

## **CHAPTER IV**

### **RESULT AND DISCUSSION**

#### **4.1 Result**

The research employed the Research and Development (R&D) method developed by Borg and Gall. It was used to adjust product development needs and test the effectiveness of learning products, especially for elementary school children. The R&D method can produce innovative and effective products that can be implemented directly in history learning. According to Haryati (2012) and Okpatrioka (2023), research is essentially an evaluation of an object, but with R&D, the production and testing of development is prioritized to provide practical solutions that can be applied directly to the learning context. The resulting product is an innovative, interactive book for elementary school students.

In the research process, the researchers used eight of the ten methods in the Borg & Gall stage. The methods that were not used were Main Field Testing and Revising Operational Products. Asih (2024) definitively states that eliminating two stages does not affect other processes because the process is already covered in other stages.

#### **4.2 Overview of the Research Process**

##### **4.2.1. Research and Information Data Collection**

At this stage in the development of an interactive and innovative learning media, the focus is on the design of a uniquely packaged history book intended for elementary school children. Researchers employ a variety of methods to collect data, including observation, interviews, and documentation, in order to design and perfect a product. The data collected is intended to achieve in-depth accuracy and relevance regarding student interest in learning history.

##### **a. Observation**

At this step, observations were made by conducting direct observations at SDN Grogol 17 Jakarta. Observations were made to

identify any requirements during the learning process, especially in history learning.

During the observation, the focus was on how students responded to narrative and monotonous material. The results revealed that children were not interested in learning history. This was evident when the teacher explained history and some children looked bored and stopped paying attention. Additionally, long narrative texts make children reluctant to read. Therefore, researchers are developing visually appealing and interactive learning media to stimulate children's interest in Indonesian history.

b. Interview

At this stage, the researcher used a qualitative method to understand about children interest in reading based on teachers observation and the lack of learning media during the teaching process. The researcher also assessed the pop-up book-making process to determine its suitability for students in grades 4 to 6.

The interview was conducted with the school teacher of SDN Grogol 17 Jakarta, which is a driving school located in Kebayoran Lama, South Jakarta. The interview process used a platform such as Google Meet to facilitate the interview. Interviews were conducted with 3 teachers, namely History teachers, Indonesian language teachers, and English teachers. The selection of these teachers was purposive sampling, which is a reasoning carried out by the researcher to determine who will be interviewed. The following is an explanation of the reasons for selecting the selected teachers:

1. The History teacher was selected because can develop this book as a learning medium for history. Pop-up books with historical themes were chosen for this purpose. This teacher will have a deep understanding of the historical material contained in the book. In this case, the role of the teacher is very important

because they help children understand the history of Semarang City.

2. English teachers, in this case English teachers have a contribution in the selection of language styles. The language style used must be in accordance with the target audience. English word structure is very important in terms of conveying the content of the material.
3. The selection of Indonesian language teachers is crucial for the effective operation of the product. This includes compiling the language style before translation into English and ensuring that the material is suitable for the target audience and easy to understand.

The selection of teachers is of great importance in the process of making this pop-up book because of its involvement of children as well as teachers who assist in the running of the learning process. Insights from the teachers' experience can also be the basis for designing interesting, interactive, educational learning media.

c. Documentation

At the data collection stage, the documentation stage is a key method for ensuring accuracy and relevance. Researchers took notes on children's interest in reading and the historical material to include in pop-up books. It is clear that the results of the observations made after conducting interviews with various teachers indicate that children learn more easily when there are real visuals with shapes similar to the original form of the building. These visuals also arouse children's enthusiasm to know or read more about the history.

#### **4.2.2 Planning**

In the planning stage, researchers focused on learning experiences that are fun, interactive, and also explanatory sentences that are easily understood and enjoyable learning experience. The presented material is

about the cultural heritage that is iconic to Semarang City. The historical place chosen is a building that has not changed from the Dutch era and is well maintained. The selection of pop-up book layouts is based on their ability to visually, three-dimensionally, and interactively convey learning materials.

In planning the locations, researchers selected four historically significant sites in Semarang with high cultural value: Lawang Sewu, Sam Poo Kong, Blenduk Church, and Semarang Tawang Station. The selection was based on the sites' historical value, importance in local culture, and potential for visualization in pop-up form. The book is designed to convey historical narratives. The book's content is fully aligned with the Kurikulum Merdeka, particularly in themes such as cultural diversity, local identity, and concern for the social environment.

The content of the historical explanation is systematically organized and packaged in a very interesting form, namely Pop-Up Book so that children can learn visually and also kinesthetically. The book created or developed is not just historical information or fun facts that few people know, but this book was also designed with several mini quizzes and glossary to increase children's memory about the explanation of the understanding of several historical places in the book. The glossary is tailored to the understanding level of elementary school students. The language is kept simple and age-appropriate to ensure ease of understanding and enjoyment. The choice of language style is also very simple and communicative so that children can easily understand the sentence.

Furthermore, the design of visual elements is also formed in three dimensions, which fosters interactivity. In addition, researchers reviewed suggestions from multiple educators, particularly history teachers, regarding learning that is occasionally tedious or challenging to comprehend. Consequently, Pop-Up Books were developed to not only be aesthetically pleasing but also to facilitate effective learning.

a. Drafting Material Content

At this stage of the process, researchers focus on the preparation of what material is included in the interactive Pop-Up book by paying attention and considering the level of understanding and also the learning style interests of elementary school children. The material is compiled through the process of collecting information about the history of the cultural heritage of the historical building. The material collected came from a variety of sources such as, seeking information by conducting an interview with one of the guards of the building, the official tourism and cultural website managed by the local government. The selection of this material is based on consideration of educational value and also the potential that can be visualized in the form of an interesting Pop-Up to invite curiosity in children about historical information on the building.

b. Designing Layout

In this planning stage, researchers consider the layout and components of Pop-Up to support the delivery of visualization and material in effective and interesting history learning. This stage involves designing the visualization of each page of the book, text, illustrations, and also what is very important is the pop-up building that is made as similar as possible or like living the atmosphere in the building.



Figure 4.1 Scheme of Pop-Up Book

The Pop-Up scheme displayed above is one of the forms of the Blenduk church building. The illustration above is made with a 3D concept that when opened each page is stand into a building along with supporting elements. On the left and right sides add elements such as trees to add a visual atmosphere to each historical building contained on each page. With a book design like this, it aims to make it easier for children to understand the shape and characteristics of the building and can also provide a fun learning experience. The Pop-Up Book design is expected to make it easier for children to remember the historical information compared to ordinary conventional books.



Figure 4.2 Mechanism Information Pop-Up

The image above illustrates the mechanism for displaying text information in the pop-up book. The book contains a general or brief historical story and some fun facts from the historical building. The

story of each history and fun fact is packaged interactively and interestingly, starting from the visualization of contrasting images that attract children's reading interest. Pop-Up information design increases children's involvement with the material or educational aspects and makes learning fun.



Figure 4.3 Mechanism of Pop-Up Accordion

In this stage, one of the pop-up uses the incredible fold-pop-up mechanism technique, where paper is folded sequentially to form a layered structure that can open and close when the page is opened and closed. The fold technique is a great way to make reading exciting and easy for kids. It adds a fun element of surprise and helps organize material in a way that's easy to understand. The book's cover design, complete with vibrant

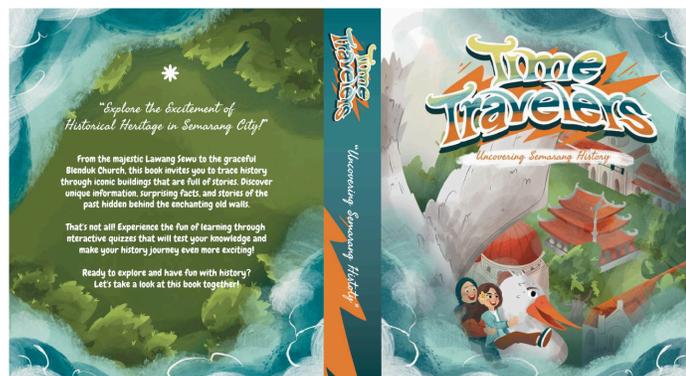


Figure 4.4 Front and Back Cover Design

Illustrations, reflects the historical places featured in the book, making it as captivating as can be. The front cover features images of egrets, historical buildings, and clouds, which collectively illustrate an invitation to adventure, fun, and learning. The title is written in a large font and a striking color to attract children's attention. The book *Uncovering Semarang History* is an excellent resource for children, as it is full of fun historical facts that are not found elsewhere. The book's engaging narrative, illustrated by a character riding a bird, makes it clear that this is a book that appeals to children and provides them with a new understanding of history.

A synopsis of the book is written in a persuasive and enthusiastic style on the back cover. One sentence, "Explore the excitement of historical heritage in Semarang City," emphasizes that this is an interesting history book and invites readers to explore the historical buildings in Semarang City. The sentence "Ready to Explore and Have Fun with History?" motivates children to learn history in a fun, interactive way.

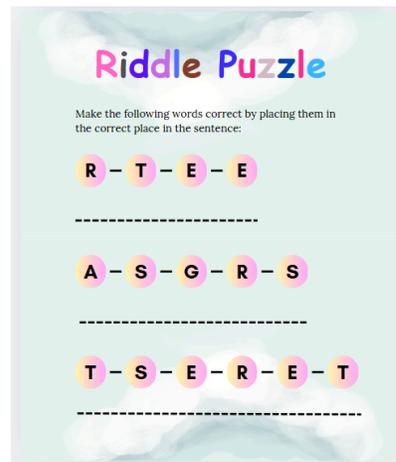


Figure 4.5 Desain Mini Quiz

After the Pop-Up Book section, which contains information about historical buildings, there is a mini quiz on the next page. One example is a riddle or word puzzle. The purpose of including various

types of mini quizzes on several pages before the end of the book is to encourage critical thinking, literacy development, and retention of information read on the previous page.

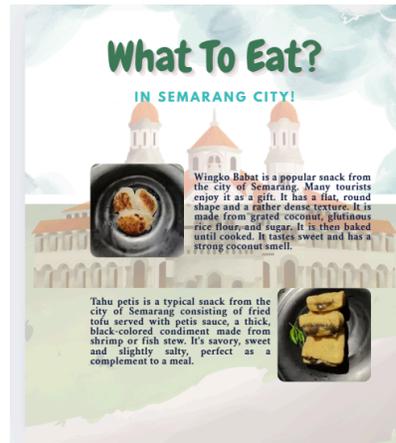


Figure 4.6 Design What To Eat



Figure 4.7 Design Glossary

In addition to the mini quiz, there is some additional information such as typical food of Semarang City and also a glossary to complement the main material to enrich students' learning experience. The glossary page aims to make it easier for children to recognize new vocabulary and also improve foreign language literacy skills from an early age. Then in addition to the glossary there is information about food from Semarang City. With this information, it is hoped that children can get to know the city of Semarang not only with its

historical buildings but at least recognize some regional cultural wealth. The writing style is made light and illustrative in the form of a brief description of the food to make it easier to understand the information and also attract the attention of children.

#### **4.2.3. Developing Preliminary Form of Product**

##### **1. Pop-Up Design Formatting**

###### **a. Font Selecting**

In the development process of a pop-up book, choosing the right font is important because it contributes to reading comfort and the effectiveness of conveying clear information. The chosen font must be clearly readable and visually appealing, as well as adapted to the literacy stage of children. The material uses the Chewy font, which has a round, soft, and expressive appearance. This font can attract children's attention and maintain their interest in reading historical storybooks. The font also provides a relaxed and fun feel, reflecting the joyful learning content of the book.

The title font is unique and distinguishes important parts of the book. Additionally, the title font establishes a strong visual identity characterized by its distinctive and striking appearance. Although it stands out, the font blends visually with the other design elements, creating harmony among the colors, illustrations, and layouts that support an engaging reading experience for students.

###### **b. Color Palette Selecting**

The color palette selection has been determined by observing several selected historical buildings. By visually observing the historical buildings in the book such as Lawang Sewu, Blenduk Church, Sam Poo Kong, and also Semarang Tawang Station. The color palette selection was also done

selectively to create a fun learning atmosphere and support the visual engagement of elementary school students. The color palette used are:

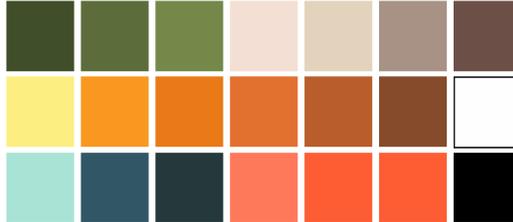


Figure 4.8 Color Palette

The colors chosen provide enough contrast with the text so that the book can be easily read by everyone. Some bright colors are used selectively to draw attention to important sections, such as titles, fun facts, and quizzes. This color combination creates a harmonious effect that can support optimal learning.

#### c. Language Selecting

The choice of language used in this book is an important aspect that affects the success of the learning process. The language used has been arranged in a communicative, simple, and also child-friendly manner so that the message conveyed can be understood clearly but with an easier and more fun language style.

The choice of appropriate language aims to encourage children to read actively and understand, creating a more enjoyable learning experience. By choosing and using language that is easy to understand, this book can be used as an effective learning media and also be more interested in learning history and also remembering the information conveyed.

#### d. Main Content

This pop-up book was developed as a learning tool for elementary school students to introduce them to historical sites

in Semarang City in a fun, interactive way. The material is organized concisely and systematically and is complemented by 3D pop-up illustrations and interactive elements, such as interesting facts and mini-quizzes, which are designed to increase student participation and understanding. Each page presents one main theme about historical buildings and includes information about their origins, functions, and cultural and historical significance. Thus, this media helps students not only visually recognize buildings but also understand their historical context and value.

#### **4.2.4. Preliminary Field Testing**

At this stage, the researchers conducted an initial trial of the Semarang Heritage Pop-Up Book. They conducted an evaluation to obtain input from potential expert validation, there is an expert. And then the readers and teachers on aspects such as learning, readability, and the delivery of historical content. One of the main pieces of feedback was that the language used in some parts was still too complex for children to understand. After hearing this feedback from the questionnaire, the researcher simplified the sentences to make them more child-friendly. Previously complex and dense sentences were changed to be clear and concise without losing the essence of the information conveyed.

**FORM OF VALIDATION OF PRODUCT**  
 Creating a Pop-Up book "Time Travellers Uncovering Senawang History"  
 for Elementary School Children

Validator : Lili Lamsahat Panjaitan S.Pd., M.A  
 Date : 20/10/2025

**Media Expert Validation**

**Please checklist one of the selected answers (✓)**

- Does the page layout in the pop-up book is well organized and visually appealing?  
 Strongly Disagree  Disagree  Agree  Strongly Agree
- Does the pop-up book's text including its font, size, and spacing—provide an easy and clear reading experience for students?  
 Strongly Disagree  Disagree  Agree  Strongly Agree
- The Pop-Up book elements work well and support interactivity in learning?  
 Strongly Disagree  Disagree  Agree  Strongly Agree
- Is the composition between text and images proportional and not distracting?  
 Strongly Disagree  Disagree  Agree  Strongly Agree
- Does the cover represent the content and identity of the product well?  
 Strongly Disagree  Disagree  Agree  Strongly Agree

6. Criticism and Suggestions

*Simplify the language to adjust to grade 4-6. Some words in the text are still in English, the position of what to eat and playing were needed to be adjusted.*

Validator:  
  
 Lili Lamsahat Panjaitan S.Pd., M.A

Figure 4.9 Media Expert Form After Validation

Figure 4.9 shows the validation sheet from media experts who assessed the visual design of pop-up books. The form includes important indicators, such as attractiveness, ease of reading, suitability of illustrations, and level of interactivity. The validation results show that the media has visuals that are attractive enough for elementary school students. However, there are some inputs related to color harmonization and placement of visual elements. These inputs are then used as the basis for the design revision process.

| FORM OF VALIDATION OF PRODUCT   |   |
|---|---|
| Creating a Pop-Up book "Time Travels Uncovering Semarang History" for Elementary School Children                                      |   |
| Validator   | : Lili Lamehat Panjaitan S.Pd., MA  |
| Date  | : 20/11/2025  |
| Material Expert Validation  |   |
| Please checklist one of the selected answers (✓)  |   |
| 1. Is the language used in the narrative easily understood by elementary school students?   | <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree          |
| 2. Are the historical facts educational and interesting?  | <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree          |
| 3. Do additional activities (such as quizzes or reflective questions) support student understanding?                                  | <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree          |
| 4. Does the material presented align with the topic of Semarang's local history?  | <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree          |
| 5. Is the content appropriate for students in grades 4-5?   | <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input checked="" type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree          |
| 6. Is there more information that needs to be added to this pop-up book? If yes, please explain.                                      | <p>The detailed history of Lawang Sewu needed to be improved.</p>   |
| 7. Criticism and Suggestions.   | <p>Simplify the language to adjust to grade 4-6. Some words in the quiz are still in Bahasa, the phrasing of the quiz to end and closing are needed to be adjusted.</p> |
| Validator:<br><br>Lili Lamehat Panjaitan S.Pd., MA |   |

Figure 4.10 Material expert form after validation

Based on the validation results from media and material experts shown in Figures 4.9 and 4.10, it can be concluded that the developed interactive pop-up book meets the criteria for suitable learning media. Most aspects assessed received high scores in terms of both content and visuals. Some improvement suggestions have been accepted and implemented, such as simplifying sentences to make them more child-friendly and adjusting colors for a more harmonious appearance. Thus, the validation results reinforce that the pop-up book aligns with the needs of elementary school students learning history in an interesting, interactive, and educational manner.

#### 4.2.5 Revising Main Product

Based on the results of the previous trial stage, researchers made several revisions to the pop-up book to improve learning quality, such as material delivery, readability, and visual appeal for children. One significant revision is the elimination of one visual part of the Sam Poo Kong illustration to simplify the display and direct children's focus to the main information and visual object of the building.



Figure 4. 11 Sam Poo Kong before revision



Figure 4.12 Sam Poo Kong After Revision

Additionally, the color of the visual element in the title has been adjusted. The original color is darker and blends in with the dark background. Therefore, the title color has been changed to a lighter, more striking color to make it more attractive and ensure that it can be read clearly.

Overall, this visual element adjustment aims to create visual elements that are more pleasing to the eye, cheerful, fun, and also child-friendly. With a design like this that is more attractive and easy to understand, it is hoped that this pop-up book can motivate children to more actively explore each page and deepen their understanding of Semarang's cultural heritage.

#### **4.2.6 Operational Field Testing**

At this stage, researchers collected data from 31 respondents through a questionnaire designed to evaluate the feasibility and quality of pop-up books as learning media. The questionnaire was distributed via Google Forms and contained a total of 13 multiple-choice questions and 4 essay questions. Specifically, the questionnaire consisted of 6 multiple-choice

questions and 2 essay questions for the content aspect, as well as 5 multiple-choice questions and 2 essay questions for the media aspect. A link to the digital version of the pop-up book was also included in the questionnaire so that respondents could review the product before giving their assessment. Respondents consisted of teachers from SDN Grogol 17 Jakarta and parents of students. The questionnaire was distributed via the WhatsApp application, chosen for its practicality, speed, and ease of access. This approach enhanced the effectiveness of the data collection process and facilitated the collection of relevant feedback from teachers and parents as potential users of the pop-up book. The table below shows the details of the respondents.

Table 4.1 List of Respondents

| Institution           | Occupation              | Grade Level | Number of Respondents |
|-----------------------|-------------------------|-------------|-----------------------|
| SDN Grogol Selatan 17 | English Language        | 4 - 6       | 3                     |
|                       | Culture                 | 4 - 6       | 4                     |
|                       | Indonesian Language     | 4 - 6       | 2                     |
|                       | Non-English and Culture | 4 - 6       | 7                     |
|                       | Parents of Students     | 4 - 6       | 15                    |

Thirty-one respondents completed the questionnaire. These respondents included the community and all teachers of SDN Grogol 17 Jakarta. Respondents' answers varied, with many indicating strong agreement. They assessed it by evaluating the book's feasibility, the visuals, the language style, and the quiz. The table above clearly shows the total number of answers from the respondents, which will be entered into the

Likert scale. Then, we will analyze the respondents' perceptions of the pop-up book.

Table 4.2 Table of respondents interval

| <b>Number of Statements</b> | <b>SD</b> | <b>D</b> | <b>A</b> | <b>SA</b> | <b>Total Score</b> | <b>Intervals</b> |
|-----------------------------|-----------|----------|----------|-----------|--------------------|------------------|
| 1                           |           |          | 16       | 15        | 108                | 3.5              |
| 2                           |           |          | 12       | 19        | 112                | 3.6              |
| 3                           |           |          | 13       | 18        | 111                | 3.6              |
| 4                           |           |          | 17       | 14        | 107                | 3.4              |
| 5                           |           |          | 12       | 19        | 112                | 3.6              |
| 6                           |           |          | 14       | 17        | 110                | 3.5              |
| 7                           |           |          | 10       | 21        | 113                | 3.6              |
| 8                           |           |          | 17       | 14        | 107                | 3.4              |
| 9                           |           |          | 10       | 21        | 114                | 3.7              |
| 10                          |           |          | 8        | 23        | 116                | 3.5              |
| 11                          |           |          | 12       | 19        | 112                | 3.6              |

The results of this data processing show that the book Pop-Up Time Travelers: Uncovering Semarang History received a very positive response from the respondents. Using a Likert scale of 1 - 4, most respondents gave a 'strongly agree' score, especially on the interactivity and student engagement aspects of the learning process. Meanwhile, the lowest score was related to the suitability of the content for children, although the lowest category was still in the strongly agree category with an average score of 3.44. This shows that the content of the book is quite suitable for learning needs and also the Pop-Up book product is able to attract students' interest and active participation.

In addition to the data calculations above, many open-ended responses showed positive trends with comments such as "This book is very

interesting" and "This book is inspiring for learning media." Based on several respondents' conclusions, pop-up books are able to arouse children's curiosity and are feasible as learning media.

#### **4.2.7 Revising Final Product**

Based on the results of the field trial stage, the pop-up book product received positive evaluations because it maximizes the interactive learning process of history. The data obtained from the questionnaire revealed that all respondents gave positive responses regarding the language style, visualization, and presentation of the content, which can make learning in schools fun and easy to understand.

Consequently, it can be concluded that this product is not subject to further revision and is suitable for use in a learning context. It is prepared to provide an interactive and enjoyable learning experience without requiring additional changes or adjustments.

#### **4.2.8. Disseminating and Implementing**

The final stage of development for the pop-up book *Time Travelers: Uncovering Semarang History*, was officially registered for Intellectual Property Rights (HAKI) protection on June 17, 2025. This registration provides legal protection and recognition for original, innovative products in the field of education.

After legal progress, educators implemented this book directly in the world of education and symbolically gave it directly to SDN Grogol 17 Jakarta on June 24, 2025. This event signifies the utilization of the book in the real world and represents a concrete contribution from researchers to promote more engaging and meaningful history education.

Through this dissemination stage, it is hoped that the pop-up book not only be an innovative visual learning media, but also able to encourage students' interest in understanding local history in an active and fun way. This book is designed to provide an alternative learning that not only conveys information, but also instills the values of love for Indonesian cultural heritage from an early age, as well as increasing students' learning

motivation through an interactive approach and in accordance with the character of children.

### **4.3 Discussion**

The results of the discussion show that conventional learning media are less effective at attracting the interest of elementary school students in learning history. The students' passive responses and difficulty maintaining focus during long narrative presentations by the teacher illustrate this. This condition formed the basis for developing a more visual and interactive medium: a pop-up book about the history of Semarang City.

This pop-up book consists of 36 pages, which includes 20 pages of pop-up scenes explaining four important historical sites in Semarang, which are Lawang Sewu, Sam Poo Kong, Blenduk Church, and Tawang Semarang Station. Meanwhile, the other 16 pages contain mini games, crosswords, guessing games, and a glossary. These features are designed not only to convey factual information, but also to encourage active participation and critical thinking in students.

The validation of this book was conducted by distributing questionnaires using Google Form and WhatsApp to 31 respondents, consisting of teachers of SDN Grogol Selatan 17 and the general public. The questionnaire results showed that this product received a very positive response. Aspects of visual appearance and interactivity received the highest scores, indicating that these two elements were most appreciated by users. The majority of respondents stated that this book is interesting and worth using as a learning media for children.

In conclusion, the book *Time Travelers: Uncovering Semarang History* is an engaging and educational approach to history learning. The product's communicative, interactive, and educational design renders it suitable for utilization in the context of history education in elementary schools.