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Development of Flip PDF-Based e-Booklet Learning Media on Indonesian Revolution Materials for Grade XI Students at SMA Negeri 6 Semarang

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Abstract

The purpose of this study is to develop Flip PDF-based e-Booklet learning media, as well as to assess the feasibility of the media produced media. The method used is Research and Development (R&D) with a 4D development model consisting of Define, Design, Develop, and Disseminate stages, but the application is only in the Development stage. The research subjects consisted of 25 students in grades XI-L. Data collection techniques were carried out through interviews, observations, and questionnaire distribution. The results of the study show that Flip PDF-based e-Booklet learning media has a very high level of eligibility. This is shown by the validation results from media experts who reached 91% and material experts at 95%, both of which are included in the very feasible category. In addition, the results of the student response questionnaire showed a percentage of 83% which was also in the very good category. Thus, it can be concluded that the Flip PDF-based e-Booklet learning media on the Indonesian Revolution material is suitable for use as an alternative history learning media that is interactive, interesting, and able to increase students' interest and participation in learning activities.

Keywords: e-Booklet, learning media, Indonesian Revolution, R&D

INTRODUCTION

Based on Law Number 20 of 2003 concerning the Education System, education is a process that is consciously planned and organized with the aim of creating a learning environment that helps students reach their potential.

Education is broadly defined as a lifelong process, in which individuals are constantly learning from various life experiences. Education encompasses all forms of knowledge and learning that take place in different places and situations that have a positive impact on one's personal growth (Desi Pristiwanti et al., 2022). Education aims to mature students, enabling them to develop the talents, potentials, and skills needed in life. Therefore, education needs to be systematically designed to be able to provide a deep understanding and encourage the improvement of students' learning achievement.

History education has a very important role in instilling values in students to form their character formed from past events. Character formation is expected to foster historical awareness in students (Muhtarom & Andi, 2023). Learning history in education is an important means in the educational process of a nation. History education is able to instill knowledge, attitudes, and values in students regarding the understanding of the development of society from the past to the present. Therefore, the education process must be carried out effectively and with quality in order to produce superior human resources.

As educators who are required to support various aspects of the learning process, teachers play a very important role in the learning process. In teaching history, teachers are required to present innovations in models, strategies, methods, and learning media that are relevant to current conditions.

Given that history is always related to diachronic time, the right strategy is needed so that learning becomes more meaningful and not boring (Muis et al., 2023)

According to Arisanti & Qobliyah (2022) in the (Paling et al., 2024), Technology and communication have brought significant changes in the field of education and other areas of life. The advancement of the current digital era has brought significant changes by presenting new opportunities and challenges to traditional learning systems and towards digital-based learning. Digital learning media is one of the relevant solutions because it allows students to access materials in learning anytime and anywhere through their digital devices. Therefore, updates are needed in the use of technology to facilitate a more effective teaching and learning process. Teachers are expected to be able to utilize technology that is in accordance with the times and create innovations in learning methods and media in order to increase students' interest in learning history. Myers in (M.Ridwan et al., 2022) stating that students tend to understand a concept more easily if learning is not only presented through text, but also equipped with visual elements in the form of pictures.

Digital media in history learning serves as an effective means to re-present past events through visual and narrative presentation. So far, history learning tends to be perceived as a subject that emphasizes memorizing events, dates, and figures. In fact, historical material has the potential to be presented in a narrative, interesting, and meaningful way both educationally and morally. Therefore, the use of the right learning media can optimize the learning experience and increase students' curiosity and interest in the material (Elysia & Pahlevi, 2025).

One of the learning media that has the potential to be developed is E-Booklet, which is a Booklet in electronic format. This e-Booklet is a medium that presents material in a concise, systematic manner, and is equipped with supporting illustrations equipped with images, sounds, navigation, and various interesting elements so that students can easily understand the learning concept (Safitri & Prananta, 2023). According to (Violla & Fernandes, 2021), E-Booklet is a media format that presents material in the form of an attractive summary with the addition of pictures, thus aiding in understanding the learning material. In addition, E-Booklets function as an effective and efficient learning medium because they provide important information that is easy to understand and use as a medium used in classroom learning activities to increase the effectiveness of the learning process (Aria Indah Susanti & Nia Agus Lestari, 2021).

Flip PDF-based e-Booklets created using the Heyzine Flipbook platform have the advantage of having a print book-like appearance with a page-turning effect, and can be equipped with multimedia elements such as images, videos, and interactive links (Al Firah et al., 2024). These advantages make FLIP-PDF an interactive and interesting learning medium, which can increase students' interest in learning and help teachers in delivering lesson materials effectively. In addition, FLIP-PDF is compatible with various devices such as laptops, computers, tablets, and mobile phones. In this case, it makes it easier for students to access learning materials in various conditions (Basna & Zulherman, 2023).

The development of a Flip PDF-based E-Booklet that raises the material of the Indonesian Revolution is a strategic step to present history learning that is more interesting, interactive, and easy to understand for students. This research is focused on the development of a Flip PDF-based E-Booklet on the Indonesian Revolution material aimed at grade XI students of SMA Negeri 6 Semarang. The material was chosen because it is part of advanced history learning that is based on the applicable curriculum.

SMA Negeri 6 Semarang was chosen as the research location because it supports the use of technology in learning activities and has adequate supporting facilities. In addition, the curriculum implemented provides space for the development and innovation of digital-based learning media. The development of this E-Booklet is expected to be an alternative teaching material that is able to convey information in a communicative, interesting manner, in accordance with the needs of students, so as to be able to support the effectiveness of history learning in the classroom.

The purpose of this research is to develop a history learning media E-Booklet that has been validated so that it is declared suitable for use during history learning, and can encourage students to actively engage in learning activities. The method used in the development of this learning media is Research and Development (R&D) and the model used, namely the 4D the model stage includes of define, design, develop, and disseminate (Fayrus & Slamet, 2022). In this study, it is only in the third stage of development, namely in the development stage.

The data in this study was obtained through several data collection techniques, including interviews, observations, and questionnaires. The results of this research are expected to provide a significant role in the development and provision of digital teaching materials as a supporting learning medium, especially in history learning that contains national values that are relevant to the students' environment.

From the results of an interview with the history teacher of SMA Negeri 6 Semarang, Mrs. Nurmalita, obtained information that WiFi facilities are available in the classroom and almost most of the students already have gadgets. Therefore, the use of E-Booklets is considered very suitable for students, with a note that the design of the Booklet must be packaged in an attractive and easy to understand by students. In this E-Booklet, the material does not only contain text, but it is equipped with several interesting images that support relevant material. This aims to make it easier for students to understand the material and increase their interest in learning.

In addition, based on the results of the analysis of students' needs, it is known that in the learning process, media in the form of printed books such as the Independent Curriculum learning module are more often used. However, printed books are presented less attractive and only contain long texts and minimal images and the limitations of printed books that cannot be carried anywhere. On the other hand, students show a higher interest in the use of digital devices such as smartphones in learning activities. This indicates that the use of E-Booklet learning media can be used as the right alternative in increasing students' interest and involvement in the learning process.

Based on the background of these problems, this study aims to produce Flip-PDF-based E-Booklet learning media on the Indonesian Revolution material intended for grade XI students at SMA Negeri 6 Semarang and to find out the feasibility of the media as a history learning medium.

METHOD

This research was carried out at SMA Negeri 6 Semarang which is located in Jl. West Ronggolawe . No.4, Gisikdrono, West Semarang District, Semarang City, Central Java. The subjects in this study are students in grades XI-L totaling 36 students. However, in this study, only 25 students were involved in the activity. The method used in this study is Research and Development (R&D). Research and Development (R&D) methods are used to develop new products and improve the quality of existing products, as well as test the effectiveness of these products. To develop a particular product and assess its effectiveness, it is necessary to research with valid data to test the effectiveness of the product. The research and development stage of a learning system or educational product covers everything from design and implementation to evaluating (Sugiyono, 2016).

In this research and development, a 4D model is used. This model was developed to produce valid, practical, and effective learning products that consist of four stages of development, namely *Define*, *Design*, *Develop*, and *Disseminate*. This 4D model, developed by Thiagarajan, Semmel, and Semmel in 1974 (Ade Rahayu, 2025). These stages are carried out with the aim of increasing the effectiveness and efficiency in the learning process.

This development model was chosen because it offers a systematic and structured flow of stages, making it easier for researchers to identify learning problems and ensure that the final results are in accordance with real needs in the field. The following are the stages of the 4D development research model used in the development of Flip-PDF-based E-Booklet learning media on the Indonesian Revolution material for grade XI students of SMA Negeri 6 Semarang.

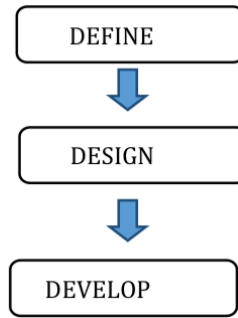


Figure 1. Stages of 4D Development Model
Source: (Fayrus & Slamet, 2022)

The data collection technique in this study uses a questionnaire prepared in the form of an instrument sheet containing several written statements. The research instrument was given to respondents consisting of two people, namely material experts and media experts, to provide an assessment of the products developed. In addition, questionnaires are also given to students in the form of questionnaires through Google Form as part of product trials to find out student responses and assess the feasibility of the media that has been developed.

Data analysis techniques, according to (Priadana & Sunarsi, 2021), are a way to process research data into information or results that can be taken from the research. The data obtained from the validation process and the student response questionnaire in this study were then analyzed to obtain answers from the results that had been carried out. In this study, the validation questionnaire of media and material experts was based on a likert scale consisting of a likert scale of 1-5. The likert scale assessment will be calculated with the following formula:

$$P = \frac{\sum \text{Score obtained}}{\text{Maximum score}} \times 100\%$$

Table 1. Validation Criteria for Media and Material Experts

Percentage (Score)	Criteria	Remarks
81-100%	Highly Valid	Highly feasible and without revision
61-80%	Valid	Suitable for use fixed with revision
41-60%	Quite Valid	Recommended not to use
21-40%	Less Valid	Not fit for use
0-20%	Very Invalid	Very unsuitable for use

Source: Arikunto in (Almahera et al., 2023)

Data analysis from student response questionnaires was carried out to determine the level of students' interest in the use of Flip-PDF-based e-booklet learning media on Indonesian Revolution materials for students in grades XI-L at SMA Negeri 6 Semarang. The assessment in this study uses a Likert scale with a score range of 1 to 4 to measure students' perception of the developed learning media.

$$P = \frac{\sum \text{Score obtained}}{\text{Maximum score}} \times 100\%$$

Table 2. Criteria for Student Response Questionnaire

Percentage (Score)	Classification
76%-100%	Excellent
56%-75%	Good
40%-55%	Pretty Good
0-39%	Not Good

Source: Arikunto in (Faizin et al., 2023)

RESULTS AND DISCUSSION

The purpose of this research and development is to create a learning media in the form of a Flip-PDF-based E-Booklet on Indonesian Revolution materials in grade XI at SMA Negeri 6 Semarang. The development of 4D models (Define, Design, Develop, and Disseminate) is a guideline in the research of this E-Booklet learning media which refers to Thiagarajan's research method. However, in this study, the researcher only carried out three stages: Define, Design, Develop.

Define Stage

At this stage, needs analysis is carried out by collecting information data as a basis for the product development process (Fayrus & Slamet, 2022). The initial stage was carried out through observation activities and interviews with history teachers at SMA Negeri 6 Semarang. Based on the results of an interview with Mrs. Nurmalita, M.Hum., as a history teacher, information was obtained that students' enthusiasm for learning history is still relatively low. Therefore, to increase students' interest and enthusiasm for learning, innovative learning strategies are needed.

In addition, an analysis of student needs was also carried out. The results of the analysis showed that in the history learning process, teachers often used textbook media and PowerPoint (PPT) presentations. This condition shows that students need alternative learning media that is more interesting and interactive, one of which is through the use of E-Booklets. On the other hand, students are also more enthusiastic about using digital devices such as smartphones in learning activities. Along with the rapid development of technology, the use of digital-based learning media is one of the solutions that can be applied in learning.

Therefore, a learning media in the form of an E-Booklet was developed which presents the material concisely and is equipped with supporting images and videos, so that students not only read the material, but also get a more interesting visual learning experience.

Design Stage

At this stage, the design of E-Booklet learning media is carried out. The activities carried out include the collection of materials related to the topic of the Indonesian Revolution in 1945–1949 from various sources, both from books and other sources on the internet. The material that has been collected is then compiled and written first using the Microsoft Word application to facilitate the material processing process.

Next, the researcher searched for and collected relevant images to support the presentation of the material. After all the materials and images have been collected, the researcher starts the stage of designing the E-Booklet design using the Canva application, which includes the selection of design templates, making the front cover, back cover, and arranging various other layout elements to make the media appearance more attractive and systematic.

After completing the design process for the E-Booklet learning media, the next step is to convert it into a flipbook using the help of the Heyzine Flipbook application so that the appearance of the e-booklet has a flipping effect like a digital book. This process is carried out to improve the product so that the learning media becomes more interactive and interesting when used in learning activities. The following are the results of the E-Booklet product design:

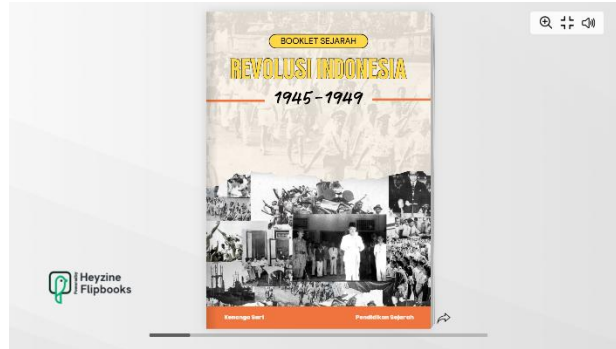


Figure 2. Booklet Cover



Figure 3. Preface and Table of Contents View

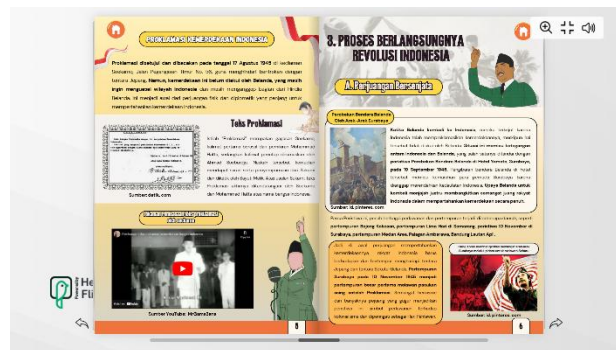


Figure 4. Material Section Display in E-Booklet

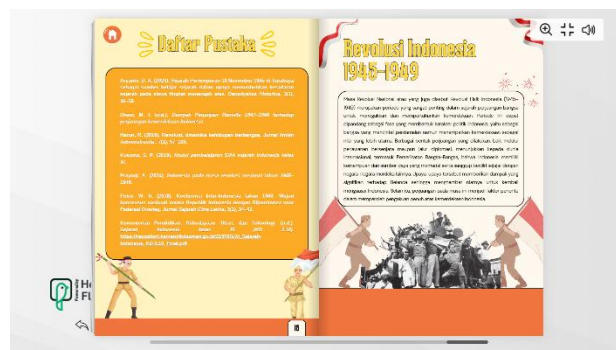


Figure 5. Bibliography and E-Booklet End Cover Display

Develop Stage

In the 4D development model, the third stage is the develop stage, namely the product development process. The product that has been designed is then validated by experts at this stage. Validation in this

study refers to the construct validity test, which is a test carried out from the results of the assessment and consideration of experts on the instrument or product developed (Sugiyono, 2019). The purpose of this stage is to produce development products in the form of learning media tools that have been designed in the previous stage.

The validation stage is an assessment stage carried out by experts, namely material experts and media experts, to assess the feasibility of products that have been developed using FLIP-PDF-based E-Booklet learning media on Indonesian Revolution materials. The following are the results of validation from media and material experts:

Media Expert Validation Results

The product that has been made and developed is then validated by a media expert lecturer, namely Mr. Andy Suryadi, S.Pd., M.Pd. The assessment of media experts is carried out based on the assessment aspect with an instrument containing 19 questions with a likert scale of 1-5.

From the results of the validation conducted by media experts, a score of 86 was obtained out of a maximum score of 95. The calculation of the eligibility percentage is carried out using the following formula:

$$P = \frac{\sum \text{Score obtained}}{\text{Maximum score}} \times 100\%$$

$$P = \frac{86}{95} \times 100\%$$

$$= 91\%$$

Based on the validation results at this stage, the media obtained a percentage of 91%. The percentage value is then equated with the table of eligibility criteria. Therefore, the media created is considered very valid and stated to be very suitable for use as a media for learning history and does not require further revision.

Material Expert Validation Results

At this stage, the product developed is validated by a material expert, namely Mr. Romadi, S.Pd., M.Hum. The assessment of the material expert is carried out based on the assessment aspect with an instrument containing 17 questions with a likert scale of 1-5.

At this stage, a score of 81 was obtained from a maximum score of 85. The calculation of the eligibility percentage is carried out using the following formula:

$$P = \frac{\sum \text{Score obtained}}{\text{Maximum score}} \times 100\%$$

$$P = \frac{81}{85} \times 100\%$$

$$= 95\%$$

Based on the results of the validation calculation carried out, the percentage of material feasibility was obtained of 95%. The percentage value is then adjusted to the eligibility criteria table and is included in the category of very valid. Thus, the Flip-PDF-based E-Booklet learning media is stated to be very feasible and ready to be used as a learning medium without the need for further revision or improvement.

Table 3. Results of the material expert validation score

Validator	Total scores obtained	Maximum score	Average score (%)
Media Member	86	95	91%
Material Expert	81	85	95%

Source: Primary Data

Student Response Survey Results

The purpose of this stage is to find out the learning media that is produced and used in the learning

process. The results of this stage are used to assess whether the developed product has met the eligibility criteria for use as a learning medium. The survey was carried out by questionnaire through google form with a total of 15 questions and 25 students with respondents. The trial of the E-Booklet product was carried out by students in grades XI-L at SMAN Negeri 6 Semarang.

Based on the validation results, the media obtained a feasibility percentage of 91% from media experts and 95% from material experts. The percentage value shows that the product developed is included in the category of very feasible and is ready to be used in the learning process.

Furthermore, the Flip-PDF-based E-Booklet learning media product was distributed to students to find out the level of media feasibility based on student responses. To obtain this data, the researcher distributed a questionnaire through Google Form to students after using the developed learning media. The calculation with the following formula:

$$P = \frac{\sum \text{Score obtained}}{\text{Maximum score}} \times 100\%$$

$$P = \frac{1240}{1500} \times 100\%$$

$$= 83\%$$

Table 4. Result Student Response Questionnaire

	Total scores obtained	Maximum score	Average score (%)
Student response	1240	1500	83 %

Source: Primary Data

Based on the results of filling out the questionnaire by students, the eligibility percentage was obtained at 83%. These results show that Flip-PDF-based E-Booklet learning media has received a positive response from students, so it can be concluded that the development of Flip-PDF-based E-Booklet learning media can be one of the effective learning media alternatives in the history learning process for grade XI students at SMA Negeri 6 Semarang.

From the results of the research data criteria obtained through a validation process by media experts, material experts, and student response answers, it can be illustrated in the graph in the image below:

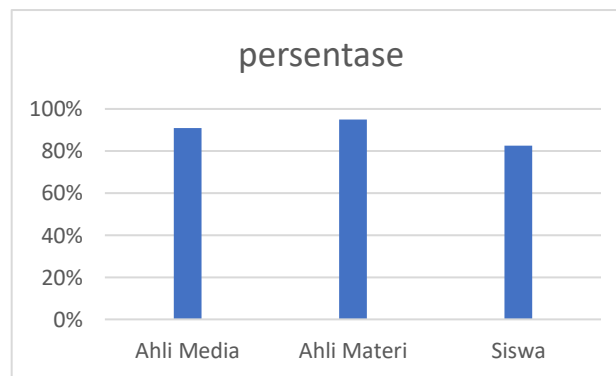


Figure 5. Percentage of HasiL Expert Validation and Student Response Questionnaire

Source: Primary Data

As seen in the graph above, the results of the media expert assessment obtained a score of 91% in the "very valid" category, the results of the material expert assessment obtained a score of 95% in the very valid category, and the results of the students' responses obtained a score of 83% in the very good category. It can be concluded that in terms of content, appearance and usability in the learning process, the results of the study show that the FLIP-PDF-based E-Booklet learning media developed meets the eligibility criteria. Thus, this media has the potential to be an effective learning innovation in creating a more interesting and interactive history learning process for students.

CONCLUSION

From the results of the research and development process that has been carried out, learning media in the form of a FLIP PDF-based E-Booklet on the Indonesian Revolution material for grade XI students at SMA Negeri 6 Semarang has been successfully developed with a development model that uses a 4D model, which consists of the define, design, and develop stages in accordance with the results of the research and development process that has been carried out.

The results of the validation test prove that the developed media has a very high level of feasibility, shown by the percentage of 91% of media experts and 95% of material experts, so it is included in the category of very feasible to use. In addition, student responses also showed a very positive assessment with a percentage of 83%, which indicates that the use of E-Booklet is able to attract interest in learning and increase student involvement in learning history.

Thus, Flip PDF-based E-Booklet learning media can be used as an alternative learning media that is effective and interactive, and relevant to technological developments, especially in an effort to improve the quality of history learning in the school environment.

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