Journal of Multimedia Trend and Technology - JMTT
Vol. 2, No. 3, December 2023, ISSN 2964-1330
https://journal.educollabs.org/index.php/jmtt/

Hijaiyah Letter Learning Media Application for Early Age Muslim Children Based on Android

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ARTICLE INFO

History :

Submit on 17 September 2023
Review on 24 October 2023
Accepted on 28 November 2023

Keyword :

Hijaiyah Letter,
Media,
Children,
Android

ABSTRACT

The introduction of hijaiyah letters to children needs to be increased both in terms of intensity and media. To increase the intensity and efficiency of delivery, supporting media is needed that is packaged in an attractive, relaxed and interactive manner. Early childhood education is very necessary because at that stage the teaching system will influence children's behavior and thinking patterns. One of the necessary early childhood education is learning to spell. Spelling is pronouncing or saying letters one by one. This word spelling education can be supported with game-based learning media. Based on the results of the author's interviews with Early Childhood Education teachers at Raudlatul Jannah, information was obtained that the process of learning to recite the Koran, especially introducing hijaiyah letters, had not yet achieved optimal results, therefore the author's aim was to design and build an Android-based hijaiyah letter learning media application to improve students' understanding. hijaiyah letters and as a fun learning support media. The results of this research are that a hijaiyah letter learning media application has been successfully developed and has been declared suitable as an auxiliary media for learning for early childhood at the Raudlatul Jannah school.

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INTRODUCTION

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals and skills needed by themselves, society, nation and state. Early childhood education is very necessary because at that stage the teaching system will influence children's behavior and thinking patterns. One of the necessary early childhood education is learning to spell[1].

The introduction of hijaiyah letters to children needs to be increased both in terms of intensity and media. To increase the intensity and efficiency of delivery, it needs supporting media that is packaged in an attractive, relaxed and interactive way[2][3]. Multimedia applications are able to attract students' attention and interest in the learning process because they are presented in the form of images and animations, as evidenced by 80% of 26 respondents agreeing with this. Learning applications can be installed on mobile so that they can be used anywhere and at any time without limitations on space and time[4].

In the world of education, many educational games have been created for learning for children with the aim of being able to teach the basics of education such as writing, reading, etc. Some even introduce foreign languages through games. The educational approach to children with games is quite effective. a comfortable learning system that is interesting and easy to understand[5].

Previous research discussed the introduction of Hijaiyah letters which aims to make children more responsive and easy to understand and not get bored quickly in recognizing hijaiyah letters. The results of this research are that this application makes it easier for young children to recognize and understand the hijaiyah and harokat letters with a clear picture[6][7].

Next, develop an Android-based application for recognizing Hijaiyah letters. This research aims to make it easier for students to learn hijaiyah letters. The result of this research is that the application created can help users understand the shape of the hijaiyah letters and their pronunciation as a basis for studying or reading the Al-Qur'an[8].

The next research is about "Learning Applications (E-Learning) Recognizing Hijaiyah Letters for Mobile-Based Children to Support Independent Learning". The aim of this research is to make it easier for students to learn the reading and punctuation of hijaiyah letters independently. The results of this research are able to help children learn hijaiyah letters independently[9].

Learning hijaiyah letters as a basic knowledge for reading the Koran, the first thing to do is recognize and memorize all the hijaiyah letters. In learning hijaiyah letters, the media used by teachers and parents is often limited to guidebooks for reading and writing hijaiyah letters and also posters containing hijaiyah letters. It is felt that this media is not interactive enough to attract children's interest because it often feels monotonous and requires the skills of teachers and parents in directing their children[10].

Based on the results of the author's observations and interviews with the ustadzah at the Raudlatul Jannah school, information was obtained that the process of learning to recite the Koran, especially introducing the hijaiyah letters, had not yet achieved optimal results, because in the learning process students were less active, there were students who already understood and there were still many students who did not understand the letters. – hijaiyah letters. The teacher explained that the teaching and learning process was still simple, namely the teacher pointed to a poster of hijaiyah letters which was affixed to the class divider and then the students followed what the teacher read. The author distributed questionnaires to teachers at the Raudlatul Jannah preschool, the

results of which were that all teachers stated that multimedia-based learning media was needed to improve students' understanding of the hijaiyah letters.

Before this project was carried out, the author first made a questionnaire aimed at teachers at the school to prove how big the need was for a learning media platform for the introduction of hijaiyah letters, the following table of questions was given:

Table 1, Quetionare of needed.

#	Question	Answer	
		Agree	Disagree
1.	Is multimedia	4	0
2.	Have ustadz/ustadzah ever used android	-	4
3.	Is there any multimedia	-	4
4.	Will the ustadz/ustadzah give permission if this preschool is used to test multimedia	4	-
5.	Does the author want to use the Android	4	-

Four ustadzah stated that they did not agree with the statement "Have ustadz/ustadzah ever used android-based hijaiyah letter learning media". The statement "Is there a multimedia-based media for learning Hijaiyah letters in preschool"? All the ustadzah disagreed. The statement relating to licensing "Will the ustadz/ustadzah give permission if this preschool is used to test multimedia-based hijaiyah letter learning media?" all the ustadzahs agreed. The statement related to "Does the author wish to use the author's Android-based learning media?" all the ustadzah also agreed. Based on the results of the questionnaire, the ustadzah expressed the opinion that learning media was needed to increase students' interest in learning.

From the description above, the author intends to conduct research to create assistive media in the learning process, through an Android-based hijaiyah letter learning media application. It is hoped that this application can help students more easily understand hijaiyah letters and enjoy the process of learning hijaiyah letters.

METHOD

The system development method used to develop this application is SDLC (System Development Life Cycle). SDLC is the process of developing or changing a software system using models and methodologies used to develop previous software systems[11].

The System Development Life Cycle consists of 5 models. However, in preparing this thesis the author only used 1 model, namely the waterfall model or what is usually called the waterfall model[12]. The waterfall model is often also called the linear sequential model or classic life cycle. The waterfall model provides a sequential or ordered software life flow approach starting from design analysis, coding, testing, and support stages. The following is a picture of a waterfall model:

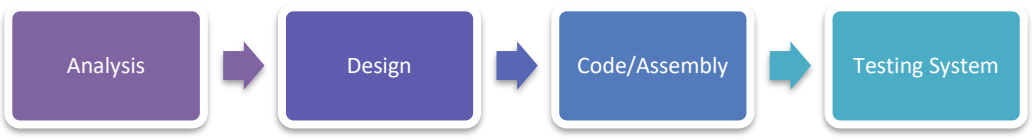

Figure 1, SDLC Model[13]

Requirements analysis is carried out to collect the data needed to develop software that is tailored to user needs. Developers must understand the information, the running process flow, the display required and the requirements for the software to be used. In

analyzing user needs, information collection can be done in various ways, including interviews, observations and data searches.

At the design stage, the processes that can be carried out by the software being developed are described with a display that is adapted to the needs analysis. The design stage translates requirements into a program in the coding stage.

Testing is carried out to ensure that the designed application can function and run well and in accordance with the previously determined design. The methods used in the application testing process are using the black box testing method and the UAT (User Acceptance Test) testing method[14].

User Acceptance Test (UAT) is the final stage of the project. The UAT testing method is usually carried out by end users. At this stage, users who will use the application will carry out testing directly to ensure that the application built is in accordance with the hijaiyah letter material[15]. This stage is a simulation stage of the real use of the application being built. The questionnaire method used in this research is a Likert scale questionnaire, as stated, the Likert scale is used to measure the attitudes, opinions and perceptions of a person or group of people about social phenomena.

RESULT & DISCUSSION

The requirements analysis stage is the first process in system development using the waterfall method, where this section is carried out to determine whether there is a problem or whether there is an opportunity for an application to be developed. At this stage, as has been mentioned in the background of the problem and the results of the questionnaire, it was stated that all ustadzah need multimedia-based learning media to increase students' interest in learning and understanding of the hijaiyah letters. Therefore, a hijaiyah letter learning media application was created as a learning support tool for ustadzahs.

The system requirements needed in designing an Android-based hijaiyah letter learning media application are as follows:

Functional requirements analysis is a description of the features in the application and whether the functions in the application are in accordance with user needs.

The following is an analysis of functional requirements for designing an Android-based hijaiyah letter learning media application:

1. Able to display the main menu which contains the sub menus Learn, Quiz, About, and Exit.
2. Able to display a learning menu containing 3 learning materials.
3. Able to display a quiz menu containing practice questions according to the material.
4. Able to display the about menu which contains the game and programmer biodata.
5. Players can exit the game by pressing the exit button.

To build the system design in this research, the Unified Modeling Language (UML) modeling language is used, which is the standard for visualizing, designing and documenting object-oriented software or applications.

Table 2, Description Usecase.

Usecase	Description
Displays the Main Menu	Displays three main menus which contain a study menu, quiz menu, about menu and one exit button.
Access Learning Menu	Displays sub menus for learning hijaiyah, learning harakat and learning tanwin.
Access the Quiz Menu	Displays a sub menu containing quizzes on hijaiyah, harakat, tanwin and reading guesses.
Access the About Menu	Displays the About menu which contains the game and programmer biodata.
Access the Exit Button	Button that functions to exit the game.

Figure 2, UML Design for user platform.

Class diagrams are used to display classes and packages in the system and provide a static picture of the system and the relationships between them. The following is a class diagram for the hijaiyah letter learning media application:

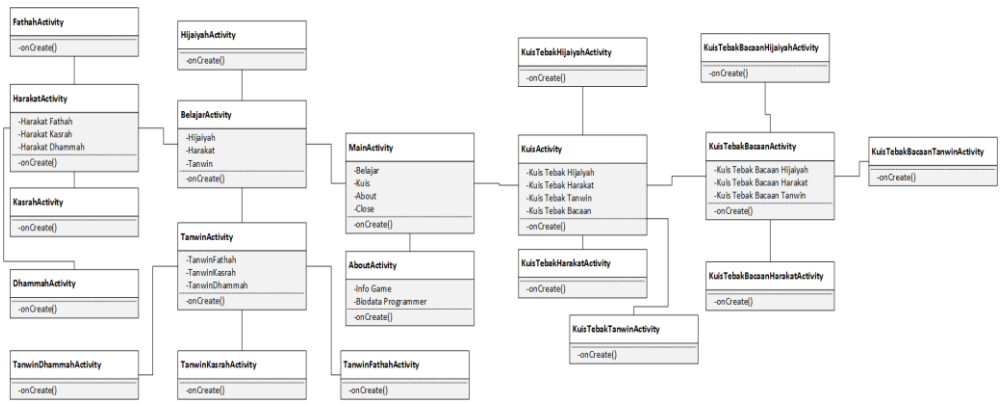

Figure 3, Class Diagram Design for user platform.

The behavior of objects in the use case will be depicted in a sequence diagram by describing the lifetime of the object and the messages sent and received between objects. So, to describe a sequence diagram, you must know the objects involved in a use case along with the methods that have classes instantiated into that object.

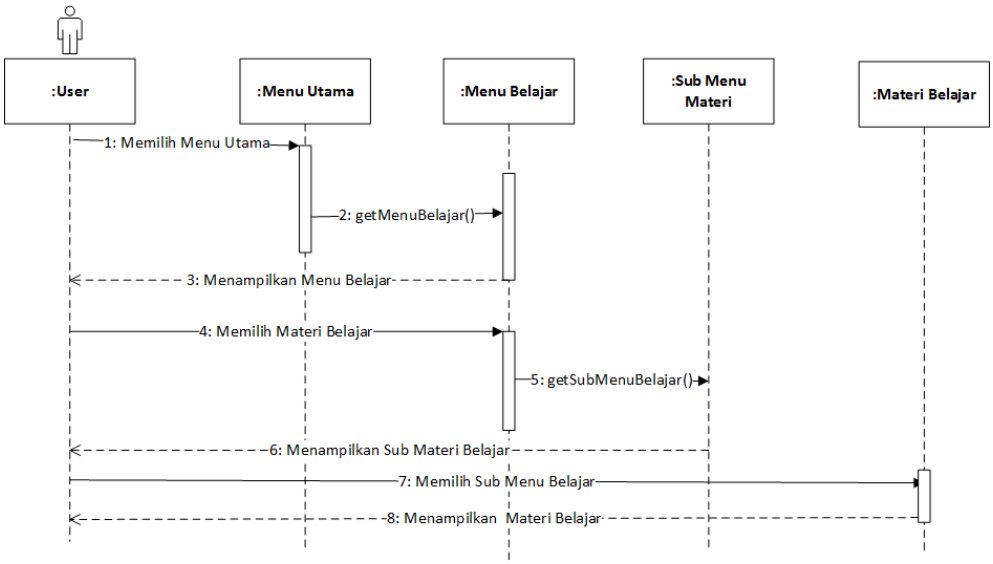

Figure 4, Sequence Diagram for user guide.

In the design stage, when the application is opened by the user, the system will display a splash screen page for 3 seconds as depicted in Figure 5 and then be directed to the main page. The main menu contains 3 main menus, namely the study menu, quiz, about, and 1 close button. The learning menu contains 3 menus, namely the hijaiyah learning menu, learning harakat and learning tanwin. The 2 circle buttons above are the back button (top left) and the information button (top right). In the teaching materials menu, there is a collection of learning materials about recognizing the letters of the fathah, starting from a to ya, which are equipped with image features, pop-up images and sounds.

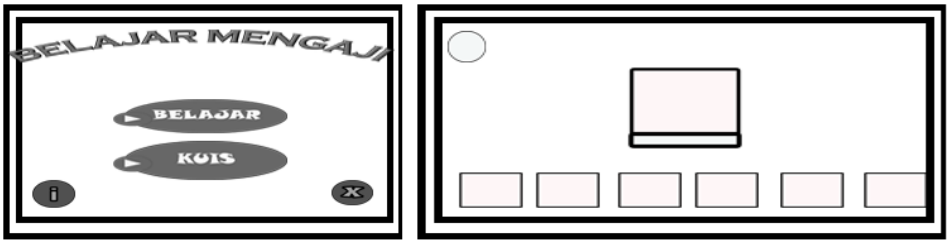

Figure 5, User Interface Model

Testing or application testing is very important to do. This test aims to final review the design and coding specifications. Ensure that the quality of the hijaiyah letter learning media application software is adequate or there are still deficiencies that need to be perfected. At this stage testing is carried out using two methods, namely the unit test method, namely using black box testing and the user acceptance test method using the questionnaire calculation test method.

User Acceptance Testing (UAT) testing is carried out using the questionnaire method. The questionnaire results were calculated using calculations and there were 4 Raudlatul Jannah School ustadzah as respondents and samples. Calculation or assessment of responses from respondents uses a Likert scale. The Likert scale is a scale used to measure the attitudes, opinions and perceptions of a person or group about social events

or phenomena. In research, this social phenomenon has been specifically determined by the researcher, which is referred to as the research variable. With a Likert scale, the variables to be measured are translated into indicator variables. Finally, these indicators are used as a starting point for compiling instrument items in the form of statements that need to be answered by respondents. Likert scale instrument items for answer choices: Strongly Agree (SS), Agree (S), Neutral (N), Disagree (TS), and Strongly Disagree (STS). In this study, the Likert scale was used in the form of modification or simplification, with only 4 answer choices, namely: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS).
The Likert scale response points and their value weights include the following:

Strongly Agree (SS): 4
Agree (S): 3
Disagree (TS): 2
Strongly Disagree (STS): 1

Table 3, Aspect Question for testing method.

No	Aspect	Score			
		SS	**S**	**TS**	**STS**
1	The hijaiyah letter learning media application is easy to access so it can make it easier as a learning medium	3	1	0	0
2	Easy to use application	4	0	0	0
3	Applications made according to needs	4	0	0	0
4	All functions are running well	2	2	0	0

Table 4, Result Testing

Aspect	Index	Keterangan
1.	93.75%	*Strongly Agree*
2.	100%	*Strongly Agree*
3.	100%	*Strongly Agree*
4.	87.5%	*Strongly Agree*

Table 4 shows the final results of testing the average index formula as follows:

(93.75% + 100% + 100% + 87.5%) /4 =
95.31%

So the average index formula for respondents is 95.31%, included in the "Strongly Agree" category regarding satisfaction with the application created because it meets the existing aspects.

CONCLUTIONS

Based on the results of the discussion carried out in the previous chapter, the following conclusions can be drawn, a media application for learning hijaiyah letters has been successfully created as a basis for studying the Android-based Al-Quran at Raudlatul Jannah Preschool. Based on the test results using blackbox testing, it can be concluded that all existing features work as expected. Based on the results of user acceptance testing, the total index formula test results from respondents were 95.31%, included in the "Strongly Agree" category. It can be concluded that the application built is feasible and suitable as a medium to support student learning.

Based on the results of the description above, there are several suggestions from the author to make learning media better, namely:

1. In further research, it is hoped that researchers can develop the application into an application with dynamic data storage.
2. For users to use this application according to their needs and provide feedback or useful information for the author to develop this application to be better, because the author realizes that there are still many shortcomings in making this game both in terms of appearance and features.

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