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Research article

Interactive Learning Media on Key Figures of Indonesian Independence Proclamation

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ABSTRACT

Education is a vital necessity in people's lives. One of the media that can be used is Interactive Learning Media, which can present material in visual form, as well as simulate material that is difficult to convey verbally. The author plans to provide material on Introduction to Key Figures Involved in the Proclamation of Independence, which is expected to facilitate students' learning process. The research location is Jagapati Village, Abiansemal District, Badung Regency, Bali. The data collection methods used include interviews, observation, documentation, and literature review. The testing process involved both alpha and beta testing. The number of respondents was 32 people, consisting of 28 fifth-grade students, 2 subject matter experts in Social Studies for fifth grade at SD N 1 Jagapati, and 2 media experts. The results showed that the interactive learning media had a positive impact, with an evaluation score of 86% from teachers, indicating that the media is beneficial for teaching. The student evaluation score was 89.996%, showing a positive effect on student learning, while an evaluation score of 78% from university lecturers indicated that the media is suitable for use. It can therefore be concluded that Interactive Learning Media is highly practical for use by both students and teachers in the Social Studies learning process.

1. Introduction

In today's modern era, education is one of the most essential needs in society. There are many ways to learn, one of which is by using Interactive Learning Media to attract people's interest in learning [1]. Interactive Learning Media is a multimedia-based tool that can deliver messages or information from teachers to students, where the process involves two-way active communication between the multimedia and the user, aiming to facilitate the learning process [2], [3]. SD Negeri 1 Jagapati is a public elementary school located in the Abiansemal District, precisely in Br. Pasek, Jagapati, Badung Regency, Bali Province. The school was established in 1980 and currently has 226 students and 20 teachers. Along with technological advancements, SDN 1 Jagapati has undergone many changes, such as improved facilities — for example, the recent availability of a projector, which was previously not present. Based on observations conducted by the author in the fifth-grade classroom of SDN 1 Jagapati, the learning process still relies on conventional media such as textbooks and verbal explanations from the teacher, while students take notes and conduct group discussions [4]. However, this method of delivering material tends to feel boring and less effective, even though the school already has a projector display that is not being utilized properly [5]–[7]. The purpose of developing this Interactive Learning Media is to assist the learning process and increase students' interest in Social Studies, especially in Chapter VIII of the student worksheet (LKS), which discusses "Figures Who Played a Role in the Proclamation of Independence," and also aims to help students remember and appreciate the services of national heroes [8]. Based on these issues, the proposed solution is to create Interactive Learning Media for the Social Studies subject, focusing on introducing key figures involved in the Proclamation of Independence for

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fifth-grade students at SDN 1 Jagapati. One of the advantages of using Interactive Learning Media is its ability to present material in a visual format and to simulate or explain concepts that are difficult to convey verbally [6][9]. The author plans to present material on the Introduction to Key Figures in the Proclamation of Independence in an effective and accessible way, with the hope that it will help students better understand the topic. This project will be packaged in HTML5 format for ease of use, and the link will be distributed to each student. The Interactive Learning Media will be displayed during class sessions at SDN 1 Jagapati to assist teachers in explaining the material and to make it easier for students to understand the topic of Key Figures in the Proclamation of Independence. Based on the background described above, the title of this Final Project Report is "Interactive Learning Media for Introducing Key Figures in the Proclamation of Independence," where the development of the Interactive Learning Media for the Introduction of Key Figures in the Proclamation of Independence for fifth-grade students at SDN 1 Jagapati is implemented using Construct 2 software.

2. Materials and Methods

2.1 Research Stages

This study employs the ADDIE model (Analyze, Design, Develop, Implement, and Evaluate) as its research method. An overview of this research model is illustrated in the following figure.

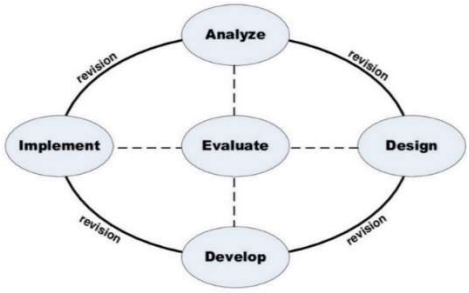

Fig. 1. Steps in Using the ADDIE Method

The following are the steps in the ADDIE development model as adapted for research that only reaches the stage of producing a final product:

1. *Analysis*

   This study aims to identify the needs and problems in learning, which include needs analysis, audience analysis, task analysis, and environmental analysis.

2. *Design*

   This stage focuses on the planning and development of learning strategies. In this process, the author defines learning objectives based on the results of the analysis, designs the learning flow, develops content and materials, and determines the most effective and appropriate instructional approaches and methods in line with expectations.

3. *Development*

   The development stage refers to the process of implementing the conceptual design into an interactive learning medium that aligns with the research objectives. The following are the detailed phases of development:

   a) In the initial phase, the development team begins to gather and create learning materials that support the content of the interactive media. Textual content is written in clear, accessible language appropriate for high school students, covering key figures of the proclamation, their roles, and historical context. Supporting visuals, videos, and interactive elements such as quizzes or simulations are also incorporated to enhance user engagement. All materials are designed to be accurate, engaging, and aligned with the learning objectives.

   b) Once the materials are prepared, the next phase involves constructing the interactive media. This includes designing an intuitive and visually appealing user interface that reflects the theme of independence. All components—text, images, videos, and interactive features—are integrated into the selected platform. Additional interactive tools such as historical timelines or interactive maps are developed to encourage independent exploration by users.

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c) After the media is fully developed, an initial trial is conducted with a small group representing the target audience, such as students or teachers. The trial aims to evaluate usability, content clarity, and overall effectiveness. Feedback is collected through various methods and analyzed to identify areas for improvement. Revisions are made accordingly through several iterations until the media reaches the desired quality. The final product is a ready-to-use, effective, and engaging learning tool.

4. *Implementation*

In the implementation stage, the developed product is ideally tested on a larger scale and applied in real-world situations. However, in this study, the implementation stage was not carried out by the author, as the research focus is on product development rather than field application. The author concentrated more on refining the interactive media based on the results of the initial trial and feedback from validators and subject matter experts. Therefore, the implementation stage can be considered a potential future step to be conducted once the product is deemed feasible and ready for use.

5. *Evaluation*

Evaluation is a crucial stage for assessing the effectiveness and quality of the developed product. It is conducted to ensure that the product meets the intended learning objectives and functions as expected. In this study, the evaluation was carried out by validators, subject matter experts, and students.

2.2 Data Sources and Research Subjects

The data sources for this study were obtained directly from social studies teachers at SD N 1 Jagapati. Data collection was carried out through two primary methods: interviews and direct observation. The interviews aimed to elicit detailed information regarding the utilization of Interactive Learning Media within the instructional process, while direct observation was conducted to ascertain the actual implementation of such media in the school environment. Employing these two methods allowed the researcher to gather comprehensive and varied data pertaining to the current learning conditions and the necessity for interactive media at the institution.

2.3 Data Collection Techniques

The data collection methods consist of two types: primary data collection and secondary data collection.

2.3.1 Primary Data Collection

The methods used to obtain primary data in this study included interviews and observations. The interview method was conducted face-to-face by asking questions to the informants, in this case, teachers at SD N 1 Jagapati, to understand the implementation of Interactive Learning Media at the school. The interview results indicated that Interactive Learning Media had never been applied at SD N 1 Jagapati, leading the author to believe that the introduction of Interactive Learning Media about important Indonesian figures would greatly assist the students' learning process both at this school and in other villages. In addition to interviews, the author also conducted observations at SD N 1 Jagapati to examine whether Interactive Learning Media about important Indonesian figures was being used. The observations revealed that teachers at the school did not utilize such media due to difficulties in creating it and the relatively high cost. Therefore, the primary data obtained from these two methods reinforce the importance of developing Interactive Learning Media that is easy to create and affordable to support the learning process in elementary schools.

2.3.2 Secondary Data Collection

The secondary data used by the author in developing the system were sourced from company documents and previous related research literature that could support the completion of the study. The methods for collecting secondary data included documentation and literature review. Documentation involves the activities of collecting, processing, storing, and retrieving documents that provide information and evidence. In this study, documentation was conducted by summarizing information about key figures involved in the proclamation of independence from various sources, such as reliable websites and the fifth-grade social studies textbooks (LKS IPS) for elementary school. Meanwhile, the literature review method involved gathering data from relevant teaching or learning books related to

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the research theme, both those studied during coursework and those obtained from trusted sources such as online journals or reputable websites. These two methods complemented each other and provided a strong foundation for the author to develop an accurate and informative system.

2.4 Research Design

Based on the illustration below, it can be explained that this study begins by determining the theme based on problems identified at the Elementary School in Jagapati Village. The main issue is the lack or even absence of Interactive Learning Media in the teaching process. As a result, the learning experience becomes monotonous and less engaging for students. To address this, the study aims to create Interactive Learning Media that can enhance students' interest and engagement in learning. The primary target is elementary school students in Jagapati Village and its surroundings.

The next step in this study is data collection. Data were gathered through observation, interviews, documentation, and literature review. This data serves as the foundation for designing an effective learning media concept that meets the students' needs. After data collection, the study proceeds to the pre-production stage, where the researcher begins designing the concept of the Interactive Learning Media. At this stage, visual aspects, animations, and other interactive elements are designed to ensure the media is engaging and easy to understand.

Next, the study enters the production phase, where the learning media is developed according to the previously designed concept. This phase involves creating content, animations, and interactive features. After production is complete, the media undergoes post-production. In this stage, the media is evaluated and refined based on initial trial results. If shortcomings are found in navigation, display, or content clarity, improvements are made before the media is ready for use.

After passing through the post-production stage, the learning media reaches the media realization phase, where the final version of the Interactive Learning Media is ready to be used in the learning process. The final step is testing, where the media is trialed with students and teachers to ensure its effectiveness in improving students' interest and understanding of the learning material.

With these steps, this study produces innovative Interactive Learning Media that can serve as a real solution to enhance the quality of learning at the elementary school level, particularly in Jagapati Village and surrounding areas. This media is expected to make learning more engaging, interactive, and facilitate students' comprehension of the subject matter.

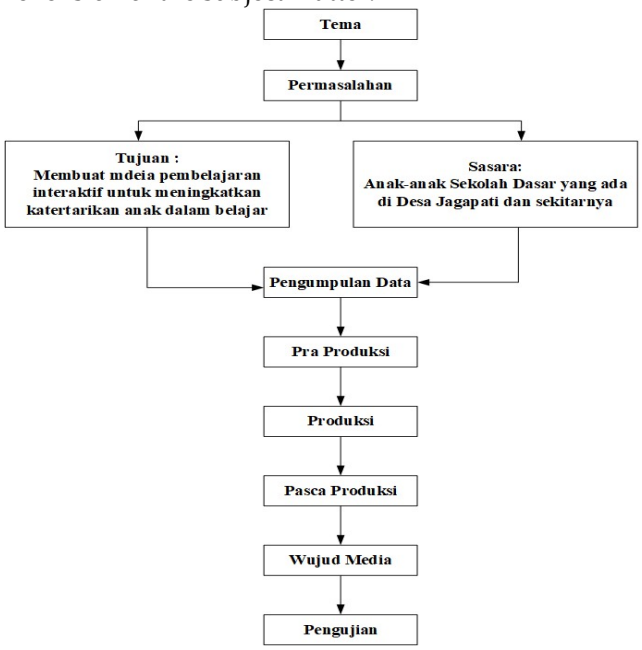

Fig. 2. Learning Media Design Scheme

3. Results and Discussion

3.1 Research Results

In this subsection, the research results obtained based on the research method used, namely the ADDIE method, will be explained. This method was chosen because it is systematic and structured,

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making it easier for the researcher to develop Interactive Learning Media that is effective and tailored to students' needs. The research results will be presented progressively according to the stages; the following are the development steps using the ADDIE method.

1) *Analyze*

The initial stage of this research began with a needs analysis to identify the necessity for developing interactive multimedia-based learning media. This analysis was conducted by examining the availability of textbooks or reference materials that support the learning activities, as well as reviewing the problems encountered in the field. The researcher carried out the needs analysis by focusing on the actual conditions at the school, particularly through dialogues with the Social Studies (IPS) subject teachers. Based on the interviews with these teachers, it was found that interactive multimedia-based learning media is highly needed. This need arises from the limited availability of teaching materials, which are deemed insufficient to optimally support the learning process. The teachers stated that the use of interactive multimedia could serve as a solution to make learning more engaging, interactive, and easier for students to understand. Thus, this needs analysis forms a crucial foundation for designing and developing learning media that align with the needs of both teachers and students.

2) *Design*

After completing the analysis stage, the research proceeded to the design phase. In this phase, the researcher designed the interactive media development product, specifically focusing on material about key figures involved in the proclamation of independence. The learning activities were designed by adapting the material obtained from interviews with Social Studies (IPS) teachers. The interactive multimedia interface was crafted to be as engaging as possible so that students would remain interested and not easily bored throughout the learning process. The design also considered ease of viewing and reading, tailored to the characteristics of the students. This aimed to ensure that the learning media would not only be informative but also enjoyable and easy for students to understand. Thus, this design phase became a crucial step in ensuring that the developed media could effectively achieve the learning objectives.

(a) Introductory Page

On the introductory page, there are two gateways that symbolize the beginning or serve as the opening of the application. These gateways act as a symbolic entrance or gate leading to a certain area. Between the two gateways, there is a play button, which, when clicked, directs the user to a loading screen before proceeding to the main menu page.

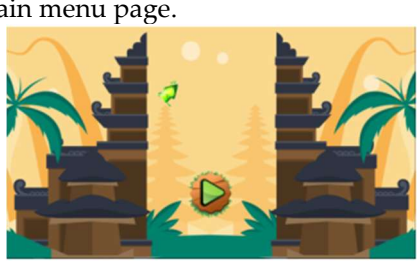

Fig. 3. Introductory Page

(b) Loading Screen Page

On the loading screen page, the INSTIKI logo appears as the educational institution supporting the interactive learning media. Additionally, a loading bar is displayed; once the loading bar is completely filled, the screen will automatically transition to the main menu page.

Fig. 4. Loading Screen Page

(c) Main Menu Page

Pada halaman menu utama ini terdapat gambar pemandangan, gambar yang menggambarkan sebuah buku yang berisikan tentang sejarah dan 2 karakter siswa yang dianimasikan disebelah buku

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tersebut, dan terdapat beberapa tombol yaitu tombol materi, evaluasi, keluar, volume *on/off*, profil pengembang dan tombol tentang aplikasi yang dimana ketika tombol diklik akan menampilkan atau berfungsi sesuai dengan yang diatur didalam *event sheets.*

Fig. 5. Main Menu Page

(d) Content Page

On the material page, there are two different sections: the video page and the text page. On the video page, users will be shown a video about the material developed by the author, where users can pause, adjust the video volume, switch to full-screen mode, and use several other features similar to those found on YouTube. Additionally, there is a home button to return to the main menu and a music button to mute or unmute the background sound. Meanwhile, the text page contains slides of the same material as the video but presented in text form, which users can navigate by using the right and left buttons according to their preference. This page also includes home and music buttons like those on the video page. The video on the video page was created using the VideoScribe application and is in MP4 format.

Fig. 6. Material Menu Display

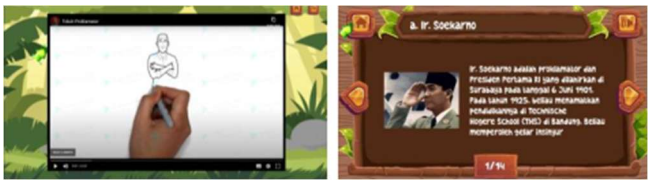

Fig. 7. Video and Text Page Display

(e) Quiz Page

The quiz page contains 10 questions, from which 5 questions will be randomly displayed. The questions are taken from the learning material, so if users have thoroughly watched or read the material, they will find it easier to answer the questions presented on the quiz page. Each question has 4 answer options: A, B, C, and D. Every correct answer earns 20 points, so if all five questions are answered correctly, the user will receive a total of 100 points. In addition to the clickable answer option buttons, there are also "home" and "music on/off" buttons that function the same as on other pages. The quiz questions are based on the material that has been summarized with assistance from the 5th-grade Social Studies (IPS) teacher at State Elementary School 1 Jagapati.

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Fig. 8. Quiz Page

(f) Score Page

The score page is a page that displays the score or result from the quiz page after the user has completed answering 5 questions. On the score page, there is only one button, which is the home button, located directly below the score. This design allows users to immediately return to the main menu and select the material again if they have not yet achieved a satisfactory score, or to go back to the main menu to exit the application.

Fig. 9. Score Page

(g) Exit Popup

This pop-up displays a small window after clicking the exit button located at the top right corner of the main menu screen. In this small window, there are two buttons: "No" and "Yes," which give the user the option to confirm whether they really want to exit the application or not.

Fig. 10. Exit Popup

3) ***Development***

The development stage is the process of realizing the product in the form of a prototype. At this stage, the learning media will be developed based on the planned design, followed by testing. Testing is conducted by running the learning media to identify any errors or issues. The testing of the learning media is carried out in two phases: Alpha Testing and Beta Testing. Alpha Testing is performed by content experts (2 IPS teachers) and media experts (2 lecturers from the Indonesian Business and Technology Institute). After successfully passing the Alpha Test, Beta Testing is conducted with the end users of the media, namely 28 fifth-grade students from State Elementary School 1 Jagapati.

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Table 1. Results of Multimedia Testing for Teachers

Question	Answer	Total	Frek (%)
Presentation of the Material	SS	1	90%
	S	1	
	RG		
	TS		
	STS		
Use of simple, straightforward, and easy-to-understand language	SS	1	90%
	S	1	
	RG		
	TS		
	STS		
Suitability of images and animations to clarify the material	SS		80%
	S	2	
	RG		
	TS		
	STS		
Suitability of the material delivered in school	SS	2	100%
	S		
	RG		
	TS		
	STS		
Clarity of the instructions in the learning media	SS		70%
	S	1	
	RG	1	
	TS		
	STS		

Table 2. Multimedia Testing Results for Students

Question	Answer	Total	Frek (%)
The material presented is clear and easy to understand	SS	15	90,71%
	S	13	
	RG		
	TS		
	STS		
The appearance of the Interactive Learning Media is very creative	SS	15	89,28%
	S	11	
	RG	2	
	TS		
	STS		
The buttons in the Interactive Learning Media function properly and correctly	SS	14	88,57%
	S	12	
	RG	2	
	TS		
	STS		
The text used in this Interactive Learning Media is easy to read	SS	19	93,57%
	S	9	
	RG		
	TS		
	STS		
The Interactive Learning Media for Introducing Figures Who Played Roles in the Proclamation of Independence is easy to use	SS	14	87,85%
	S	11	
	RG	3	
	TS		
	STS		

Based on the data presented in the table above, the results of the first question tested with teachers showed that 90% agreed the material presentation was appropriate. For the second question, 90% stated that the application uses simple and easily understandable language. The third question revealed that 80% agreed the images and animations were suitable to support the material. Regarding the fourth question, 100% confirmed that the material in the application aligns with the curriculum taught at school. The fifth question indicated that 70% found the instructions within the

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application to be clear. From these results, the overall positive response rate totals 86%, indicating that this media has a positive impact on the teachers of Elementary School No. 1 Jagapati.

Based on the data shown in the table above, the results of the student testing reveal that 90.71% of students stated that the material presented was clear and easy to understand. For the second question, 89.28% expressed that the interactive learning media display was very creative. The third question showed that 88.57% agreed the buttons in the interactive learning media functioned properly and correctly. For the fourth question, 93.57% stated that the text used in the interactive learning media was easy to read. Finally, for the fifth question, 87.85% said the interactive learning media was easy to use. The overall result totaled 89.996%, indicating that this media has a positive impact on the students of Elementary School No. 1 Jagapati.

Table 3. Multimedia Testing Results for Lecturers

Questions	Answer	Total	Frek (%)
Is the visualization of the learning media appropriate and suitable for the learners?	SS		80%
	S	2	
	RG		
	TS		
	STS		
Is the font used appropriate?	SS		70%
	S	1	
	RG	1	
	TS		
	STS		
Do the buttons in the Interactive Learning Media function properly and correctly?	SS	1	90%
	S	1	
	RG		
	TS		
	STS		
Is the color selection for this learning media appropriate?	SS		70%
	S	1	
	RG	1	
	TS		
	STS		
Is the layout composition in this learning media appropriate and precise?	SS		70%
	S	1	
	RG	1	
	TS		
	STS		

Based on the data shown in the table above, the results of the testing conducted by lecturers indicate that 80% stated the visualization of the learning media was appropriate and suitable for the learners. For the second question, 70% said that the font used was appropriate. The third question showed that 90% agreed the buttons in the Interactive Learning Media functioned well and correctly. For the fourth question, 70% stated that the color choices for the learning media were appropriate. The fifth question revealed that 70% felt the layout composition in the learning media was suitable and well-arranged. The overall result totaled 78%, meaning that this media is considered feasible for use by the lecturers at the Institut Bisnis dan Teknologi Indonesia.

3.2 Discussion

3.2.1 Steps in Developing Interactive Media

This study resulted in an interactive multimedia application developed using electronic media. Conducted on a small scale, the research allowed the identification and correction of deficiencies in the application. The development followed the ADDIE model: Analyze, Design, Development, Implementation, and Evaluation.

a) *Analyze*

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This phase involved identifying the need for interactive multimedia learning tools by examining available teaching materials and field challenges. Through discussions with social studies (IPS) teachers, it was found that current resources were limited and lacked engagement. Teachers highlighted the importance of interactive multimedia to enhance understanding and student motivation. These findings formed the foundation for designing media that meets both teacher and student needs.

b) *Design*

In this stage, the researcher develops the concept aligned with the research objectives, focusing on creating interactive multimedia about the figures involved in Indonesia's proclamation of independence. The design process involves several systematic steps to ensure the learning media is effective and meets the needs of the users:

(1) Searching for Scientific Articles
he researcher collects relevant scientific articles, journals, and references related to the proclamation figures to ensure the content is accurate, valid, and trustworthy as the foundation of the learning media.

(2) Designing the Learning Media Interface
The researcher designs the user interface of the interactive multimedia application, including layout, color choices, typography, images, and other visual elements that appeal to and are suitable for the students' characteristics. The interface is planned to be both visually attractive and easy to navigate, promoting interactivity.

(3) Organizing the Material Topics
The researcher organizes the structure and topics of the material to be included in the interactive media. The material is arranged systematically, starting from the introduction of the proclamation figures, their roles, to their contributions in the proclamation event. The material organization considers logical sequence and the students' level of understanding.

(4) Creating the Application Validity Assessment Instrument
The researcher prepares an assessment tool that will be used later to evaluate the application's validity. This instrument covers aspects such as the relevance of content, quality of display, ease of use, and the overall effectiveness of the media in supporting the learning process.

Through this design phase, the researcher ensures that the developed interactive multimedia application is not only visually appealing but also relevant, informative, and aligned with learning needs. This stage serves as a crucial foundation before proceeding to the development phase.

c) *Development*

The development stage involves transforming the conceptual design into a functional interactive multimedia application aligned with learning objectives. This includes designing the user interface, integrating structured content about figures in Indonesia's proclamation of independence, and embedding multimedia elements such as images, audio, video, and animations. The application is developed carefully to ensure clarity, accuracy, and user engagement. Prior to implementation, thorough testing is conducted to evaluate functionality, content relevance, and usability. Feedback from testing guides revisions to enhance quality and eliminate errors. After final refinements, the application is ready for use, ensuring it is both educationally effective and visually engaging.

d) *Implementation*

The implementation stage applies the developed interactive multimedia application in the actual learning process to assess its effectiveness and impact. However, this stage was not conducted in the current study due to time, resource, or scope limitations. The study focused solely on development and validation. Nevertheless, implementation is recommended for future research to test and evaluate the application in real classroom settings, allowing for further refinement based on practical use.

e) *Evaluation*

Evaluation is the process of assessing whether the developed product meets predetermined expectations and objectives. This can occur at every previous stage (formative evaluation) to identify and correct errors, or after completion (summative evaluation) to measure overall effectiveness and quality. In this study, evaluation focused on assessing the validity and practicality of the interactive multimedia application. The results determine if the product is ready for use or needs further revision.

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Thus, evaluation is a critical phase within the ADDIE model to ensure the final product meets quality standards and aligns with learning needs.

3.2.2 Validity of the Interactive Multimedia Application

Validity testing was conducted to assess the feasibility of the developed interactive media through two stages: alpha and beta testing. Alpha testing involved content experts (two social studies teachers) and media experts (two lecturers from the Indonesian Institute of Business and Technology), while beta testing involved 28 fifth-grade students from Jagapati Public Elementary School 1.

a) Alpha Testing

Content experts gave positive feedback, with average scores indicating 86% approval for aspects such as material appropriateness, language clarity, supportive images and animations, curriculum alignment, and user guide clarity. Media experts rated the application's visualization, font, button functionality, color selection, and layout composition, resulting in an average approval of 78%. These results indicate that the application is considered suitable by both content and media experts.

b) Beta Testing

Students' feedback was highly positive, with an average approval rating of approximately 90%. They noted that the material was clear and easy to understand, the media's appearance was creative, buttons functioned properly, text was easy to read, and overall usability was high. This confirms the application's effectiveness and user-friendliness from the students' perspective.

4. Conclusion

This research successfully developed an interactive multimedia application about key figures in Indonesia's proclamation of independence using the ADDIE model. Analysis confirmed the need for interactive media to enhance student engagement. The design phase produced an attractive, informative, and user-friendly application. Development created a functional product with multimedia elements, followed by testing and revisions to ensure quality. Although implementation was not conducted, evaluations from experts and students showed high validity and effectiveness, with average scores of 86%, 78%, and 90%, respectively. Thus, the application is suitable as an innovative learning tool to support student learning.

Author Contributions

Based on the results and discussion presented in this study, the researcher proposes several suggestions for further development in future research. The development of interactive media should not be limited only to the material about the figures who played a role in the proclamation of independence, but can also be expanded to cover other materials related to Social Studies subjects.

Declaration of Competing Interest

We declare that we have no conflict of interest.

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