

Development of Worksheet Cards to Improve Fourth-Grade Elementary School Students' Ability to Understand Word Problems on Fractions

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ABSTRACT. This study aims to develop a flashcard-based teaching aid on fractions to improve fourth-grade elementary school students' understanding of word problems, while also assessing its suitability, student response, and effectiveness. The study used a Research and Development (R&D) approach based on the ADDIE model, including analysis, design, development, implementation, and evaluation. The research instruments consisted of validation forms for media and content experts, a student response questionnaire, and pretest and posttest assessments. The validation results show that the worksheet medium falls into the "highly suitable" category, based on assessments from media experts and subject matter experts. Meanwhile, the pilot test results indicate that students responded very positively to this medium, as they found it easy to use, engaging, and helpful in understanding the concept of fractions, particularly when solving word problems. The effectiveness analysis showed an average pretest score of 25.89 and an average posttest score of 68.33. The Shapiro-Wilk normality test indicated that both the pretest and posttest data were normally distributed, with significance values of 0.562 for each. In addition, the N-Gain calculation yielded 0.57, which falls into the "moderately effective" category, indicating that the worksheet medium is effective in improving students' understanding of word problems involving fractions. Thus, the worksheet cards are suitable, received positive feedback from students, and are sufficiently effective as an alternative teaching tool for mathematics in the fourth grade of elementary school.

Keywords: *Keywords: Test item media, Fractions, Comprehension of word problems, Elementary school*



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INTRODUCTION

Mathematics is one of the subjects that plays a key role in developing students' logical, critical, and systematic thinking skills. According to (Mutia & Mulyawati, 2021), mathematics plays a crucial role in fostering critical thinking skills through an understanding of concepts that are interrelated. Thus, mathematics education emphasizes not only mastery of the subject matter but also students' ability to apply these mathematical concepts in everyday life (Afifah & Karim, 2025; Habil et al., 2025; Martanti et al., 2026; Rislan et al., 2025; Weylin et al., 2023).

In the field of mathematics education, students are required to link a variety of concepts in order to solve the problems they face. According to (Fitriyani & Tri Widodo, 2025), students need to be able to relate mathematical concepts so that they can be applied in the problem-solving process. Furthermore (Ayu et al., 2025; Hermita et al., 2025; Madkan et al., 2025; Rahmaini & Ogylva Chandra, 2024), emphasize that mathematics, as a foundational discipline, plays a crucial role in fostering students' critical thinking skills.

One of the skills that needs to be developed in mathematics education is the ability to understand word problems. Mathematical word problems present issues related to everyday life in narrative form, so students are required not only to perform calculations but also to understand the context of the problem before determining the solution (Li, 2025; Mz et al., 2026; Nailia et al., 2023; Pradana et al., 2025; Suarsana et al., 2026). In line with this, (Mustaghisa & Chandra, 2024), contend that the capacity to solve word problems constitutes one of the essential goals of mathematics education, given that it enables students to comprehend problems, recognize pertinent information, and apply mathematical concepts and procedures in a suitable manner.

However, the ability to understand word problems remains one of the challenges in mathematics learning in elementary school. This is because word problems require not only computational skills but also the ability to comprehend information, identify what is known and what is being asked, and determine the appropriate mathematical operations to use (Nailia et al., 2023). Difficulties at that stage cause students to frequently make mistakes when solving problems, even though they understand the underlying concepts.

Based on the researcher's observations and experiences during the School Field Introduction Program (PLP) at a school in East Jakarta, it was found that most students in Class 4B were able to solve direct calculation problems but had difficulty with word problems, particularly those involving fractions. Based on interviews with homeroom teachers, it was found that students still have difficulty understanding the intent of the problems, identifying known and unknown information, and determining the appropriate mathematical operations to use. This indicates a gap between students' computational skills and their ability to understand word problems. Therefore, there is a need for learning materials that can help students understand the questions in a more systematic and meaningful way.

One alternative that can be used to address this issue is to utilize instructional media. Instructional media are tools used to convey messages from educators to students, thereby stimulating students' thoughts, feelings, attention, and interest in learning, and making the learning process more effective and meaningful (Sastafiana et al., 2024). The use of media that is appropriate for students' characteristics can also help present material in a more concrete way, increase motivation to learn, and make it easier for students to understand the concepts being studied. Therefore, instructional media that can help students understand word problems more systematically is needed.

Flashcards were selected as one of the alternatives due to their ability to present questions in a brief, appealing, and easy-to-use manner. According to (Halimah, Ambyah Harjanto, 2024), flashcards are a form of instructional material in the form of cards containing information, images, or questions that serve both as a means of presenting content and as a practice tool for students. The use of problem-card media can also encourage students' active engagement and develop their mathematical thinking and problem-solving skills (Diah Sitilawati, Tati Heryati, 2024). In this study, problem-card media were developed with the aim of helping students understand word problems on fractions by presenting contextual problems and systematically organized solution steps. Thus, students are expected to be able to identify the information they know, determine what information is being asked for, and solve problems in a more focused manner.

Prior research has indicated that the use of flashcards along with specific instructional models can enhance students' understanding of mathematical word problems, especially in teaching fraction material to fourth-grade elementary school students. According (Jamlludin et al., 2022), explain that the use of flashcards in Problem-Based Learning can enhance student engagement and learning outcomes. Meanwhile, (Islafiyah & Bahrodin, 2024), found that the Index Card Match method can improve students' ability to solve word problems in mathematics. In addition, research conducted by (Halimah, Ambyah Harjanto, 2024), demonstrates that question-card learning materials can be created by integrating several supporting elements, including questions, images, game instructions, and answer keys, into one medium; the validation results reveal that these materials obtained a "very good" rating, indicating their suitability for use as instructional materials.

Based on these issues, this study developed a set of question cards on fractions that are designed to be contextual, structured, and tailored to the characteristics of fourth-grade elementary school students. This study aims to produce a set of question cards that are valid, practical, and effective in enhancing students' ability to comprehend mathematical word problems. Thus, this study is expected to address the limitations of previous research by developing teaching materials specifically designed to help students understand problem information, determine solution steps, and systematically solve word problems. This article discusses the development of problem-card teaching materials on fractions, the validation process, the results of the product pilot test, and the effectiveness of the materials in improving fourth-grade elementary school students' ability to understand word problems.

METHOD

This study employs a research and development (R&D) methodology using the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation (Waruwu, 2024). The ADDIE model was chosen because its development steps are systematic, simple, and well-suited for use in the development of instructional media. In addition, this model allows for revisions at every stage of development, so that the resulting product can be continuously refined.

The research subjects consisted of 26 fourth-grade Class 4B students who used the teaching material. The suitability of the teaching material was evaluated by four validators, consisting of three media experts and one content expert. This study focused on the development of a question-card teaching material on fractions to determine its suitability, student responses, and the material's effectiveness in improving students' understanding of word problems.

Data were gathered through observation, interviews, expert validation sheets, student response questionnaires, as well as pretest and posttest assessments. The data obtained from expert validation and student response questionnaires were analyzed using the feasibility percentage, whereas the effectiveness of the instructional media was examined through N-Gain calculations derived from the pretest and posttest scores. The following stages outline the data analysis techniques employed in this study.

Table 1 Criteria Scores

No.	Description	Score
1.	SS = Highly Appropriate	5
2.	S = Appropriate	4
3.	C = Fair	3
4.	TS = Inappropriate	2
5.	STS = Hight Inappropriate	1

(Adapted by (Setiani, 2024)) The formula for validity is as follows

The formula for validity is as follows.

$$\text{Presentase validitas (V)} = \frac{\text{Skor yang diperoleh}}{\text{Skor maksimal}} \times 100\%$$

After the percentages were obtained, the researchers then grouped the results into the following categories of validity levels.

Table 2 Interpretation Score

No.	Presentase	Interpretase
1.	0-20 %	Unacceptable
2.	21-40 %	Less than acceptable
3.	41-60 %	Fairly acceptable
4.	61-80 %	Acceptable
5.	81-100 %	Highly acceptable

Prior to analyzing improvements in students' comprehension of word problems through the N-Gain test, a normality test was first carried out on the research data. The data were processed using SPSS version 27, and the Shapiro-Wilk method was applied for the normality test, considering that the sample size consisted of fewer than 30 participants. The decision-making criteria are based on the significance value (sig); specifically, if $\text{sig} > 0.05$, the data are considered to be normally distributed, whereas if $\text{sig} < 0.05$, the data are considered not to be normally distributed (Yusiana & Prasetya, 2022).

Instructional media are deemed to meet the criteria for practicality or suitability if they achieve a score of 61% or higher. The effectiveness of the media is measured through pretests and posttests to determine the improvement in students' ability to understand story problems. The pretest and posttest results are then analyzed using the following formula.

$$\text{Normal Gain} = \frac{\text{Skor Postest} - \text{Skor Pretest}}{\text{Skor Ideal} - \text{Skor Pretest}}$$

The Normal Gain calculation is used to determine the improvement in students' ability to understand word problems after using the instructional media. The N-Gain values obtained are then used to determine the effectiveness of the math word problem card media based on the N-Gain (g) classifications in the following table.

Table 3 N-gain Level Classification

Average criteria	Criteria
$g > 0,7$	High
$0,3 \leq g \leq 0,7$	Currently
$0 < g < 0,3$	Low
$g \leq 0$	Failed

(Adapted from (Nursolehah & Rahmiati, 2022))

Referring to the N-Gain score classification presented in Table 3, an N-Gain value exceeding 0.7 falls into the "improvement" category, indicating that children were able to enhance their performance in solving word problems through the use of the developed medium.

In this study, students' responses were gathered through a questionnaire aimed at measuring the effectiveness of the question card medium, which was evaluated by comparing pretest and posttest results. The response questionnaire itself was constructed using the Guttman scale, intended to obtain more definite answers, with response options such as "agree–disagree." (Purba et al., 2022).

Table 4: Response Scores for the Student Questionnaire

Skala	Score
1	Yes
0	No

The students' responses are calculated using the following formula.

$$NP = \frac{n}{N} \times 100\%$$

Notes

NP	Percentage of student responses
n	Total score obtained from the questionnaire
N	Maximum possible score

The next step is to interpret the results based on criteria expressed as percentages. The following table outlines the criteria used to interpret students' responses.

Table 5: Interpretation of Student Response Scores

Presentase	Interpretase
0 – 20%	Unacceptable
21 – 40%	Less than acceptable
41 – 60%	Fairly acceptable
61 – 80%	Acceptable
81 – 100%	Highly acceptable

(Adapted by (Setiani, 2024))

For students' responses to meet the "good" criteria, they must achieve a minimum percentage of 61%. If the percentage of students' responses reaches or exceeds this figure, then the instructional material used can be categorized as "good" and is considered to have received a positive response from the students.

RESULT AND DISCUSSION

Result

This research adopts the ADDIE model as the development framework, which consists of five stages, namely Analyze, Design, Development, Implementation, and Evaluation (Waruwu, 2024). The ADDIE model was selected due to its systematic stages in designing, developing, and evaluating the resulting learning products; as a result, the possibility of making revisions at each stage enables the development of learning materials that align with learners' needs.

Analyze (analisis)

Based on the results of observations and needs analysis, it was found that the use of instructional media in mathematics instruction is not yet optimal. Students still have difficulty understanding word problems involving fractions, particularly in identifying given information, determining what information is being asked for, and selecting the steps to solve the problem. These conditions served as the basis for the development of question cards as an alternative learning tool that is expected to help students understand word problems more systematically.

Design (perencanaan)

During the design phase, the researcher developed a preliminary design for the story-based question card learning material to be created. The design process began with identifying the learning objectives, the indicators of comprehension for the story-based questions, and the fraction content to be presented in the material. Next, the researcher developed a question outline, determined the format of the story-based questions, and prepared illustrations appropriate for elementary school students.

The next set of story problems was designed using the Canva app, with careful attention paid to visual elements such as color selection, font type, text size, layout, and the use of engaging images to ensure the materials are easy to read and help improve students' understanding of the story problems. In addition, the worksheets are designed to be double-sided: the front side features a story problem accompanied by supporting illustrations, while the back side provides a systematic solution to the problem as a form of feedback for students.

Development (pengembangan)

The teaching materials were then developed using the Canva app. The final product consisted of six question cards printed on HVS paper and laminated for durability. Once the materials were finalized, they were validated by media experts and subject matter experts to assess their suitability before implementation.

Table 6: Test Card Media Products

Question Card 1 Front View  Rier View 	Question Card 2 Front View  Rier View 	Question Card 3 Front View  Rier View 
Question Card 4 Front View  Rier View 	Question Card 5 	Front rier View  Rier View 

Table 6 shows the final product a set of question cards developed using Canva. The set consists of six question cards, each with two sides: the front side, which features a word problem and supporting illustrations, and the back side, which contains the steps to solve the problem as feedback for students.

Validation Results

The validation results for the Canva-based worksheet card learning materials on fraction topics for fourth-grade elementary school students were derived from assessments carried out by four validators. The validation aimed to determine the suitability, appropriateness, and quality of the learning materials that had been developed before they were pilot-tested with students. The results of the validators' assessments serve as the basis for determining whether the Canva-assisted worksheet materials are suitable for use in the learning process.

Media Expert Validation

This validation by media experts involved three experts, namely lecturers teaching courses on instructional media in the Elementary School Teacher Education (PGSD) program at the Faculty of Teacher Training and Education (FKIP). The media experts' validation of this learning material used an assessment instrument with a 5-point scale, defined as follows: "Strongly Agree = 5," "Agree = 4," "Neutral = 3," "Disagree = 2," and "Strongly Disagree = 1." The following are the ratings given by the media experts.

Table 7 Media Feasibility Assessment by Media Experts

Aspect	Evaluation Score	Maximum Score	Everage Percentage	Category
Media Suitability	62	75	82,66%	Very acceptable
Media Presentation	63	75	80,76%	Very acceptable
Media Appearance	60	75	80%	Acceptable
Total	185	225	82,22%	Very acceptable

Based on the average validation results, the instructional material received a score of 82.22%, placing it in the "highly suitable" category. Nevertheless, there is still room for further improvement of the material that was developed.

Subject Matter Expert Validation

The purpose of subject-matter expert validation is to assess the appropriateness and suitability of the fraction-related content presented in the learning materials. This validation process involves one subject matter expert, who is a mathematics lecturer at the Faculty of Teacher Training and Education (FKIP). The subject matter expert's assessment uses a validation instrument based on a five-point Likert scale: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). The subject matter experts' evaluation of the media developed is as follows.

Table 8. Media Feasibility Assessment by Media Experts

Aspect	Evaluation Score	Maximum Score	Everage Percentage	Category
Content Adaptation	25	25	100.00%	Very acceptable
Language	23	25	80,76%	Very acceptable
Content Coverage	23	75	80%	Acceptable
Total	71	225	94.66%	Very acceptable

Based on the average overall validation percentage from subject matter experts, the Canva-assisted test card resource received a score of 94.66%, falling into the “highly suitable” category. This indicates that the developed resource meets the criteria for content appropriateness, language quality, and content coverage, making it suitable for use in the learning process. Nevertheless, these materials can still be reviewed and further refined based on feedback from the validators in order to improve their overall quality.

This study's results are consistent with the work of (Halimah, Ambyah Harjanto, 2024), who developed a question-card medium grounded in Quantum Learning. Their findings revealed that the medium, having gone through expert validation, was considered appropriate for use as a learning tool, as it fulfilled the suitability requirements in both content and medium aspects. Thus, the validation results obtained in this study further reinforce the fact that the expert validation process is a crucial stage in development research, to ensure that the resulting learning materials are of high quality and suitable for use in learning activities.

The Effectiveness of worksheet Media

A normality test was conducted to determine whether the pretest and posttest data were normally distributed. The results of the normality test using the Shapiro-Wilk test showed a significance value of 0.169 for the pretest data and 0.562 for the posttest data. Both values are greater than 0.05 (Sig. > 0.05), so it can be concluded that both the pretest and posttest data are normally distributed.

The effectiveness of the flashcard medium was evaluated by comparing students' pretest and posttest results, complemented by N-Gain calculations. The pretest was conducted prior to the implementation of the flashcard medium to assess students' initial abilities, whereas the posttest was carried out after the learning process using the flashcard medium to determine the improvement in learning outcomes achieved. The results of the effectiveness analysis are presented in the table below

Table 10 Results of the Pretest, Posttest, and N-Gain Analysis

Indicator	Result
Average Pretest Score	25,89
Average Posttest Score	68,33
Average N-Gain	0,57
N-Gain Percentage	57,76%
Categori	Moderately Effective

Based on Table 10, the use of worksheet cards has been shown to improve students' learning outcomes. The N-Gain scores obtained fall into the “moderately effective” category, indicating that the developed instructional material can enhance students' understanding of fractions. Therefore, these worksheet cards are suitable for use as a supplementary tool in mathematics instruction at the elementary school level.

c. Student Responses

Student responses to the Canva-based worksheet media on fractions were obtained through a questionnaire distributed to 26 students after the lesson. The questionnaire was designed using the Guttman scale with two response options: “Yes/Agree,” scored as 1, and “Disagree,” scored as 0. The questionnaire results were used to determine students' responses to the media that had been developed. Based on the results of the questionnaire, a score of 247 out of a maximum of 260 was obtained. The percentage of student responses was calculated using the formula below.

$$NP = \frac{247}{260} \times 100\% = 95.00\%$$

The findings reveal that the student response percentage reached 95.00%, categorized as "very good." This suggests that students responded very positively to the Canva-assisted worksheet medium. The medium was found to be engaging, easy to use, and helpful in assisting students in understanding the material on fractions during the learning process. These findings are consistent with a study (Rohmah et al., 2019), which developed the PANCAKAR (Fraction Board and Question Cards) learning medium. The results of that study showed that the question cards received positive feedback from students because they were able to increase their interest and curiosity and facilitate their understanding of fraction concepts. The consistency of these results indicates that the use of worksheet cards as a teaching tool can create a more active, engaging, and meaningful learning process, resulting in students responding very positively to the teaching tool used.

Implementation (implementasi)

The worksheet media that had been deemed suitable were then tested on students to determine their practicality and effectiveness. Practicality was measured through a student response questionnaire, while the effectiveness of the media was analyzed based on pretest and posttest results. The results of the implementation showed that the media received a very positive response and was able to improve student learning outcomes.

Evaluation (Evaluasi)

The evaluation phase was conducted to assess the quality and suitability of the developed product. This evaluation was based on the validation results from media and content experts, as well as the results of pilot tests conducted with students. Based on these evaluation results, the product was deemed suitable for use as a learning medium because it met the suitability criteria in terms of content, media, and its application in the learning process.

Discussion

This study aims to develop a Canva-based question-card learning resource to improve fourth-grade elementary school students' ability to understand word problems involving fractions. The development of this learning resource was motivated by the difficulties commonly experienced by elementary school students when solving mathematical word problems. Unlike direct mathematical computation, word problems require students to understand written information, identify relevant data, determine what is being asked, and select an appropriate mathematical operation before carrying out the calculation. Therefore, students need not only computational skills but also reading comprehension, reasoning, and problem-solving abilities. The question-card media developed in this study is intended to support these abilities by presenting fraction word problems in a structured, contextual, and visually engaging format.

The results of the study indicate that the developed resource was rated as "highly suitable" based on evaluations conducted by media experts and subject matter experts. This finding indicates that the developed media has fulfilled important criteria related to content, presentation, language, and visual design. From the content aspect, the questions presented in the media are aligned with the learning objectives and fraction material. The questions are also arranged according to the expected level of understanding of fourth-grade students. From the presentation aspect, the material and questions are organized systematically, allowing students to follow the learning activities in a clear sequence. The language used is adapted to the characteristics of elementary school students so that the instructions and questions can be understood without creating unnecessary linguistic difficulties.

The visual aspect also contributes to the suitability of the developed media. The use of illustrations relevant to the content of the word problems provides visual support for students when interpreting the information presented. In addition, the selection of colors, typography, layout, and images is intended to create an attractive learning resource. A visually engaging presentation can encourage students to pay greater attention to the learning material and reduce the impression that mathematics is difficult or monotonous. Thus, the question-card media does not merely function as a

collection of mathematical questions but also serves as a learning resource that integrates textual and visual information to support students' understanding.

The systematic structure of the question-card media is another important feature of the developed resource. The questions are presented in a contextual form, while the solution steps are organized systematically to guide students through the problem-solving process. Through this structure, students are encouraged to identify the information provided in the problem, determine the information being asked, select the appropriate mathematical operation, and arrive at the correct solution. Such a sequence is important because difficulties in solving word problems often occur before the calculation itself. Students may know how to perform addition, subtraction, multiplication, or division with fractions, but they may not know which operation should be used when the information is presented in the form of a narrative problem.

The results of the effectiveness test further show that the use of question-card media supported by Canva can improve students' learning outcomes. Based on the analysis of the pretest and posttest results, an N-Gain score of 0.57 was obtained, which falls into the moderate category. This result indicates that the media provides a meaningful contribution to improving students' understanding of fraction word problems. The improvement can be associated with the way the media presents contextual problems and systematically organized solution steps. Students are not only asked to obtain the final answer but are also supported in understanding the process required to reach the answer.

The use of contextual problems is particularly relevant to elementary mathematics learning. Problems connected to familiar situations can help students relate abstract mathematical concepts to experiences that are easier for them to understand. In the context of fractions, for example, situations involving food, objects, quantities, or daily activities can provide a concrete representation of fractional relationships. By connecting mathematical concepts to familiar situations, students can more easily recognize the meaning of the numbers and operations presented in the problem. This is consistent with the view of (Mahliza & Rahayu, 2023), who found that presenting word problems in contexts related to students' everyday lives can support their understanding of fraction concepts and improve their ability to solve word problems.

The findings are also consistent with (Fazrul Prasetya Nur Fahrozy, 2023), explains that understanding mathematical word problems involves several important processes, including reading the problem carefully, identifying known and unknown information, and determining the appropriate steps for solving the problem. These processes demonstrate that solving word problems requires more than computational ability. Students must first interpret the information presented in the problem and establish a connection between the information and the mathematical concept involved. The question-card media developed in this study provides support for these processes by presenting problems in a structured manner and providing systematic solution guidance.

Furthermore, the findings are supported by (Rahmaini & Ogylva Chandra, 2024), concluded that students' ability to understand word problems can improve when they are guided through systematic stages of understanding the problem, identifying available information, and developing appropriate problem-solving strategies. This finding strengthens the rationale for developing question-card media that does not focus solely on the final answer. Instead, the media emphasizes the process of understanding and solving the problem. Such an approach can help students develop more organized problem-solving habits and gradually become more independent when facing similar mathematical problems.

The development of the media is also consistent with Piaget's theory of cognitive development. According to Piaget, elementary school-aged children generally enter the concrete operational stage, during which they find it easier to understand concepts through concrete objects, visual representations, and situations related to their experiences. In mathematics learning, this characteristic is particularly important because many mathematical concepts can initially appear abstract to students. The use of visual media can provide additional representations that help students connect mathematical symbols with meaningful situations. (Rohmah et al., 2019), explain that

students at the concrete operational stage tend to understand concepts more effectively when they are presented through concrete and visual experiences.

In this context, the question-card media provides an appropriate learning experience because it combines written word problems, illustrations, and structured solution steps. The physical form of the cards also provides a concrete learning resource that students can interact with directly. This characteristic distinguishes the media from learning activities that rely entirely on textbooks or verbal explanations. Students can read the problem, observe the accompanying illustration, discuss the information, and follow the solution process. Therefore, the media can provide opportunities for students to engage more actively in the learning process.

The use of Canva in developing the media also supports the creation of an attractive and organized learning resource. Canva allows the developer to arrange text, illustrations, colors, and other visual elements in a manner appropriate to the learning objectives. However, the use of visual elements is not merely intended to make the media aesthetically attractive. Each visual element should support the meaning of the material and help students focus on the important information contained in the problem. Therefore, the design of the media emphasizes a balance between visual attractiveness and instructional function (Ahadiyah et al., 2024; Dewi et al., 2025).

Overall, the findings demonstrate that the Canva-based question-card media has potential as an alternative learning resource for teaching fraction word problems in fourth-grade elementary school. The media was considered highly suitable based on expert evaluations and demonstrated a moderate level of effectiveness in improving students' understanding. The positive results suggest that the integration of contextual problems, relevant illustrations, and systematic solution steps can provide meaningful support for students when learning to solve fraction word problems. Nevertheless, the improvement indicated by the N-Gain result is categorized as moderate, meaning that the media should be viewed as a supportive learning resource rather than the only factor responsible for students' improvement. Its effectiveness can also be influenced by teacher guidance, students' prior knowledge, learning conditions, and the duration of media use.

Thus, the developed question-card media can complement classroom instruction by providing students with structured opportunities to practice understanding and solving fraction word problems. The media can also support teachers in presenting mathematical problems in a more contextual and engaging manner. By combining concrete visual representation with systematic problem-solving guidance, the media is expected to help students develop not only their ability to calculate but also their ability to understand mathematical information, identify relevant data, determine appropriate strategies, and solve problems systematically. The use of learning media can facilitate the delivery of learning materials and help students understand information more effectively through clear and appropriate visual presentations (Arsyad, 2009). In this way, the development of the question-card media contributes to efforts to create mathematics learning that is more meaningful, contextual, and appropriate to the developmental characteristics of fourth-grade elementary school students.

CONCLUSION

This study developed Canva-based question-card media for teaching fraction word problems to fourth-grade elementary school students using the ADDIE development model. The findings indicate that the developed media met the feasibility criteria based on expert validation, received very positive responses from students, and demonstrated moderate effectiveness in improving students' understanding of fraction word problems. The main contribution of this study is the development of a contextual and visually supported question-card medium that guides students to identify relevant information, determine what is being asked, and follow systematic problem-solving steps. Thus, the media can serve as an alternative learning resource to support more engaging and meaningful mathematics learning, particularly in teaching fraction word problems.

However, this study has several limitations. The implementation involved a limited number of participants and focused only on fourth-grade elementary school students and fraction word

problems. Therefore, the findings may not be directly generalized to students at other grade levels or to other mathematical topics. Future research is recommended to involve a larger and more diverse number of participants, apply the media to different mathematical topics, and examine its effectiveness over a longer period. Further studies may also explore the integration of the media with different learning models to obtain more comprehensive evidence of its effectiveness.

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