

Digital Comic Media Design Using Canva to Improve Elementary School Students' Reading Comprehension Skills

Monita Utami

Elementary Education Study Program, Adzкия University,
Padang

Alfroki Martha

Elementary Education Study Program, Adzкия University,
Padang

Ismira Ismira

Elementary Education Study Program, Adzкия University,
Padang

Background: The low literacy level among Indonesian students remains a pressing issue, as reflected in the country's 2022 PISA reading score of 359, down from 371 in 2018. This decline indicates a lack of reading interest, negatively impacting students' academic performance. **Specific Context:** Observations and interviews at SD IT Mutiara Padang revealed that students exhibit low enthusiasm for reading, and instruction relies solely on conventional textbooks without engaging media. **Knowledge Gap:** An initial assessment showed that out of 25 students, only 5 achieved minimum reading comprehension competency, underscoring the urgent need for improved instructional tools. **Objective:** This study aims to develop and evaluate a digital comic medium to enhance the reading comprehension of grade IV elementary students. **Results:** The digital comic achieved a **validity score** of 95.4% (very valid), **teacher practicality** score of 90.83%, and **student practicality** score of 92.2% (both very practical). Its **effectiveness** yielded an N-Gain Score of 0.8052 (high) and an N-Gain percentage of 80.52% (effective). **Novelty:** The study introduces a technology-integrated learning medium accessible via digital and print formats. **Implications:** Digital comics can significantly improve reading comprehension skills and support teachers in delivering engaging classroom instruction.

Highlights:

- Enhances reading comprehension using engaging digital media.
- Proven valid, practical, and effective in classroom application.
- Bridges the gap in student literacy with technology-based tools.

Keywords: Digital Comics, Reading Comprehension, Elementary Education, Canva Media, Learning Innovation

Introduction

Literacy is one of the important skills that students must master in the 21st century. Basic literacy is a primary skill that is greatly needed by students in their daily lives, because it can be a foundation for improving other competencies [1]. Based on research conducted by the Program for International Student Assessment (PISA) in 2022, the reading literacy score in Indonesia is currently 359 points, a decrease from 2018 when the score was 371 points. This score is the lowest

since Indonesia participated in PISA, indicating that the government's character education program for reading has not been running optimally. This condition is in contrast to the achievements of a number of other countries which have shown significant improvements in reading literacy achievements. For example, Vietnam managed to increase its literacy score from 487 to 500 points, thanks to an education policy that emphasizes meaningful text-based learning and the provision of contextual reading books in elementary schools. Likewise, Estonia, whose literacy score continues to increase and reaches 528 points, is one of the countries with the best education systems in Europe. Estonia instills critical reading skills from an early age and utilizes technology in literacy-based learning [2]. Reading is a cognitive process that involves understanding written symbols through activating reader schemata, utilizing contextual clues, and mastering various reading skills. Reading is an important aspect of basic competencies that support gaining knowledge and contribute to encouraging individual and social change [3].

Reading ability is very important in determining students' success in understanding the subject matter. Students' understanding of the contents of the reading is greatly influenced by students' reading skills. [4]. Therefore, the ability to read comprehension must be possessed by students since they are in elementary school. This skill is a continuation of the ability to read early. After students are able to recognize letters and read, they then need to develop the ability to understand the contents of the reading [5].

Reading comprehension skills are an important part of Indonesian language skills that must be improved in schools. Students' learning success is highly dependent on their reading comprehension skills., if students have good reading comprehension skills then it will be easier to follow the lessons [6]. Reading comprehension is critical for long-term academic success and is dependent on language abilities that emerged early in life. This is in line with Dickinson's opinion that "Reading comprehensions is critical for long-term academic success and is dependent on language abilities that emerged early in life" [7]. The development of reading comprehension skills must be evaluated by teachers. This is important to do to see student development and future improvement steps. Teachers can evaluate by paying attention to reading comprehension indicators. Reading comprehension indicators that are the benchmark for students' reading comprehension ability levels are: (1) students are able to determine the main idea of each paragraph, (2) students are able to rewrite the contents of the reading in their own words, (3) students are able to retell the contents of the reading based on their understanding and experience, and (4) students are able to answer questions related to the contents of the reading text [8].

The low reading comprehension ability of students is caused by various factors. Internal factors include reading interest, motivation, and cognitive abilities of students. Meanwhile, external factors include learning methods, availability of facilities and infrastructure, and support from the environment. Therefore, innovation is needed in learning methods and improving supporting facilities to improve students' reading skills [9]. Muliawanti et al.'s research also shows that the lack of seriousness of students in learning is one of the causes of low reading comprehension of students [10].

Based on the results of observations and interviews with homeroom teachers and fourth grade students of SD IT Mutiara Padang, it was obtained that students' reading comprehension skills are still relatively low. This is caused by students' low interest in reading. They tend to be lazy to read and prefer to discuss, even though understanding the reading is very important before conducting a discussion. If students do not understand the text being read, then the discussion becomes meaningless because they do not have enough information to share. The learning media used is also still limited, only relying on student books without any interesting alternative media, such as comics. The lack of innovation in learning media causes students to quickly get bored and consider Indonesian language lessons uninteresting. In fact, students are more interested in reading books that are equipped with pictures because they are more fun and not boring. Low reading skills also have a direct impact on student learning outcomes, because when working on questions or exams, they have difficulty understanding the instructions or contents of the questions.

Based on the results of the initial test of reading comprehension ability, it is known that the majority of fourth grade students of SD IT Mutiara have low abilities. Of the 25 students, only 5 students achieved learning completion, while 20 students have not completed it. In detail, 11 students have low reading ability, 9 students are moderate, 2 students are high, and 2 students are very high. These data indicate that students' reading comprehension ability needs to be seriously improved.

One solution that can be done is to develop more interesting learning media that suits students' interests. Learning media plays an important role in determining the success of the learning process, because the right media can help students understand the material more easily and make learning more enjoyable [11][12]. Interesting learning media can also improve students' memory of learning materials [13][14]. In this study, researchers chose comic media assisted by the Canva application as a solution. Comics are media that combine entertainment and education, and can influence the behavior of readers from children to adults [15]. Comics can arouse enthusiasm for learning, help students process stories into visual forms, and make it easier for students to remember material for a long time. Illustrations in comics help students understand the contents of the material more clearly, while also fostering students' interest in reading [16]

This is also supported by the results of overseas research by Samantha Golding and Diarmuid Verrier (2020) which shows that visual literacy-based learning through comics can improve the comprehension and inference abilities of students aged 7–11 years. The experimental study found that children who were given special training to read and understand educational comics experienced significant improvements in understanding the content and implied meaning of illustrated texts. Even students who were not used to reading comics showed higher progress after the intervention. These findings provide strong evidence that comics, when properly designed and guided, are not only a means of entertainment, but also a very effective pedagogical tool in the classroom [17]. The results of Samantha Golding and Diarmuid Verrier's research are also in line with the research of Hilma Aghista Maulida Zahra (2023) which shows that comic media can improve students' reading comprehension, help them understand the context and meaning of words, improve memory, and motivate them to learn. Digital comic media also provides a more interactive and enjoyable learning experience. [18]

Based on this background, this study aims to develop digital comic media assisted by the Canva application as a means of learning reading comprehension for grade IV elementary school students. This study not only assesses the feasibility and practicality of the media developed, but also evaluates its effectiveness in improving students' reading comprehension skills. The uniqueness and novelty of this study lies in the use of easily accessible application-based digital comics, combined with narrative designs that suit the characteristics of elementary school children, and the integration of reading comprehension indicators systematically into the content of the comic. Thus, this study is expected to provide a real contribution to the development of a literacy learning model that is more contextual, enjoyable, and has a direct impact on improving the quality of Indonesian language learning at the elementary school level.

Method

The research method used is a type of development research or better known as Research and Development (R&D). The research and development (R&D) method is a research method used to produce certain products and test the effectiveness of the product. This research method uses research that is like a needs analysis to obtain the desired product results [19]. The development model that the researcher used in the research that the researcher conducted was the 4-D model, which was proposed by Thiagarajan [20]. The 4-D development model was chosen because it has structured, simple, and easy-to-implement steps, making it very suitable for developing learning media at the elementary school level. Compared to other models such as Borg & Gall, the 4-D model is more practical and flexible in its implementation. In addition, this model also pays special attention to the validation and revision process of the product, and supports the dissemination of

development results more widely. With these advantages, the 4-D model is considered the most appropriate for use in this study.

The purpose of the study was to determine the effectiveness of digital comic media products developed to provide a positive impact on learning. This study specifically aims to assess the extent to which the designed digital comic media can help students understand the contents of the reading, measure the level of media feasibility through validation by material experts, media experts, module experts, question experts and language experts and assess the practicality of the media based on the response and experience of users, namely teachers and students when using it in learning and testing the effectiveness of the media through increasing student learning outcomes after using the media. This study not only produces feasible and interesting learning media, but is also oriented towards the quality of the process and learning outcomes of elementary school students' reading comprehension as a whole.

The comic media development procedure is carried out using a 4-D model with four steps, namely: define, design, development, and dissemination. First, at the define stage, needs analysis, curriculum analysis, subject matter analysis, and student and teacher characteristics analysis are carried out to ensure that the media developed is in accordance with needs. Second, at the design stage, digital comic media development planning is carried out to improve reading comprehension skills of grade IV Elementary School students by collecting development materials, making learning media materials, and compiling research instruments. Third, the development stage is the development of comic media through several stages, namely feasibility testing (validation), practicality testing, and effectiveness testing. The feasibility test includes design validation, language validation, material validation, module validation, and test item validation. Fourth, product dissemination is carried out to promote the product to teachers or schools so that it can be used widely.

Results and Discussion

This study aims to develop digital comic media to improve reading comprehension skills in grade IV of elementary school using the 4-D models (define, design, development, dissemination) as follows:

Stage one define. At this stage, curriculum analysis, analysis of student and teacher needs, and analysis of student characteristics are carried out. The curriculum used in developing digital comic media is the Merdeka curriculum. The curriculum analysis activity aims to determine the implementation of the Merdeka curriculum in Elementary Schools and to determine learning media that are in accordance with the Merdeka curriculum. The researcher conducted a curriculum analysis in Phase C of the Indonesian Language subject for grade IV with narrative text material. Based on the curriculum analysis conducted by the researcher, it is known that the school has implemented the Merdeka curriculum and requires students to improve their reading comprehension skills, but its implementation is still not optimal. This can be seen that teachers have not used innovative learning media that can improve students' understanding of reading.

Needs analysis was conducted to find out the reality and needs of the school. The researcher conducted a needs analysis at SD IT Mutiara Padang. The researcher conducted the needs analysis through observation, interviews and initial tests on students accompanied by the homeroom teacher of class IV SD IT Mutiara Padang. Teacher needs analysis was conducted to find out what teachers needed to support the learning process. Based on interview activities with teachers It is known that: a) teachers need learning media that attract students' interest in reading to deliver learning materials. b) Teachers also need learning media that uses technology in its creation so that it is more interesting and easy to use. Student analysis is carried out to see the characteristics of students that are in accordance with the development of learning media. Based on the analysis of student needs, it is known that: a) students need interesting learning media. b) Students need learning media that can attract students' interest in reading and improve students' understanding of reading. c) Students need interactive learning media in learning.

This analysis was conducted to see students' attitudes towards learning. The characters of the students analyzed were students in grade IV of Elementary School. Based on the analysis conducted by the researcher, the learning style characteristics of grade IV students aged 10-12 years are included in the early adolescent group growing up in the digital era called generation Z (Gen Z). Students now need learning media that are interesting and easy to understand.

The second stage of design, pAt this stage, researchers designed digital comic learning media with the help of Canva. The designed digital comic learning media can make it easier for students to understand reading. Comic media can attract students' interest in reading. At the planning stage, researchers used the Canva application in creating digital comic media. Making comics is done by preparing the reading material first and then the reading material is presented in the form of comics with an attractive design so that it can attract students' interest in learning.

The third stage pdevelopment, at this stage the development of digital comic media is carried out as follows: (1) preparing reading materials that will be made into comics. (2) Changing reading materials into comics so that they are more interesting and can attract students' interest in reading. (3) presenting comics in hard copy/soft copy form. digital comic media can be accessed using a link or hard copy. After the development stage is complete, the researcher conducts a product feasibility test with a design validation test, language validation, material validation, module validation and test item validation. From the validation results, the researcher revises the product based on the evaluation and recommendations of the validator. The results of the validity of digital comic media are presented in the following diagram:

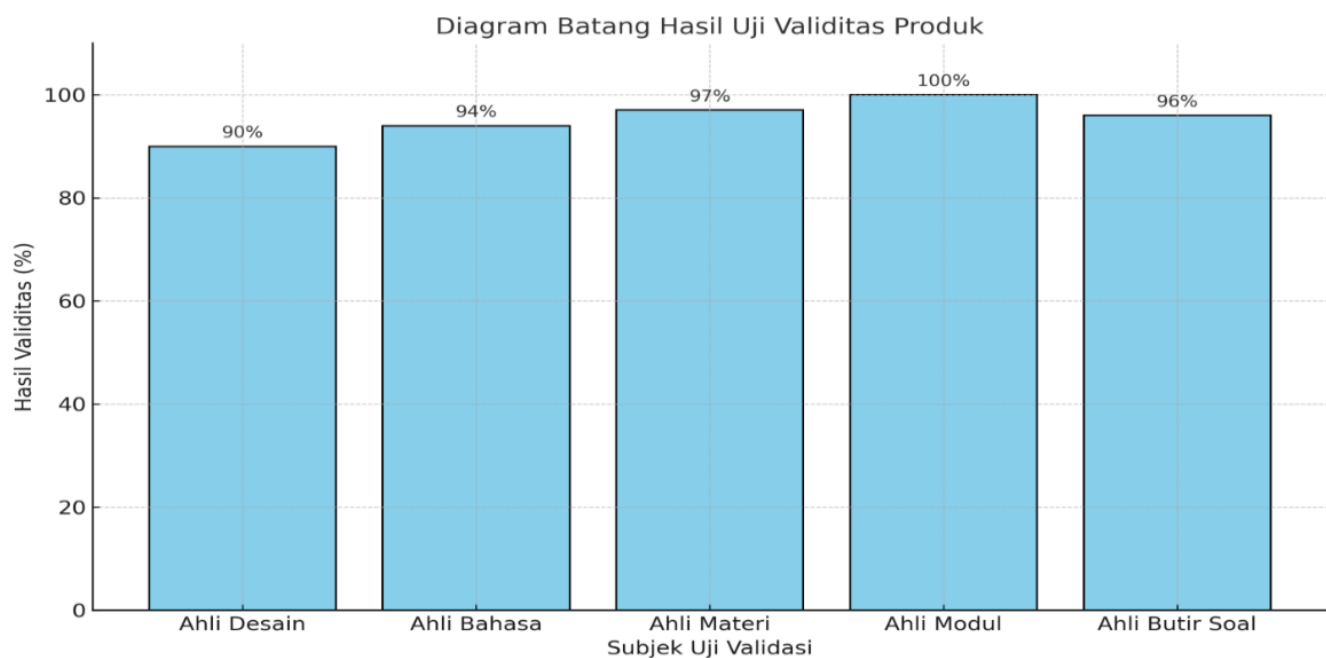


Figure 1. Product validity test diagram

Based on the analysis results, it can be seen that the validation design experts scored 90% with the category "Very Valid", language expert validation scored 94% with the category "Very Valid", material expert validation scored 97% with the category "Very Valid", module expert validation scored 100% with the category "very valid" and item validation scored 96% with the category "very valid". From the overall expert validation of digital comic media, the average score was 95.4% with the category "Very Valid", according to the following validity criteria [according to Krismadinata, et al. 2021].

Percentage (%)	Validation Criteria
81-100	Very Valid
61-80	Valid
41-60	Quite Valid
21-40	Less Valid
0-20	Invalid

Table 1. *Product validity criteria*

Product trials were conducted at SD IT Permata Kita and SD IT Ar-Rayhan involving 2 teachers and 36 students. This trial was conducted using comic products in learning which aims to determine the practicality of using comic media in learning. The results of the practicality test of comic media are presented in the following table 2:

Practicality Test Subject	Practical Results (%)	Category
Class IV Teacher	90.83%	Very Practical
Grade IV Students	92.2%	Very Practical

Table 2. *Practicality Analysis Test*

Based on the results of the practicality test of digital comic media, it was found that comic media showed positive results for the products developed. The results of the practicality test of the responses of 2 teachers from 2 schools obtained an average of 90.83% with a very practical category and the results of the practicality of student responses from 20 fourth-grade students of SD IT Permata Kita and 16 fourth-grade students of SD Islam Ar-Rayhan obtained an average of 92.2% with a very practical category. The results of the practicality show that the comic media developed is very practical based on the questionnaire given to teachers and students.

The effectiveness test was conducted at SD IT Mutiara Padang involving 25 fourth grade students. At the effectiveness test stage researchers use comic media in learning. Where before starting learning the researcher gives pretest questions to students and after using comic media the researcher gives posttest questions. The effectiveness results were analyzed using the N-Gain formula with the help of SPSS 22 to obtain the following results:

	N	Minimum	Maximum	Mean	Std. Deviation
Gain_Score	25	.59	1.00	.8017	.13858
Gain_Percent	25	58.62	100.00	80.1711	13.85763
Valid N (listwise)	25				

Table 3. *Effectiveness Test*

Based on the results of the Ngain test above, it can be seen that the average value obtained is 0.8017 with a high category. While the Ngain percent value is 80.1711 If the average Ngain percent obtained is >76% then it is categorized as effective. So it can be concluded that digital comic media is effective.

The fourth stage of dissemination, dissemination is the last stage in development research with the 4-D model. At this stage of dissemination is carried out to promote the product that has been developed so that it can be accepted by users. At the dissemination stage it was carried out on several teachers in the city of Padang.

Conclusion

This study is a research on the development of digital comic learning media to improve the reading

comprehension skills of grade IV elementary school students. This study uses a 4-D model with 4 steps, namely defining, designing, developing, and disseminating. The results of the study indicate that the use of comic media is valid, practical, and effective. The results of expert validation show that the media obtained an average score of 95.4% with a very valid category. The practicality test showed an average result of 90.83% from teachers and 92.2% from students, both of which are included in the very practical category. Meanwhile, the effectiveness of the media is shown through an increase in student learning outcomes with an average N-Gain of 0.8017 which is included in the high category, and an N-Gain percentage of 80.1711%, which indicates that the media is effective in improving reading comprehension skills. These findings indicate that digital comic media can be an alternative learning strategy that is applicable and interesting for teachers in teaching reading skills in a more contextual and enjoyable way. For further researchers who want to develop comic media, it is recommended to test the effectiveness of this media at different class levels or learning contexts, and integrate it with interactive technology so that the media's appeal and usefulness are increasingly optimal.

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