

# Development of a Mobile Based Education Game on Parikan, Paribasan, and Tembang As a Java Language Learning Media For Vocational Students

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The mobile based Education Game on Parikan, Paribasan, and Tembang is an educational game that aims as a learning media of Java Language for vocational students. The Game development was inspired by students' low interest in learning Javanese. Players are invited to learn parikan, paribasan, and Javanese songs (tembang), especially Tembang Macapat. The game contains quizzes to complete text hitchhiking, interpret meanings, and identify traits. This game was developed using Unity 3D 5.4 and was designed using Corel Draw X7. The development method adopted from Research & Development (R&D) of Borg & Gall, consists of six stages, namely: determining potential and problems, gathering information, product development, product validation, product revisions, and product trials. Product validation involves media and material experts. The results of product validation are a representation of the feasibility of the media and material for the product that was developed and subsequently used, as suggestions for improvement before the trial was carried out. The trial involved

research subjects in vocational students in Malang, involving around 30 students who were randomly selected. The implementation results indicated that this game is valid and feasible to use, 87% of students giving very interesting responses and 13% of students giving interesting responses.

**Keywords:** mobile learning, Java Language, vocational education, learning media, education game

## 1. Introduction

Javanese is the daily language of the population of Indonesian ethnic Javanese in Central Java, Yogyakarta and East Java. Javanese is quite unique because in addition to the daily sentence structure, it also has its own rhymes, proverbs, and songs. Pantun is called Parikan, proverb is called Paribasan, and song is called Tembang. The use and understanding of Javanese in Indonesia is almost fading, because it is considered difficult and troublesome. This is due to the lack of children's interest in Javanese and Javanese language lessons are considered less motivating, even though Javanese contains good Javanese manners and is beneficial for social life. According to Wibawa, one of the main functions of Javanese Language is as an educational function that can lead to regional cultural values for the purposes of forming the nation's personality and identity [1].

The problem of Javanese Language Teachers in Vocational High Schools (SMK) is the difficulty of developing teaching materials due to limited knowledge about the literature that can be used as a reference [2]. Based on research conducted by Bapeda DIY, one of the factors that inhibits the learning process of Javanese, 75% is caused by the lack of teacher's ability in mastering and delivering material [3]. Both of these can make the educational function of the Javanese language unable to be conveyed to students, and can make students' interests low in Javanese. Javanese language becomes a subject of local content with an allocation of 2 hours that must be shared with cultural arts, making Javanese subjects underestimated by students and is considered not important by most people.

Koriaty in her research, explained that students' interest in educational games developed for productive TKJ in Vocational Schools, was very high [4]. In addition, the Uproar of Laughter is a new innovation because there is no educational game about Javanese language literature with parikan content, paribasan, and Javanese song. Most mobile applications are made about the game introduction to Javanese script and Javanese Language Pack. The search results in PlayStore in Figure 1 have not found a game whose content discusses Javanese parikan, paribasan, and song.



Figure 1. Search Results in Playstore

Based on these problems, interactive learning is needed as a fun alternative and can make learning more meaningful and provide educational functions to students. One fun learning media is a mobile-based educational game. This form of learning media enables students to learn and utilise smartphones effectively. In accordance with the 2013 Curriculum in SMK there is material about Parikan, Paribasan, and Tembang. Therefore, researchers offer a mobile-based educational game that can be used as a learning media on Parikan, Paribasan, and Tembang material for teachers and students in vocational high schools. This educational game is presented in the form of an android mobile application, so it can be easily accessed anytime, anywhere.

This educational game provides information and knowledge about Parikan, Paribasan, and Javanese Tembang, so that teachers and students more easily understand the material. Another feature available in this game is that the quiz completes the text and makes sense. The development of this educational game is expected to make vocational students more motivated

to learn Javanese. This study aims to develop a mobile-based educational game as an interactive learning media to learn Parikan, Paribasan, and Tembang Jawa materials for vocational students in Indonesia.

## 2. Methodology

The educational game was developed by the Research and Development (R & D) method. The researcher chose the R&D model for the following reasons: (1) the R&D development model is suitable for efforts to develop educational practices, (2) the development steps are dynamic and quite easy to implement in the field, and (3) the sequence of each step is arranged systematically so that the implementation of each step is properly controlled.

The research phase includes (1) the needs analysis phase and (2) the product development stage. In the needs analysis phase, the analysis includes: (1) learning difficulties of vocational students in Javanese language, (2) input, process, and output expected from games, (3) devices used for game development. The method of operational R&D development adopts the Borg & Gall theory covering 9 stages, namely: (1) Potential and Problems; (2) Gathering Information; (3) Model Development; (4) Model Validation; (5) Model Revision; (6) Model Testing; (7) Model Revision; (8) Wider Testing; and (9) Final Model Revision [5]. But in this development only 6 stages are implemented as in Figure 2.



Figure 2. Development process flowchart

### 2.1 Potential and problems

From the results of the needs analysis we will get problems that can strengthen the reason for making the game. Then it will make it easier to bring up the potential of the game as a medium for learning Javanese for vocational students. At this stage interviews were conducted with 15 vocational students.



## **2.2 Gathering information**

At this stage a study of game development literature is carried out, so that it can be developed in accordance with the objectives and potential to be achieved. The study includes a study of UI design (user interface) and programming languages in building games.

## **2.3 Model development**

Game user interface design is done in the initial stages of game design, while the game development stage is coding the programming language. For making designs Corel Draw 7 software is used and for working games Unity 3D 5.4 software is used.

## **2.4 Model validation**

This stage of the game can be operated, so that validation involves media experts and material experts to determine the representation of the feasibility of the media and the material for the game being developed. At this stage, the researcher asked two experts to fill out the material and media validation instruments.

## **2.5 Model revision**

This stage is revised to the game that was developed based on suggestions for improvement after validation by media experts and material experts. The revision stage was carried out until there were no more revisions from media experts and material experts.

## **2.6 Model testing**

The final stage is to do a trial game developed to the subject of vocational students in Malang with a total of about 30 students chosen at random. The students are asked to operate educational games, then asked to fill out questionnaires to find out students' responses to the game. The results of the trial are used to decide whether the product development is appropriate and feasible with the objectives to be achieved and in accordance with the intended subject.

## **3. Results**

The results of the development of educational games are explained in each section, as follows:

### 3.1 Homepage

There is a wiwit dolanan menu, suara, katerangan, and metu to exit the game on the homepage.



Figure 3. Homepage

### 3.2 Suara

There is a slider to adjust the volume of game background music on this page.



Figure 4. Suara

### 3.3 Katerangan

Figure 5 is a display page to see game information. Figure 6 is a display of instructions for using buttons in the game.



Figure 5. Katerangan page



Figure 6. User Instruction

### 3.4 Babagan

Figure 7 is the babagan page display that appears when the wiwit dolanan button is selected. There are three choices, namely parikan, paribasan, and macapat.

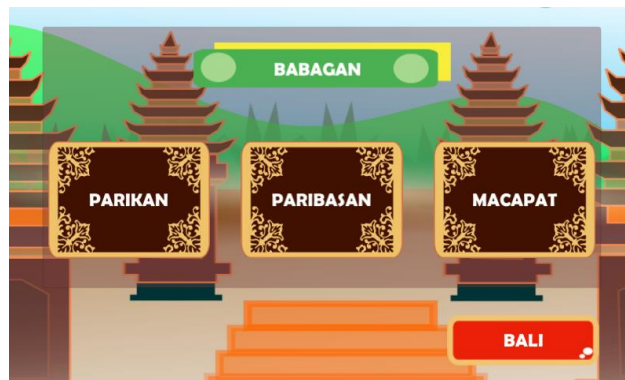


Figure 7. Babagan page

### 3.5 Parikan

Figure 8 is a display of the parikan that appears when the parikan button is selected. There are two choices, bahan and quiz. The same display will appear when selecting paribasan and macapat.



Figure 8. Parikan page

### 3.6 Bahan Parikan

When the bahan button is selected, material from the selected chapter will appear. Figure 9 is a display parikan definition. If choosing babagan paribasan and tembang, this will bring up material from definition, characteristics, and examples from babagan.



Figure 9. Pangerten page





Figure 10. Tengere page

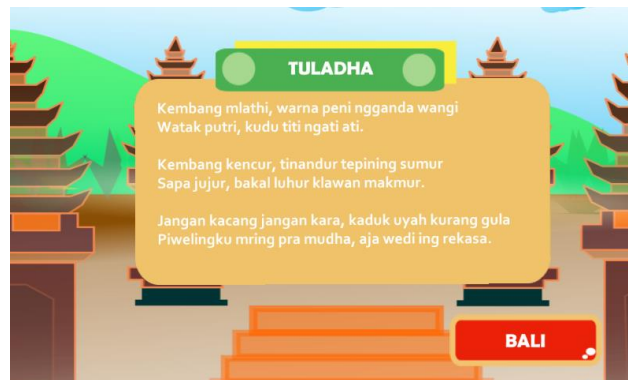


Figure 11. Tuladha page

### 3.7 Parikan Quiz

Figure 12 is a display of the quiz page that appears when the quiz button is selected. The way to play it is by filling in the voiced text to complete the parikan. There is a 25 second work time for 5 questions. Each question gets a value of 20 if the answer is correct.



Figure 12. Parikan Quiz

### 3.8 Paribasan Quiz

Figure 13 is a paribasan quiz page display that appears when the quiz button is selected. How to play is by interpreting the meaning of paribasan. The time is limited to 30 seconds for 5 questions. Each question gets a value of 20 if the answer is correct.

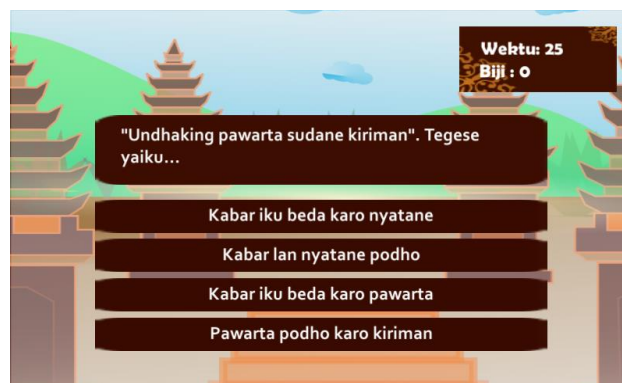


Figure 13. Paribasan Quiz

### 3.9 Macapat Quiz

Figure 14 is a display of the macapat quiz page that appears when the quiz button is selected. How to play is by choosing the appropriate features. The time limit is 30 seconds for 5 questions. Each question gets a value of 20 if the answer is correct.



Figure 14. Macapat Quiz

### 3.10 End Quiz

Figure 15 is a display when the quiz is completed or time is running out. There is a turnaround time and the score obtained.



Figure 15. End Quiz

After development, the next step is to conduct a material and media feasibility test to experts in their fields. Professional experts in their respective fields whom we designate as material experts and media experts. Material experts are Javanese Literature lecturers with Masters degrees, while media experts are Visual Communication Design lecturers with Masters degrees. The results of the validation of phase I media experts are "Valid with revisions". Some of the revisions are: (1) UI design is dominated by colours that show the Javanese theme, (2) Changes in the colour of the game's title on the game's homepage, (3) Using of font types. The result of the expert validation of the Phase I material is "Valid with revisions". Some of the revisions are: (1) Main change to Wiwit Dolanan, (2) Balik change to Bali, 3) Teruse change to Candhake, (4) Keterangan change to Katerangan, (5) Ciri-ciri change to Tengere, (6) Mode change to Babagan. Based on the validation of the research experts revised, then conducted a phase II validation to show that the results have been valid.

Product testing by vocational students is done after the product is feasible or valid according to the results of the expert validation test. This testing was conducted on research subjects of vocational high school students in Malang. As many as 87% of students gave "very interesting" responses to the game that was developed by reason of it's interactive appearance, easy to operate, clear instructions, not boring, and in accordance with the material. And the remaining

13% of students gave "interesting" responses on the grounds it needed to be added to the level in the game so that it would be more interesting to students and students' understanding would increase as shown in Figure 16.

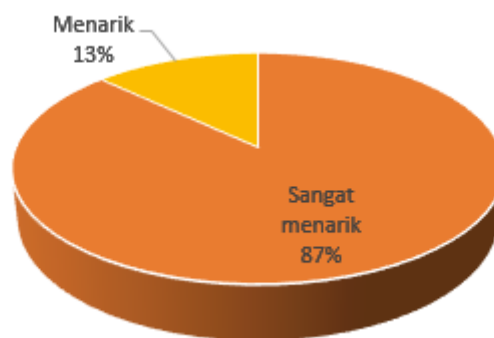


Figure 16. Percentage of Student Responses to Game

The development of the game is very appropriate to overcome the lack of interest in learning Javanese in vocational students. Parikan, paribasan, and Tembang Jawa contain a lot of life philosophy that can help shape the nation's personality. It is very important to be promoted again as a provision for students in social life.

In addition to developing Javanese language, the application of educational games in learning also aims to increase students' interest in learning Javanese. Interest in learning needs to be cultivated first so that students' learning goals are achieved. One of them is by providing alternative learning media that are interesting, interactive, and innovative. The use of interactive learning media in fact can increase student interest in learning. The graph of the tendency of students' interest in this educational game is shown in Figure 17.

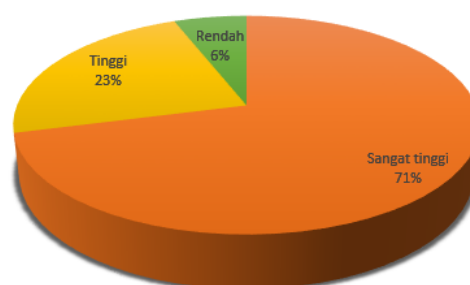


Figure 17. Trend of Student Interest in Game



Nugroho in his research stated that there was an increase in student interest from 55.97% to 76.54% in learning when using learning based on mobile learning games [6]. This means that with the help of attractive and interactive learning media, students can be more motivated so that their interest in learning increases. Another study conducted by Alexius [7], who developed an educational game application by giving material and quizzes in game, said that students were more interested in learning with the help of interactive media by 84%. Another study conducted by Fitriani [8], found the percentage of students' interest scores before and after the learning process increased from 71.07% to 87.26%. These three studies reinforce the reason for choosing educational game media because it can increase student interest.

The advantages are (1) attractive and simple design, (2) there has never been a similar educational game before, and (3) mobile-based. The game is designed with a Javanese nuance with a dominant brown colour and an arching. In the game there are materials that have been summarised into understanding, characteristics, and examples so that students more easily understand the material. In the quiz section, the students are given time according to the level of difficulty of the questions. Provision of time is intended to train the speed and accuracy of students in thinking. The language used in the game is Javanese with the Solo-Yogya dialect, but on the Katerangan menu there is translation information in Indonesian about Javanese used in the game.

From the results of the trials that have been described, the educational game of the Uproar of Laughter has been feasible as a medium for learning Javanese language about parikan, paribasan, and Javanese song for vocational students and this game can solve the problem of students' lack of interest in Javanese.

#### **4. Acknowledgements**

This application can provide another alternative for users in learning Javanese, especially regarding parikan, paribasan, and tembang Jawa through the material and quizzes in the Game, which in each game will help users in adding knowledge and vocabulary of Javanese. This game has run well on Android devices. Based on the results of the validation and trial



implementation of making this application, it can be concluded that this game can meet the initial purpose of making the application, namely as a medium of learning Javanese language, to increase vocational students' interest in learning about Javanese.

However, this educational game can still be developed even further, both in terms of design and in terms of user experience. This game is still limited to be used on Android smartphones. It can be developed so that it can be used on other OS platforms such as Windows, iOS, and so on.



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