



Pop-Up Book Media Development to Improve Reading Skills of Grade IV Elementary School Students

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Abstract

This study aims to determine whether pop-up book media is feasible to be used in problem-based learning; whether pop-up book media can be trusted for problem-based learning and whether pop-up book media in problem-based learning can improve reading comprehension skills of fourth grade students. The research used is research and development (R&D) by adapting the ADDIE research and development steps (Analysis, Design, Development, Implementation, Evaluating). The study was conducted at Salatiga State Elementary School with research subjects of 62 fourth grade students consisting of 35 males and 27 females. Data collection techniques with tests and non-tests. The research instruments are in the form of test items and questions. The results of this study prove 1) pop-up book media is feasible to be used in problem-based learning as indicated by validation in the trial of 0.4227; and in the field test of 0.4438; 2) pop-up book media can be trusted in problem-based learning as indicated by $\alpha = 0.838 > 0.600$, so the research instrument is very reliable. 3) pop-up book media in problem-based learning can improve the reading comprehension ability of grade IV elementary school students as indicated by the reading comprehension ability of grade IV students with a minimum score of 75, then the ability of students in the pre-cycle is 30%, cycle 1 is 65% and cycle 2 is 85% of all grade IV students.

Introduction

National education system law number 20 in article 1 of 2003 states that "education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual religious strength, self-control, personality, intelligence, and noble morals, as well as the skills needed by themselves, society, nation and state". Formal education in Indonesia begins with elementary school, which is the first level in our series of education programs (Firman & Tola, 2008; Daulay & Tobroni, 2017; Zein, 2017). Therefore, the role of educators at the elementary school level is very important in providing knowledge, both through internal and external learning experiences. One way to support the student learning process is to provide innovative and interactive learning media (Rahim et al., 2022; Neo & Neo, 2004; Palkova & Vakhtina, 2015; Khusna et al., 2022; Teoh & Neo, 2006; Gan et al., 2015). This can not only stimulate interest in learning, but also improve students' reading comprehension skills.

A preliminary study conducted at Salatiga 03 Elementary School provides an overview that Salatiga 03 Elementary School is one of the Elementary Schools facing the challenge of low reading comprehension skills of students in grade IV. Based on a preliminary study conducted in November 2024, it showed that many students still have difficulty in reading comprehension, most students cannot explain the contents of the reading well even when they are able to read the text fluently. Salatiga 03 Elementary School still uses conventional learning methods,

learning media that are less innovative and interactive. Teachers only use learning media in the form of pictures, PPT, and YouTube videos. The media that students are interested in is concrete media, so teachers need to develop media for students so that their motor skills are active (Kamaruddin et al., 2023; Rosalianisa et al., 2023; Chotimah et al., 2021).

Observations of student interactions during learning also show that students' motivation to read is low. It can be seen that students are less enthusiastic and prefer not to participate in discussions. Learning designed by teachers has not involved students in the process of finding and solving problems (Shanta & Wells, 2022; Adipat et al., 2021). This is caused by teaching methods that tend to be monotonous, do not provide visual or interactive stimulation. Thus, an innovation is needed in learning methods to increase reading interest that can improve students' reading comprehension skills.

Nisrina & Prasetyaningtyas (2025) stated that pop-up books are media designed with high creativity to increase interest in reading and learning, so that they have a positive effect on learning outcomes. Meanwhile, Andreansyah & Sari (2024) stated that pop-up books are three-dimensional media that have two or three-dimensional elements that can move. The material presented in this book comes in the form of interesting images, where there are parts that can move and change when opened, so that they can visualize the story better. A number of previous studies have also examined the use of pop-up books.

The use of pop-up book media is expected to have a positive influence on students' reading comprehension skills. As research conducted by Anindita (2024) who has succeeded in developing pop-up book learning media for thematic learning, stated in her research that the use of this media can improve learning skills. In addition, Vahdila (2023), in her research entitled "The Effect of Using Pop-up Books on the Learning Outcomes of Class X Ipa Students of SMA Negeri 1 Pekalongan on Annelida Material" can be concluded that the use of pop-up book media has an effect on student learning outcomes on annelid material. Further research conducted by Putri et al. (2019), with the research title "Development of Pop-Up Book Media to Improve Listening Skills on the Theme of Loving Plants and Animals Around Us" states that pop-up book media is very effective for improving listening skills.

The problems formulated in this study are whether pop-up book media is suitable for use in problem-based learning; whether pop-up book media can be trusted for problem-based learning and whether pop-up book media in problem-based learning can improve the reading comprehension skills of grade IV students.

Methods

The method used in this study is Research and Development (R&D), which refers to the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation according to Dick (1996). This study aims to produce a product in the form of learning media, namely a pop-up book designed to improve students' reading comprehension skills.

The stages of research and development are: Analysis, this stage will conduct a thorough analysis of student needs, the subject matter to be taught, and the learning media used by the teacher. The purpose of this step is to identify the most appropriate and relevant pop-up book design to support the learning process. Design, at this stage we will design the initial design of the pop-up book as well as the elements that will be used in the pop-up book media.

Development, at this stage, revisions will be made to the pop-up book media based on suggestions and input from experts, then the pop-up book media will be designed. Implementation, at this stage pop-up book media will be implemented to see the improvement in students' reading comprehension skills. Evaluation, in this stage the evaluation is carried out

by collecting data that aims to measure the effect of media use on improving students' reading comprehension skills. Analysis of the data obtained will provide a clear picture of the effectiveness of this media in supporting the learning process. The formula used to calculate the score from the results of the material expert test, media expert test, and language expert test is:



Figure 1. ADDIE Development Model

Information:

- AP = Percentage Number
- Actual Score = Score given by validator
- Ideal Score = Maximum score is the result of multiplying the number of items by the maximum score for each item.

Validity tests are used to measure the validity or otherwise of a questionnaire or instrument Sanaky (2021, p. 433). According to Wardani (2012, p. 12) the validity coefficient only has meaning if its value is positive. Although the closer it is to 1.00, the more valid the test is, in reality, the validity coefficient will never reach 1.00.

Table 2. Validity Index Range

Interval	Category
0.81 – 1.00	Very high
0.61 – 0.80	Tall
0.41 – 0.60	Enough
0.21 – 0.40	Low
0.00 – 0.20	Very Low

Reliability testing refers to efforts to determine the extent to which an instrument can be relied on as a tool to collect accurate data (Sanaky, 2021).

Table 3. Reliability Index Range

Interval	Category
0.80 – 1.00	Very Reliable
< 0.80 – 0.60	Reliable

< 0.60 – 0.40	Quite Reliable
< 0.40 – 0.20	Somewhat Reliable
0.20	Less Reliable

Results and Discussion

The development of pop-up book learning media was carried out by applying the ADDIE development model, namely analysis, design, development, implementation, and evaluation.

Analysis (Analysis), at this stage a preliminary study was conducted that would analyze the class conditions during the learning process, understand the needs of students, and evaluate the learning media used. During the learning process, the teacher did not utilize interactive media, which resulted in the classroom atmosphere feeling monotonous. In addition, the teacher had never used three-dimensional pop-up book learning media. With learning methods that are still conventional, students tend to learn passively.

Design (Planning), at this stage, the design of the pop-up book media to be developed is carried out. The pop-up book will be used by grade IV students. The pop-up book learning media will present fable fairy tales. The media design is made using the Canva and Photoshop applications. The stages in designing this pop-up book learning media are, 1) designing the front and back backgrounds; 2) designing the foreword; 3) designing the learning objectives; and 4) designing the content of the story. The pop-up book learning media developed is adjusted to its function to help the learning process, each component of the activity is adjusted to the stages of problem-based learning. The following is a display of the design image for the problem-based pop-up book media:



Figure 2. Pop-up Book Media Design

Development (Development), pop-up book learning media is used in learning for students in grade IV. The learning carried out is problem-based learning with pop-up book media. The results of the implementation of the use of pop-up book learning media in the classroom were then analyzed for validity and reliability tests. The results of the validity test with a total of 22 students with $r_{count} > 0.4227$ means the test is valid. The results of the second validity test with a total of 20 students with $r_{count} > 0.4438$ means the test is valid. The results of the reliability of the research instrument are shown by $\alpha = 0.838 > 0.60$ which means that the questions are said to be very reliable. The development stage carried out media validation tests, material validation tests, language validation tests, and question item validation tests. The results of the validation test can be seen in the following table:

Table 4. Expert Validation Test Results

No	Data source	Score	Criteria
1	Material Validation	84%	Very Valid
2	Media Validation	77%	Valid
3	Language Validation	83.5	Very Valid
4	Validation of Question Items	93%	Very Valid

Implementation (Implementation), at this stage the pop-up book media will be implemented to students. The learning that will be carried out is problem-based learning using pop-up book learning media. Problem-based learning with pop-up book learning media implemented in class IV achieved an increase in reading comprehension skills of 65% of 20 students. Problem-based learning with pop-up book learning media implemented in class IV achieved an increase in reading comprehension skills of 85% of 20 students. Implementation of the use of pop-up book media with problem-based learning, it can be seen that students' reading comprehension skills have increased. In detail, the results of problem-based learning using pop-up book media can be seen in the following distribution table:

Table 5. Distribution of Reading Comprehension Ability in PBM By using Pop-up Book Media

Reading Comprehension Skills	Score	Pre Cycle		Cycle 1		Cycle 2	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Tall	70	0	0%	13	65%	17	85%
Currently	41-70	6	30%	7	35%	3	15%
Low	40	14	70%	0	0%	0	0%
Amount		20	100%	20	100%	20	100%

From the distribution table of students' reading comprehension ability, it shows that the use of pop-up books in PBM has been proven to improve students' reading comprehension. The high-level reading comprehension ability of students in cycle 1 was 65%, and cycle 2 was 85%. These results indicate that the pop-up book developed is very suitable and applied in problem-based learning. This media is not only interesting, but also able to increase reading motivation and student involvement in the learning process.

Based on expert assessments, both in terms of content, design, and language, this media has proven to be of high quality. Experts gave positive feedback on pop-up books. The attractive visual design and use of language that is appropriate to the level of understanding of students support the effectiveness of this media in the learning process. From the distribution table of reading comprehension skills, a significant increase in students' reading comprehension skills can be seen, previously only 30% of students achieved the learning target, but after using pop-up book media, this figure increased in cycle I by 65%, and in cycle 2 increased by 85%. Thus,

the development of pop-up book media can be an alternative in improving students' reading comprehension skills and the quality of learning at various levels of education.

The results of this study are supported by research conducted by Astra (2018) with the research title "Development of Contextual-Based Pop-up Book Media in Social Studies Learning for Grade III Elementary Schools" showing an increase in the results of media validation obtained results of 4.70 with a good validity level and the results of validation by material experts averaged 4.25 with a very good category. Research conducted by Nurlela et al. (2022) "Development of Pop-up Book Media to Improve Cognitive Abilities of Grade V in Science Learning on the Theme of Our Friend's Environment" the validator's assessment received a category of "very feasible" for use in learning, and the percentage of student completion was 95%, so it can be concluded that pop-up book media is very feasible. Another study conducted by Nurhikmah (2020) with the research title "Development of Pop-up Book-Based Serial Image Media in Indonesian Language Lessons on Narrative Writing Skills" this product has been tested in class IV using a questionnaire, the validation results of the pop-up book learning media by media experts showed a percentage of 78% which was included in the feasible criteria, meanwhile, the assessment from material experts obtained an average percentage of 75% also with feasible criteria, based on this data, it can be concluded that learning media in the form of serial images based on pop-up books is feasible to use in the learning process.

Conclusion

Based on the results of the study, it can be concluded that 1) pop-up book media is feasible to be used in problem-based learning as indicated by validation in the trial of 0.4227; and in the field test of 0.4438; 2) pop-up book media can be trusted in problem-based learning as indicated by $\alpha = 0.838 > 0.60$, so the research instrument is very reliable. 3) pop-up book media in problem-based learning can improve the reading comprehension ability of grade IV elementary school students as indicated by the reading comprehension ability of grade IV students with a minimum score of 75, then the ability of students in the pre-cycle is 30%, cycle 1 is 65% and cycle 2 is 85% of all grade IV students.

Based on the results of research and development of learning media in the form of pop-up books, it is suggested that this media can be used by schools as a learning tool, both at school and at home. It is also expected that teachers can integrate this media into the learning process in the classroom, so that students can learn well to achieve the expected learning objectives

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