



SIJARWA: Android-Based Javanese Script Sandhangan Learning Media Development Innovation

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ABSTRACT

This study aims to develop an android-based learning media for introducing Javanese script to fourth graders of an elementary school named SIJARWA. The type of research conducted is research and development using the R&D method with the ADDIE model which includes analysis, design, development, implementation, and evaluation. The validation carried out by the researchers included the validation of material experts, linguists, and props experts. The data analysis technique used is the feasibility of media quality using a questionnaire instrument. The results showed that the SIJARWA learning media is suitable for use as a learning resource for fourth-grade elementary school students

INTRODUCTION

Javanese is a local content in Indonesia subject at the elementary to junior high school levels in Indonesia. The purpose is to develop regional potential in the educational environment. The National Language Politics states that the Javanese language is a local communication tool and a regional asset that needs to be taught so that it can be mastered by students in Javanese-speaking communities (Wibawa, 2013). Students are afraid to learn Javanese. Students experience difficulties learning Javanese language subject matter, namely the skills to read and write Javanese script. Javanese script is a cultural product that needs to be preserved (Hardiati, Endang S., 2001). Various works of Javanese cultural manifested through Javanese script (Riyadi, 1996). Therefore, the Javanese script has become an inseparable part of Javanese language subjects (Hakim and Purnama, 2012).

For this reason, a solution is needed to overcome the problems of learning Javanese script, through innovative media. Innovative media is predicted to attract students' interest and increase the activity and learning achievement of fourth-grade elementary school students. Media based on games on smartphones. This media is called SIJARWA. SIJARWA is a game application designed using Construct2 software. Through SIJARWA students know, memorize, and use the Javanese script. As a game, SIJARWA has several levels of play. The higher level, the higher the mastery of skills in using the Javanese script. As a learning medium, SIJARWA is a medium for mastering Javanese script material and also an assessment tool. Therefore, the topics in SIJARWA are based on learning outcomes.

METHODS

The method used is the R&D (Research and Development) method. The ADDIE learning model (Mulyatiningsih, 2016). This model includes five stages ie analysis, design, development, implementation, and evaluation. The analysis phase is carried out by analyzing the curriculum and teaching materials. Next, the game design is carried out according to the results of the overall analysis (design). The design stage includes the planning of the game framework with the activity of determining the game concept in the form of flowcharts and storyboards. The planning of the game display design is adjusted to the design of the game framework based on a contextual approach. Development is the process of making games using the Software Game Construct2. An important element considered in this development is the involvement of students in the process of developing Javanese language learning games. Implementation is an assessment stage by media experts, material experts, and language experts. Then do trials on learning. Evaluation is carried out at each stage. The results of the assessment are used as the final evaluation material to assess the readiness of the media as a whole. Data collection uses several techniques, including literature review and observation. A literature review is intended as a reference for determining theory and problem analysis. Literature comes from a variety of information from the internet, books, research journals, and others. Observations were made on Grade IV students at SD Negeri 01 Sidomulyo to determine competence/learning achievements and teaching materials for learning Javanese

script. The data analysis process was carried out by testing the draft on several Android versions of the device and evaluating material experts, media experts, and linguists. The process of data analysis is carried out to determine the suitability of the media criteria with the specified norms. The presentation of data in this study uses tables to present the results of the media draft test and the results of the validator's assessment of the validity of the SIJARWA media.

RESULTS AND DISCUSSION

Javanese Script

Javanese script is one part of the Javanese language learning material. Learning Javanese script is not just learning to write and read Javanese letters, but is expected to be able to remember and apply the noble values of Javanese culture. The Javanese script is based on a philosophy of thinking and acting wisely, as is the story behind the script's existence. Studying the Javanese script helps preserve the cultural works of the Javanese people contained in ancient texts (Fakhruddin, Sachari and Haswanto, 2019). The Javanese script has 20 basic letters, namely *ha na ca ra ka, da, ta, sa, wa, la, pa, dha, ja, yes, nya, ma, ga, ba, tha, nga*.

Problem Javanese Script Learning

SDN 01 Sidomulyo, Sidomulyo Village, Jabung District, Malang Regency has problems learning Javanese script. The source of the problem is the habit of students using Indonesian as their mother tongue, so they do not understand the Javanese language system. Next, learning the Javanese script only emphasizes aspects of knowledge, so it is less able to activate reading and writing skills. Students are less interested in learning because they are not supported by interesting media. Learning is only done by reading textbooks. This is in line with Supriyono's research, that the low level of recognition of Javanese script is due to the use of textbooks as learning media (Rahmadzani et al., 2017).

Game-Based Javanese Script Learning Media

Learning media is a device that functions to facilitate understanding and arouse student motivation. Learning media requires learning Javanese script that is foreign to students (Martha Lusiana, Alviani Permata and Raden Bima Adi, 2021).

Effective media is game-based media, namely educational games. Dewi (Nurdiana and Suryadi, 2018) states that educational games are designed to stimulate thinking including increased concentration and problems solving. Through educational games, students feel happy so they are actively involved. The pleasure of learning can encourage students to study intensively. Educational games also guide students to better understand the concepts presented. Game media supports the teaching and learning process to be more fun and creative.

Regarding the educational game, Purnomo suggests a solution to overcome the low ability of students in learning Javanese script by using an interesting Javanese script learning application (Purnomo, 2018). The use of the application is intended to help teachers convey material more clearly and

interestingly so that students can recognize and practice Javanese script readingskills.

SIJARWA

Sijarwa stands for "*Sinau aksara Jawa*" which is a learning medium for introducing the Javanese *sandhangan letters*. The purpose of using SIJARWA is to improve students' ability to recognize, memorize, and read the Javanese script and its garb through a game application.

Results

Table 1. Draft Testing on Several Android Versions

No	Device	Type of Android	Installation Process	Application Running Process
1	Redmi 5A	Versi 7.1.2 (Nougat)	Installation was successful	Runs fine without any errors
2	Redmi 8A Pro	Versi 9.0 (Pie)	Installation was successful	Runs fine without any errors
3	Oppo A15s	Versi 10 (Quince Tart)	Installation was successful	Runs fine without any errors
4	Xiaomi Pocom3	Versi 10 (Quince Tart)	Installation was successful	Runs fine without any errors
5	Oppo A5 2020	Versi 11 (Red Velvet Cake)	Installation was successful	Runs fine without any errors
6	Oppo A1k	Versi 9.0 (Pie)	Installation was successful	Runs fine without any errors

Table 2. SIJARWA Validity Assessment Results

No.	Subject Validation	Validation Result	Remark	Comment and General Suggestions	Conclusion
1	Media expert	90,58%	Excellent	Tidying up the learning feature of the Javanese script form	Worth using with revisions as suggested on several android versions
2	Material expert	96,47%	Excellent	The application meets eligibility standards in elementary schools and can be applied to learning	Eligible for use/field trials without revision
3	Linguists	100%	Excellent	In general, it is good and the application is immediately equipped.	Eligible for use/field trials without revision

Discussion

Based on the results of the analysis, the achievement of learning the Javanese script for class IV is to know and understand the Javanese script legena, especially the types of sandhangan and the use of sandhangan. Teaching materials are sourced from Tantri Basa textbooks. This book is used for learning resources and media.





At the design stage, the researcher planned the game framework which included determining the game concept. The game is laid out by making use of case development diagrams as a guideline for developing SIJARWA.

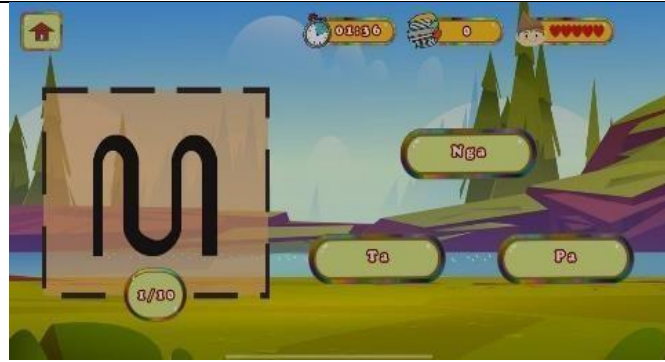


Figure 1. Use Case for Learning Media Development

Based on the results of application development, the following is an explanation of each stage regarding the appearance and description of SIJARWA. Prepare png format design assets using Corel Draw software. Prepare recordings of Javanese script sounds and gameplay audio. Designing applications using Construct2 software by combining prepared assets such as on design, audio, and so. The application draft in Construct2 is extracted into HTML5 format. After that, convert the application project from HTML5 to apk format using the 2APKBuilder software. Doing a trial phase on several Android versions of the device. Based on the results of converting the application project into apk format, the results of testing the application on devices with several versions of Android are presented in table 1. The results of this development produce SIJARWA media with specifications of 16.7 MB with the condition that the device installation has a minimum Android version of version 1.0 with appearance and description. as follows.

Table 3. Game Display Design

Game Main Menu Display	
	<p>The main menu display appears after the loading screen.</p>
Main Menu Display of Learning Options	
	<p>This display is the main page in choosing to learn. Users can choose to learn Javanese or <i>sandhangan</i> script.</p>
Display Mode in Javanese Script Learning	
	<p>This display appears when the user selects the Javanese script. In this view, the user will be given study and quiz options.</p>
Display of the Javanese Script Learning Options Menu	
	<p>In this view, users will be given learning options to memorize the Javanese script. The options given are learning characters one by one. Learn all the scripts, and match the forms of the Javanese script.</p>
Javanese Script Quiz Display	



This display is a quiz for users to measure their ability to memorize Javanese script legends of as many as 20 letters.

Display of the Backup Options Menu



In this view, users are given options for learning Javanese script *sandhangan*

View of Sandhangan Material



In this view, the user will receive material before entering the game or post-test

Post-test display



In this view, users can complete Javanese script quizzes containing sandhangan swara, panyigeg wanda, and wyanjana. How to play it based on drag and drop. The user shifts the Javanese and sandhangan characters into the empty column to arrange the words that are already available in the question.

The implementation of SIJARWA is carried out with validation activities on media experts, material experts, and linguists to assess the feasibility of the media. The results of the validation show that the SIJARWA media is feasible to use as shown in table 2. The advice given by the validator is to tidy up the learning features of the letters. While other experts stated that learning applications were ready to be used in learning because they met the eligibility standards. Therefore, it is recommended to complete the application completely.

Based on the evaluation results in the four previous stages, the researcher made improvements to the application in terms of design, appearance, and content according to general suggestions from validators and students. In addition, an evaluation is carried out for maintenance so that the system error can be identified. Based on the results of the evaluation of the application of SIJARWA media, SIJARWA learning media is suitable for use in learning.

CONCLUSIONS AND RECOMMENDATIONS

The SIJARWA learning media is a medium for introducing and understanding the Javanese script and its garb. Students can play and carry out the learning process of the Javanese script in a fun way. Learning outcomes can also increase. In addition, the use of mobile phones no longer harms students. It is recommended that these media be applied and developed so that they can achieve the next learning objectives.

The researchers realize that it is necessary to improve the SIJARWA application. Follow-up needs to develop SIJARWA to achieve competence in writing Javanese scripts. Further, the application will be developed for features such as levels and other playing modes in the game. Hoped that students will learn easily and actively so that they can develop aspects of Javanese culture through the use of technology.

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