectiveness, and user responses within this study.

Recommendations

The researchers discussed material up to the addition and subtraction of mixed fractions. It is hoped that future researchers will continue to study the multiplication and division of mixed fractions.

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