

USING EDUCATIONAL GAME APPLICATIONS TO READ WITHOUT SPEAKING IN PAUD PERMATA HATI KISARAN

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ABSTRACT

This study was conducted as an effort to determine the use of educational game applications in learning to read without spelling at PAUD Permata Hati Kisaran. This research method uses the SDLC Waterfall method. Waterfall or Classic Life Cycle is a method that is widely used in Software Engineering, this method takes a systematic and sequential approach from the level of system requirements and then goes to the analysis, design, implementation, and system testing stages. It is called Waterfall because the stages that are passed must wait for the completion of the previous stage and run sequentially. The educational game application presents subject matter for recognizing letters and reading sentences that are equipped with display text, images and letters that can be seen clearly and are equipped with the sounds of letters and sentences. The results of the analysis show that the use of educational game applications is able to train learning to read without spelling in words Permata Hati Range Early Childhood Education. The use of educational game applications has benefits in the learning process at Permata Hati Kisaran PAUD. The use of educational game applications makes it easier to teach reading without spelling at Permata Hati Kisaran PAUD.

Keywords: *educational game, learn to read without spelling.*

1. INTRODUCTION

According to the Big Indonesian Dictionary (KBBI), reading is seeing and understanding the contents of what is written (by speaking and or only in the heart). Reading is one of the skills needed by students, especially for students who will enter elementary school (Noviana, 2013: 4). In early childhood learning, students have been introduced to

reading. However, this introduction to reading is not taught directly as individual learning to students, but by playing (Dikdasmen, 2009). According to Lely Tobing Mont in Syamsuddin (2014: 7), playing does not only train physical development, but also the brain. Brain stimulation that occurs when students play will develop students' problem solving skills, language skills, logic skills,

and other basic concepts. Learning to Read Without Spelling is one of the methods used to learn to read.

One method that can be applied to learn to read is the Learning to Read Without Spelling method. The method of learning to read without spelling is taught to students by playing (Noviana, 2013: 5). This method is in accordance with the principles of implementing education in PAUD, namely playing while learning and learning while playing (Dikdasmen, 2009). To support the process of learning to read with the method of Learning to Read Without Spelling used learning media. Media that has been used to learn to read with the method of Learning to Read Without Spelling is to use the media of books and syllable cards. When playing while learning, students are trained to express answers, which means students practice using language to communicate and express ideas or thoughts. Thus playing will train students' language.

The role of the use of educational game applications can also help to achieve learning targets through fun experiences by involving some visual aspects, graphic appeal, challenges or competition systems, and the excitement of interacting with devices. The selection of learning for students must also be adjusted to the characteristics of early childhood students (Mortara, 2013). The use of educational game applications in the form of learning videos can help in recognizing the shape of objects through the form of images and train them to be able to analyze and conclude so that they can understand the material presented (Anugerah, et al, 2020). Educational game applications can be an alternative to developing applications

as a medium for learning to read, because educational games are made not only for learning media but also for entertainment (E-learning Faculty Modules, 2012).

Learning using educational game applications is able to provide a more relaxed condition that is felt when learning, with this condition you will not experience learning fatigue because the material presented in this game model is really a form of game (Darmawan, 2013: 192). In addition, based on several studies, educational games that are used as learning media, besides being able to increase learning motivation, can also improve learning outcomes (Kordaki, 2011; Hwang, et al, 2012; Chu and Chang, 2014). Then research conducted by Hung, et al (2014), states that the achievement of learning to use games on mobile devices is higher than those who use e-book applications in learning.

Based on the description that has been submitted, it is necessary to do research to use educational game applications in teaching and learning without spelling. This educational game application is expected to be more interesting for students in learning to read so that it can be an alternative media for learning to read for PAUD PermataHatiKisaran students.

2. LITERATURE REVIEW

1. Learn to Read Without Spelling

Learning to Read without Spelling is one of the methods used to learn to read. The BMTM method is a method of learning to read without spelling which was invented by Intan Noviana. In her book, Intan Noviana mentions that the ability to read is a necessity for children,

especially for children who will enter elementary school. In this technique of learning to read, children are not taught to read, but children are invited to play, draw and do other activities

that children like. In this method, it is forbidden to introduce letters, because it can burden the child. Children are only introduced to syllables, the term syllable is not mentioned but replaced with the term name (Noviana, 2013: 4). The advantages of teaching reading with the method of reading without spelling, among others (Noviana, 2008):

1. Children are active, meaning that only by being given an example of reading the title children can learn to read independently.
2. The teacher can apply an assistance system, namely with the help of other students who are already more fluent in reading.
3. By having a book to learn to read without spelling, besides being able to study at school, children can study on their own at home with the help of their parents.

Reading practice books with the BMTM method introduce children to many syllables and words. The syllables are as follows (Noviana, 2008): a, ba, ca, da, ka, la, ma, na, sa, ja, ra, pa, i, bi, ci, di, ki, li, mi, ni, si, ji, ri, pi, u, bu, cu, du, ku, lu, mu, nu, su, ju, ru, pu, o, bo, co, do, ko, lo, mo, no, so, jo, ro, po, e, be, ce, de, ke, le, me, ne, se, je, re, pe, ta, wa, ga, ha, ya, fa, nga, nya, va, za, ti, wi, gi, hi, yi, fi, ngi, nyi, vi, zi, tu, wu, gu, hu, yufu, ngu, nyu, vu, zu, to, wo, go, ho, yo, fo, ngo, nyo, vo, zo, te, we, ge, he, ye, ve, nge, nye,

ve, ze, da-n, me-m, be-r, ku-s, ya-ng, wa-h, sa-l, ga-p, ra-f, sa-w, pa-k, ma-t, ka-v, ta-b, ma-g, ra-y, ta-j, ko -ny, kha, pro, sya, qu, tri, dwi, kra. After the child is introduced to these syllables, then the child is invited to read sentences containing the syllables that have been introduced (Noviana, 2013: 6).

2. Educational Game Apps

Educational games are digital games that can provide opportunities to play through a simulated environment and can be an integral part of learning and intellectual development. Educational games are made for specifications as a tool. Education is a learning model that is applied in schools so that children do not get bored easily. The use of systems in learning is very necessary, in order to change boring and monotonous formal learning into educational and fun learning through game intermediaries. Educational games are considered suitable for Indonesian students who want fun learning. Educational games are games designed to teach people about a subject and to teach skills (Keese, 2012).

Educational games are designed not only as learning media but also entertainment (E-learning Faculty Modules, 2012). Educational games can generate student motivation, so students want to learn without being asked (Brawerman, 2013).

Besides being able to increase student motivation, educational games can also improve student learning outcomes (Kordaki, 2011; Hwang, et al, 2012; Chu and Chang, 2013).

Learning using games is able to

provide more relaxed condition that students feel when learning. With this condition, students will not experience learning fatigue because the material presented in this game model is really a form of game like games that are often found in rentals today (Darmawan, 2013: 192).

3. RESEARCH METHODOLOGY

This In this study the author uses the SDLC Waterfall method. Waterfall or Classic Life Cycle is a method that is widely used in Software Engineering, this method takes a systematic and sequential approach from the level of system requirements and then goes to the analysis, design, implementation, and system testing stages. It is called Waterfall because the stages that are passed must wait for the completion of the previous stage and run sequentially. The stages in this research are:

- a. Data collection. This stage is carried out to obtain the necessary data, namely making observations to the class to identify students. Grouping is done by selecting students who are categorized as smart, moderate and less intelligent.
- b. Analysis. The analysis stage is carried out to analyze the

problem and determine the needs needed in making the system. The results of the analysis are then used as the basis for designing the system design .

- c. Design. The design stage is carried out to determine the flow of data and processes that occur in the system. The system design is carried out using the Unified Modeling Language (UML).
- d. System Implementation. The implementation stage is carried out to translate the design that has been made using a programming language so that it can be developed into a system or software. The system will be created and developed based on a desktop using visual basic to test the use of learning applications in applying the jigsaw method to a computerized system .
- e. System Testing. Stages of system testing are carried out to determine whether the system created is in accordance with the planned objectives. System testing is done using the black-box testing method .
- f. The following is an illustration of the research method carried out:

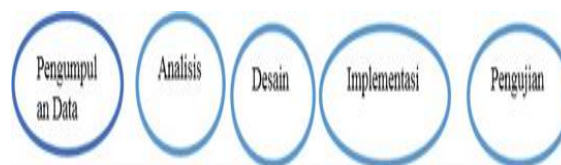


Figure 1. Research Method

4. DATA ANALYSIS AND RESEARCH FINDINGS

1. Data Analysis Data

System Analysis and Design

To explain the flow and concepts of the research, the writing uses the Unified Modeling Language (UML) to model the flow of the research carried out. UML is described

starting from use cases and activity diagrams. The UML of the learning

media system can be seen in the figure.

No	Use Case	Deskripsi
1	Memilih Materi Belajar	Use Case memilih materi belajar merupakan proses memilih materi pembelajaran, melihat isi materi dan mendengarkan suara pengucapan penjelasan dari setiap materi yang ada.
2	Memilih Soal Bermain	Use Case memilih soal bermain merupakan proses memilih soal permainan lalu menjawab pertanyaan pilihan berganda yang dijadikan sebagai test belajar dan bermainnya pengguna.
3	Mengelola Soal Permainan	Use Case mengelola soal ini merupakan proses mengelola soal yang dilakukan oleh admin pada halaman administrator halaman soal

FIGURE 2. Admin Login Use Case

In Figure 2 the use case of the application can be seen how the relationship between the use of the application between the admin and the user can be seen. The admin actor here is the homeroom teacher of each class and the user actor is a student or

called the player as a user.

a. Defining Use Case

A use case should describe a job where the job will provide useful information to the actor.

Table 3. Defining Use Case



b. Use Case Scenarios

This section is a detailed scenario of each use case that has been defined in the form of the following function scenario table.

Table 4. Use Case Scenarios for Choosing Learning Materials

AksiAktor	ReaksiSistem
1. Memilih Materi mengenal huruf	Menampilkan halaman soal mengenal huruf
2. Memilih materi menyusun huruf	Menampilkan halaman soal menyusun huruf

Use Case Name: Choose a game

question Actor : User



Table 5. Use Case Scenarios for Choosing Playing Questions

Actor Action	System Reaction
1. Choosing a Lettering Game	- Showing the game page for lettering questions
2. Selecting the Letter Recognition Game	- Showing the Games page letter recognition

Implementation

In this educational game there is a main menu, namely the player and admin menu. The player menu is a menu to open the player menu page while the admin menu is to open the admin login menu page to process game questions. The implementation of the jigsaw learning model presented in the educational game learning media is as follows.

- a. The teacher makes 4 groups consisting of a collection of smart students and less intelligent students
- b. Each group consists of 2 people, each consisting of smart students and students who are less intelligent in the 1 group
- c. The process of the jigsaw method by utilizing

computerized technology is using educational games as learning media that is applied to the learning process .

- d. The teacher calls each smart leader from each group to understand and discuss the material to be discussed
- e. After that, the teacher invites each group leader to teach the members
- f. In this section, the results of the research are explained and at the same time a comprehensive discussion is given. The results can be presented in the form of images, graphs, tables and others that make the reader understand easily. The discussion can be carried out in several sub-chapters to further clarify the description.

The display of learning media in this jigsaw practice is as follows:



Figure3. Main menu Game

Figure 3 above is the main menu that will be accessed by players. Admin menu can only be accessed by admin on here is the guardian class by logging in using your username and password to gain entry into the processing pages about the game. On the player menu that is accessed by the user, there is a menu page that contains a menu of options in the game process. To make it clearer, the author presents the player sub menu display as follows.

Font Recognition Play Page Display

The display of the letter recognition play page is the display of the game to recognize the letters of the alphabet from A to Z. In this game the letters of the alphabet appear and are equipped with a listen to voice menu and a menu for the next letter as well as the start menu and return to the player menu. The image of the letter recognition play page is as follows.

Figure 4. Letter Recognition Game Page

In Figure 4 above, the author will explain the steps how to play it as follows.

- a. The player clicks the start button to play, then a question of the letter A will appear as shown above in Figure 4.2
- b. Players are given a menu to listen to the sound of the letters in order to make it easier for students to understand the sound of the letters that appear on the questions. By clicking on the menu listen to the sound of the letters, the system will output the sound of the letters.
- c. To continue with the next letter, the user clicks on the menu for the next letter, then the letter will automatically change to B and so on.
- d. The menu returns to the main menu, which is clicked by the user, which will take the user back to the player page.

Page Display Playing Lettering

The layout of the lettering play page is a game display with the activity of arranging letters. In this game, a sentence reading text appears that must be answered by the user by arranging the letters found on the alphabet buttons in the educational game, you can also use the keyboard on the computer. The player must

answer the questions by matching the sentence text questions with the letters arranged by the players. The pictures of the play page reading sentences are as follows:



Figure 5. Matching Game Pages

In Figure 5 above the author will explain the steps how to play as follows:

- a. Players will be presented with letter questions in the sentence text and pay close attention .
- b. Players are given a menu to listen to the sound of the letters in order to make it easier for students to understand the sound of the spelling of the letters. By clicking on the menu listen to the sound of the letters, the system will output the sound of the letters from the text of the sentences that appear.
- c. After the user understands the reading by looking at the written form and listening to the sound of the letters, the user can choose the answer from the questions given. In the answer choices there are 4 (four) choices. The user must click on one of them
- d. to be matched with the questions and answers.
- e. After that a confirmation of the answer will appear whether the player is sure of the selected answer or not. if the user clicks yes then the system will respond to the answer whether it is true or false and if the user clicks no then the answer will not be processed by the system.
- f. When the answer is correct, a yes sound will be heard and the system will display the next question.
- g. The voice listening menu serves to listen to the sound of reading sounds in sentence questions. Menu
- h. Go to the start menu serves to display the player page .

System Test

In this study, the black box

testing method was used. Testing is done by testing the interface part of the information system, each part of the interface is tested so that it can be determined whether the system is running according to the expected

function. The purpose of this test is to find out errors in the system made. The following are the test results using the black box testing method which are displayed in tabular form:

Table 4 . System Test Results

No	Test Class	Testing Scenario	Results
1	Choosing Learning Materials	Selecting learning materials is the process of choosing learning materials, seeing the material and listening to the explanation of each material.	In accordance
2	Playing Questions	Choosing play questions is the process of choosing game questions and then answering multiple choice questions which are used as a test for the user's learning and playing.	In accordance

Observation of the Implementation of Educational Games. Observation data before and after the implementation of Android educational games for learning to read without spelling can be seen in the

following table:
 Table of Observation Results of Educational Game Implementation

Student Code	Word Count	
	Before Implementation	After Implementation
P1	3	12
P2	2	18
P3	12	36
P4	0	5
P5	0	10
P6	0	11
P7	0	28
P8	0	8
P9	0	2
P10	1	14
P11	4	32
P12	15	20
P13	28	45
Amount	65	241
Average	5.00	18.54

From the table above, it is obtained that after the educational

game was implemented for students, there was an increase in the number of words that each student could read correctly. So it can be concluded that the reading ability of each student increases.

5. CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions

After analyzing the data collected, the writer draws conclusion as the following:

1. The critical value of t-observed (4,7) is higher than the value of t-table (1,99). This means that the null hypothesis is rejected and the alternative hypothesis is accepted.
2. The students who taught by using brain storming method got better achievement in speaking English than those taught by using conventional method.
3. Brainstorming method is an interesting and active method that can improve the students' speaking skill and motivate the students to speak.

5.2 Suggestions

In relation to the conclusion above, suggestions are put forward as the following:

1. For teacher, Brainstorming method can be useful and interesting as one of the teaching techniques, therefore it is suggested to the teacher to use this method to motivate and attract students to speak.
2. For students, This method can encourage the students to be more active and delighted in speaking English.
3. To other researchers who are interested

in doing research is expected to develop in other subject matter.

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