

Development of interactive learning media using the design thinking method for Indonesian language subjects: a case study of Muhammadiyah 1 elementary school in purworejo regency

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Abstract

This study attempts to create interactive learning media using Articulate Storyline software for Indonesian language lessons in grade IV at Muhammadiyah 1 Elementary School in Purworejo Regency. The development was carried out in accordance with the Design Thinking Method, which consists of five stages, namely empathize, define, ideate, prototype, and test. This study was motivated by the low application of technology in learning and the need for media that can be used to increase students' interest in learning.

Data was collected through observation and interviews with students and teachers. The learning media designed combines multimedia in the form of videos, audio, animations, and interactive quizzes based on Google Forms that are directly connected to Google Spreadsheets for assessment. The media is stored in HTML5 and APK application formats so that it can be accessed via computers or smartphones.

The results of the pilot test showed that the learning media developed was categorized as highly effective with an average effectiveness score of 4.34 based on the signs of learning interest according to Slameto (2011), which consist of the elements of interest, involvement, enjoyment, and attention. Therefore, this learning media can be used as an alternative solution to improve the quality of interactive Indonesian language learning in elementary schools.

Keywords: Interactive Learning Media, Articulate Storyline, Indonesian Language.

1. Introduction

The development of a nation is highly dependent on the education sector, which plays an important role in producing superior human resources [1], [2]. In this context, the quality of learning and the effectiveness of teaching methods continue to be the focus of attention for academics and education practitioners. The primary challenge often faced by teachers in the field is effectively communicating lesson material to students [3]. One solution that can be implemented to overcome this is to utilize technology and multimedia resources, such as educational videos or e-learning software, to create a more participatory and user-friendly learning process [4].

Unfortunately, the use of this technology has not been optimal, especially in a number of Muhammadiyah Elementary Schools in Purworejo Regency. Many educators are not yet skilled in developing digital-based learning media, so learning activities still tend to be conventional. In fact, learning media plays a crucial role in improving the quality of learning experiences and overall education standards [5][6]. The use of appropriate media not only makes it easier for students to understand the material, but can also increase their interest and motivation to learn [7], [8].

The Merdeka Curriculum, which is currently being implemented in Indonesia, emphasizes the development of critical, creative, collaborative, and communicative thinking skills. This curriculum gives teachers the freedom to develop contextual learning that is tailored to the needs of students [9][10]. In order to support the implementation of this curriculum, learning media is needed that is not only informative but also capable of actively engaging students. Articulate Storyline has emerged as one of the software programs that can address this challenge. This software enables the creation of interactive and

engaging e-learning content, equipped with features such as quizzes, simulations, and drag-and-drop elements that can increase student engagement and interest in learning [11], [12].

Previous studies have supported the effectiveness of using Articulate Storyline. Research by [1], [13] proves that Articulate Storyline-based media can improve students' understanding and digital literacy in social studies lessons. Similarly, [3], [14] found that this media is effective in increasing students' motivation and critical thinking skills. However, research that specifically develops media with a Design Thinking approach for Indonesian language subjects in elementary schools, especially in Muhammadiyah environments, is still limited.

Based on initial observations at SD Muhammadiyah 1 Purworejo Regency, it was found that the school already has supporting facilities such as computers, projectors, and internet networks, but their use for interactive learning has not been maximized. Teachers face obstacles in creating and using digital media, while students need more interesting media to increase their interest in learning, especially in Indonesian language subjects. Therefore, this study focuses on developing interactive learning media using the Design Thinking method for Indonesian language subjects, which is expected to be an innovative and effective solution in increasing students' interest in learning.

A. Problem Formulation

Based on the above background, the problem formulation in this study is:

1. How to develop interactive learning media using Articulate Storyline with the Design Thinking method for Indonesian language subjects at SD Muhammadiyah 1 Purworejo?
2. How effective is the Articulate Storyline learning media developed in increasing the learning interest of students at SD Muhammadiyah 1 Purworejo?

B. Research Objectives

The objectives of this study are:

1. To produce interactive learning media based on Articulate Storyline for Indonesian language lessons at SD Muhammadiyah 1 Purworejo.
2. To test the effectiveness of Articulate Storyline learning media in increasing students' interest in learning.

C. Research Contribution

This research is expected to contribute both theoretically and practically:

1. Theoretically: To add to the scientific knowledge and references on the development of interactive learning media using the Design Thinking approach, especially those based on Articulate Storyline.
2. Practically:
 - a. For Schools: To provide information and alternative solutions in utilizing technology to improve the quality of learning.
 - b. For Teachers: Providing examples of learning media that are interesting and in line with the curriculum, and can be adopted in teaching and learning activities.
 - c. For Students: Increasing interest, motivation, and active involvement in the Indonesian language learning process.

2. Method

This research employs a Research and Development (R&D) approach, utilizing the Design Thinking method as its development model. Design Thinking is a user-centric, iterative problem-solving process that emphasizes empathy, creativity, and collaboration [7]. The study was conducted at Muhammadiyah 1 Elementary School in Purworejo Regency, with fourth-grade students and teachers as the primary research objects. Data collection was carried out in the 2024 academic year.

Data was gathered through qualitative and quantitative methods. Qualitative data was obtained from observations and interviews with the school principal and fourth-grade teachers to understand the challenges, needs, and context of learning in the school. Quantitative data was collected through a

questionnaire (Google Form) distributed to students after they used the learning media to measure its effectiveness.

The Design Thinking process was executed in five stages:

- a. Empathize: Conducting observations and interviews to deeply understand the needs and challenges faced by teachers and students.
- b. Define: Analyzing the findings from the empathy stage to formulate a specific and actionable problem statement.
- c. Ideate: Brainstorming and generating creative ideas for the concept and features of the interactive learning media.
- d. Prototype: Developing an initial version (prototype) of the learning media using Articulate Storyline 3 software, incorporating multimedia elements like text, images, audio, video, and interactive quizzes.
- e. Test: Testing the prototype with the target users (students) to evaluate its effectiveness and gather feedback for improvement.

The learning media was designed to be multi-platform, published in HTML5 for computer access and converted to APK format (using Website 2 APK Builder) for use on Android smartphones. Interactive quizzes were integrated using Google Forms, with responses automatically recorded in Google Sheets for assessment.

The effectiveness of the media was measured based on Slameto's [8] theory of learning interest, which includes four dimensions: enjoyment, involvement, interest, and attention. A questionnaire using a 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree) was administered to fourth-grade students (n=...). The data from the questionnaire was analyzed by calculating the average score for each dimension of Design Thinking as a framework for developing effective educational technology solutions tailored to specific local contexts, such as Muhammadiyah 1 Purworejo.

The multi-platform capability (HTML5 & APK) proved crucial, allowing the media to be used on the school's computers and students' Android smartphones and an overall effectiveness score. The effectiveness criteria were determined as follows: 1.00-1.80 (Very Ineffective), 1.81-2.60 (Ineffective), 2.61-3.40 (Moderately Effective), 3.41-4.20 (Effective), and 4.21-5.00 (Very Effective).

3. Result and Discussion

A. Results

The development process successfully produced interactive learning media for the Indonesian language subject, specifically on the theme "Asal Usul" (Origins), using Articulate Storyline. The media consists of a cover page, learning objectives page, main menu, four interactive material slides, and an integrated quiz. The media incorporates multimedia elements such as images, animations, background music, narrative audio, and educational videos sourced from Canva and other references. The navigation is simple and intuitive, featuring next, back, home, and quiz buttons. The quiz, built with Google Forms, is directly accessible from within the media and automatically records student answers and scores in Google Sheets.

The media was published in two formats: HTML5 for computers and APK for Android devices, ensuring wide accessibility across the school's available technology.

The effectiveness test results, based on student questionnaire responses, are presented in Table 1. The average scores for each dimension of learning interest are as follows: Enjoyment (4.40), Involvement (4.29), Interest (4.41), and Attention (4.26). The overall average effectiveness score is 4.34.

Table 1. Results of Media Effectiveness Testing Based on Learning Interest Dimensions.

Dimension	Indicator Code	Average Score per Indicator	Dimension Average	Category
Enjoyment	S1	04.34	04.40	Very Effective
	S2	04.46		
Involvement	T1	04.25	04.29	Effective
	T2	04.34		
Interest	K1	04.25	04.41	Very Effective
	K2	04.57		
Attention	P1	04.21	04.26	Effective
	P2	04.31		
Overall Average			04.34	Very Effective

B. Discussion

The overall score of 4.34 indicates that the developed learning media is "Very Effective" in increasing student learning interest. This success can be attributed to the application of the Design Thinking methodology, which ensured the media was developed based on a deep understanding of user needs (empathy) and involved iterative testing and refinement.

The **Enjoyment** dimension received the second-highest score (4.40). The use of colorful visuals, animations, audio, and interactive elements made the learning process more engaging and enjoyable for fourth-grade students, moving away from the monotony of conventional methods.

The **Interest** dimension scored the highest (4.41). The attractive visual design and presentation of material through various multimedia formats successfully captured and maintained student curiosity and desire to learn more about the topic.

The **Involvement** dimension score (4.29) shows that the media encouraged active participation. Features like interactive quizzes and intuitive navigation prompted students to explore and interact with the media rather than being passive recipients of information.

The **Attention** dimension score (4.26), while the lowest among the four, still falls into the "Effective" category. The media was generally successful in helping students focus and concentrate on the lesson, though there might be room for improvement in minimizing potential distractions within the vibrant design.

These findings align with previous studies. Research by Juhaeni, Safaruddin, & Salsabila [9] and Salwani & Ariani [10] also found that Articulate Storyline-based media received positive responses from students and teachers and was effective in increasing motivation and understanding. This study reinforces those findings and demonstrates the applicability, thus overcoming limitations in device availability.

4. Conclusion

This study successfully developed interactive learning media for the Indonesian language subject using Articulate Storyline through the Design Thinking stages (Empathize, Define, Ideate, Prototype, Test). The media effectively integrates multimedia elements and interactive quizzes. Based on the effectiveness test using Slameto's learning interest dimensions, the media achieved an overall score of 4.34, categorizing it as "Very Effective" in increasing the learning interest of fourth-grade students at Muhammadiyah 1 Elementary School in Purworejo. Therefore, this learning media can be recommended as an alternative learning tool to create more interactive and engaging Indonesian language learning. For future research, it is suggested to develop media for other subjects, involve a larger sample size, and address technical limitations of Articulate Storyline, such as performance with large projects and compatibility with operating systems beyond Windows.

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