Development of Qur'an Memorization Learning Model Based on Mobile Learning

DwijokoPurbohadi, B RN Rahmawati[2], andHarisSetiyawan

[1)2)3)]Department of Information Technology,UniversitasMuhammadiyah Yogyakarta, Jl. Brawijaya, Geblagan, Tamantirto, Kec. Kasihan, Bantul, Daerah Istimewa Yogyakarta 55183

[2)]email:aik.ridwana@gmail.com

Abstract. Memorizing the Qur'an is the Sunnah of Prophet Muhammad, may peace be upon him. The most crucial part of remembering the Quran is the process of learning. In general, this activity is conducted privately memorizing, one teacher for one student. One obstacle of memorizing the Quran is the limited number of teachers and many students. This private model undoubtedly ineffective. The teacher is difficult to handle the activities. Also, the teacher cannot control the student to memorize more verses because teachers must hear one by one to the student's reading voice. Information technology has the potential benefit to innovate the learning models of memorizing the Quran. In this study, we develop a learning model using mobile technology. We design mobile learning that students can memorize independently; however teachers can still listen to reviews their reading sample, evaluate, and give guidance. The student module comes with a paragraph of verse view, including the translations. The student module also features a reading reference from international Qori. Besides that, the student module comes with a voice recording facility so students can compare with the reference reader. Teachers can assess every student until students good in reading and more verses to memorize. The primary findings of this study indicate that the teacher can handle more with better student performance. Students are highly motivated to memorize and self-evaluate their reading because they always feel under supervising by the teacher.

1. Introduction

Islamic religious education is mandatory for all levels of formal education of Indonesian Islam. The Qur'an is one of the ingredients that compulsory theme in Islamic studies because the Qur'an is the holy book of Muslims [1] [2]**;** currently, one of the subject matter of Islam being developing is a lesson "memorize." This material is an essential part of the learning activities of the Qur'an [3], Memorizing teaching is not memorization process only, but also the aspects of the method or the art of memorizing the verse by verse [4]**,**

There are several methods of memorizing the Quran, but the most widely used method is "murojaah" or more commonly known as a method of "memorize demonstration." Many teachers use this method because it is proven to help the memorization process. Murojaah method directs students for memorizing gradually by the division of chapters and increase repeatability. Murojaah is a traditional method, and this is a private teaching model. Students must be facing the teacher. Firstly, every student must open the Holy Qur'an than the teacher will divide the chapters and give a number target of verses that student must remember. We call it a student assignment. The student continues to memorize by repeating verses to memorize. When a student feels successful in remembering and aiming the target, students will face the teacher to demonstrate the verses reading and remembering.

Meet often students feel lazy and bored using this method because it must queue for demonstrating how many verses has memorized.

The main drawback is that the teacher murojaah method can only monitor one student at a time. This condition causes the intensity of the meeting of teachers and students logically low. This method is challenging to implement in schools that have only one or two teachers, with hundred of the student. In order to memorize culture can implement widely in school, mostly rote learning and innovation is needed, one of them by utilizing smartphone and internet technology. In this study developed a mobile learning technology as a new way to memorize the Qur'an to the school with a limited number of religious teachers.

Mobile Learning (M-Learning) is a technique that uses mobile technology and the Internet for learning and education. M-Learning allows students to build their learning experience in a group learning environment [5]. Learning innovation is indispensable because information technology plays a beneficial role to work and learn, information technology must be optimized to bring progress in the education system [6]. The education must be able to absorb new technologies to improve the quality of learning [7]. Further, M-Learning is one manifestation of an irreversible change due to the influence of smartphone technology and the Internet [8], Several studies have shown that many learners who tend to use their mobile devices for music, social media/networking, and gaming but not for education [9]; therefore, we need a system that is designed to be efficient to be able to resolve the problems of education problems [10]. People adopt technology to blend in or connect with others [11], so we need a unique design for rote learning to be active and efficient. Teachers can handle many students to optimize the timing of holidays or when the student at home. Expectations of effort confirm that when technology is easy to use and requires less effort is one reason why users adopt a system [12].

2. DESIGN AND ARCHITECTURE

Research into design has been approached both from the general perspective of design guidelines and frameworks (Parsons, Ryu & Cranshaw, 2007) [13].We use architecture as the fundament of the mobile learning environment at the beginning of the study. Another goal is to attract the interest of students in memorizing the Quran and improve its capabilities. In fact, when smart phones and tablets land in the hands of teachers and students and a number of sites offer on-line education at no cost, there is an assumption that adopting for it will take a leap. However when EDX was launched even Har-vard's faculty argued about its impact on the current system [14]. In addition, because technological gadgets can influence students' social emotions, balancing and controlling

that use is necessary [15]. Teachers can handle many students by optimizing the free time at home with formed mobile devices, the internet, and social media. In this study, the system is designed to create mobile applications that are connected and controlled to the server (Figure 1). There are two modules, the first so-called mobile application or modules. There are two modules, namely students module that used for memorizing and the other module called the teacher module that used for monitoring.
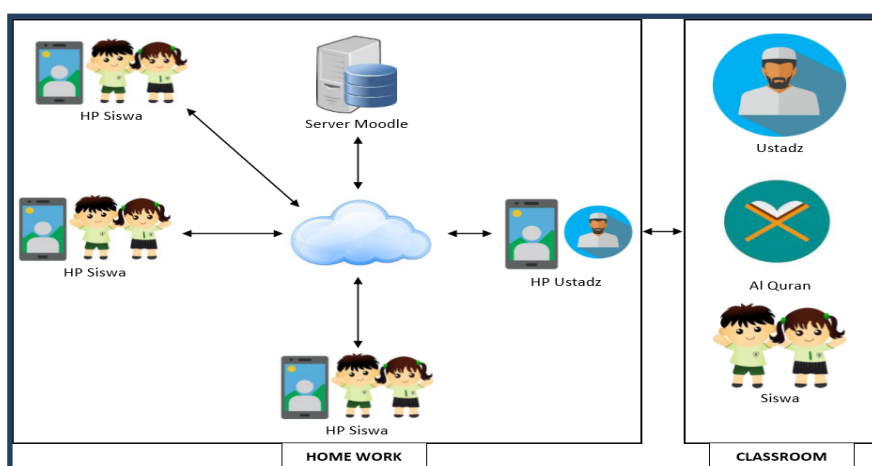
Figure 1. M-LearningArchitecture

We design the student module, as shown in Figure 2.A. Social influence technology is no longer significant [16].The designed is unique which student can be used to memorize repeatedly. While the student is practicing, the system randomly sampling the student's voice. The sampling voice automatically sends to the server as the MP3 file. Student module have a recording system and international qory sound. Student can replay the recording voice for self-evaluating by comparing with the reading voice of international qory; it is mean that student can do the self-voice correction. The module also records the mouse "click" as student activity detection.
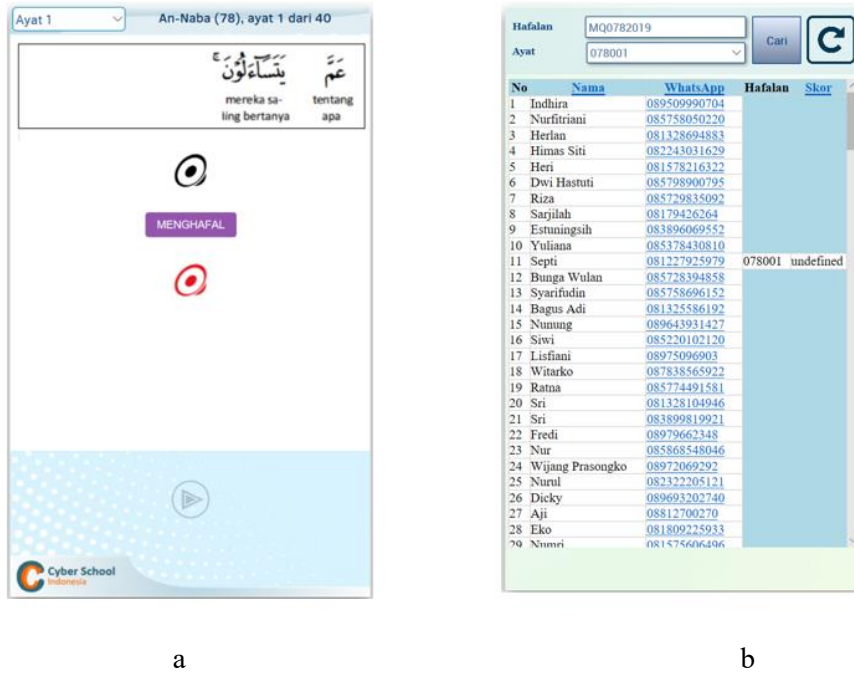

a   b

Figure 2. Module Memorize (a) And The Monitoring Module (b)

Teacher module (Figure 2b) have the facility to view a listing of students who are monitored and mentored teachers. We call this module as a monitoring module. In recent years, projects that have been carried out for the purpose of both instructional support and improving functionality have increased interactions between teachers and students [17].This module, equipped with a button for verse selection a verse and assignment link for detail checking. In the list of students, there is a link to activate WhatsApp API as a means to communicate privately. Teachers can monitor and check the details of student activities, including sampling sound rote. The teacher can see the time, the number of clicks, and which verse already read by the students. We design the interface as simple as possible but handy to carry out monitoring and mentoring activities. Teachers are very free to provide feedback, confirming readings, motivating individually on each student by using WhatsApp.
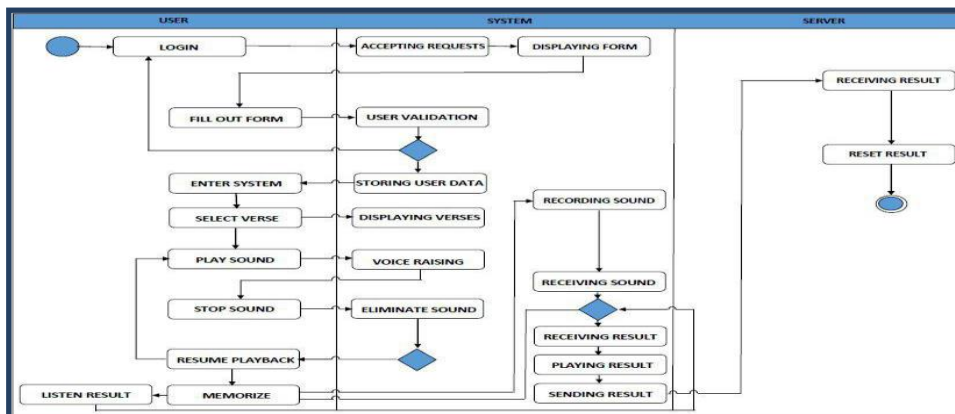
Figure 3. Activity Diagram

Figure 3 shows the activity diagram of the modules. There is three essential part of the diagram activity, including user, system, and server. Those three components are inter-related; the user can select multiple menus in the system. The system implements the method using some features; the first feature is images showing, how to display an image is using the HTML code. The "<imgsrc='>" is very useful here for connecting the image and an action. There is so many "action," one of its is to hide or show the image. We can see in the mobile display the red and black loudspeaker. The black image is for playing the cory's sound while the red one for playing the recording. In this module, we cannot hear the qory sound and recording sound together. One image disables other images and vice versa. This feature is very use full when the user will make memorization. When we press the button to record the user voice automatically picture paragraph hide. The steps to hide the image of the verse the image hide and show mechanism. We also use a try-catch. This mechanism removes error state, which can stop the application. Another feature is the sound randomly sampling system. This mechanism will initiate if the phone detects a specific minimal sound level. The system saves the sound as an MP3 file and sends it to the server using AJAX mechanism. The system using Javascript code for all mechanism handling, including multimedia controlling, file saving, file reading, synchronization, and mouse action-response mechanism.

3. Result

Research carried out by tests on 32 students in the school as a user. Before students use the application, the teacher asks her students to use Manuscripts memorize then deposited rote. Here are the results of a comparison test using the Manuscripts and applications.

USING MUSHAF	Speed	Comprehension	Correction	Attraction	Frequency
Average Score	2	3	1	2	2
USING APPLICATION	Speed	Comprehension	Correction	Attraction	Frequency
Average Score	2,5	3	2	3	2,5

Experiment Result

We see in the control group. Figure 4 shows a standard measurement from points 0 to 4. The average student memorizing using the Qur'an book gets point 2 for reading speed. It was seen that there was change from point 3,5 to 2, meaning that students had not fully memorized using the Mushaf.

Meanwhile for reading comprehension using Manuscripts students get point 3; there seems to be a decrease from point 3.5 to 3. This means that the level of reading comprehension of students is good though not perfect. If they can master reading and reading correctly, it is very likely that students' memorization will be correct. For self-memorization, the average student gets point 1. There is a decrease from point 3.5 to 1, it means that the level of correction of students is practically low. For the average interest students get point 2; seen a decrease from point 3.5 to 2 means that their level of interest is still lacking. The average memorizing frequency students get point 2, from point 3,5 to 2 means the memorization frequency is less.

Interviews with teachers to know their response after the use of the application. We obtained information from the teacher after running the system. They expressed interest to use because it is an alternative to conducting recitation of the Qur'an. Students will use current technology to improve

their efficiency **[18]**. However, it is still not fluent because the first time using a system like this. There is no obligation or additional work of teachers to supervise and inspect the activities and results of student records. For teachers who try this application are happy to use because it allows present, but they still thinking about how to start its program, mainly related to the school's academic rules.

4. Discussion

The purpose of this study was to gather information about the effectiveness of the application for students that includes speed memorization, reading comprehension, error correction, interest memorize, and frequency (activity). Students taught in traditional methods are less enthusiastic and motivated during the learning process.Tests conducted for a middle school learning group in two days activity. We divided the activity into two different class activities, those act as a control group and an experiment group. The control group teaches using mushaf (book) and murojaah method, while the experiment group teaches using mobile learning system (application). After all the experiments done, we summarize the performance of students verses memorizing. Figure 4 shows the experiment result. The average student from control group using the "murojaah" method is slower than the experiment group.

Next we look at the group experiments to see memorization performance using the application. Figure 5 shows the average student gained point 2.5 for speed; seen changes in data from point 3.5 to 2.5. This shows the speed at which students memorize better than the control group at position 2. For reading comprehension the average student gets point 3, there appears to be a change from point 3.5 to 3. This means that students have a pretty good reading comprehension; from the results of the trial using the Manuscripts and the application there is no difference because getting the same point is 3. For the point of reading errors using the application the average student gets 2, while in the control group students get point 1. This shows the qori reading facility is useful for correcting memorization mistakes. For students' interest in getting point 3, it means that students are more interested in using the application compared to books because of some features that facilitate the memorization process. Finally, for the frequency of memorization activities using the application the average student gets point 2.5; this is higher than using books where student points are 2; it means students memorize using the application more often than using books.
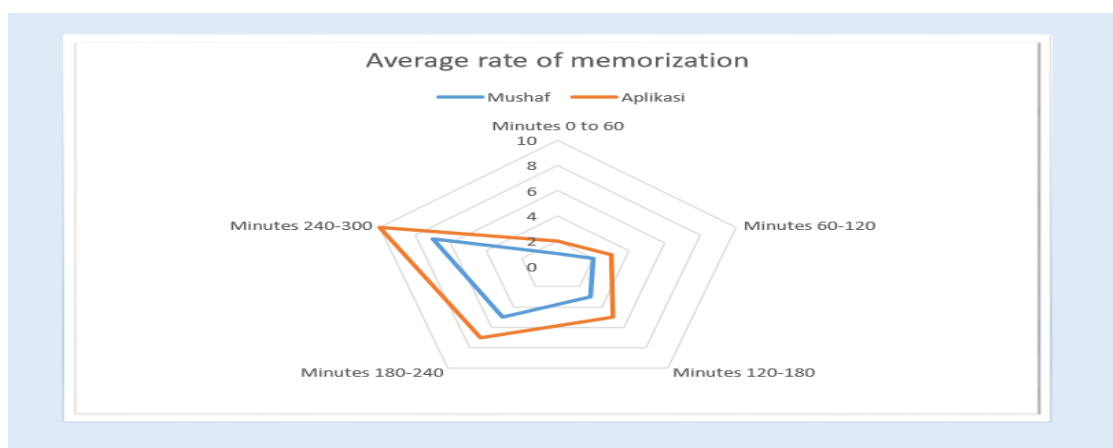

Figure 5. Result Rate Memorization Students

In Figure 5 described the average deposit rote students during the experiment, from experiments conducted over four days, we specify the hour intensifies About 5 hours, start from 0 to 300 minutes, the experiment results using the Manuscripts minute average 0-60 students can collect as much as 1

verse memorization, at 60-120 minutes Stratas average students can deposit as much as 2 verse memorization, in minutes to 120-180 students can deposit as much as 3 verse memorization, at minute average 180-240 students can deposit as much as 5 verse memorization, at minute average 240-300 students can deposit rote 7 paragraph. Of the two pictures data image number 4 and 5 can be concluded that the effectiveness of the application does not need to doubt, in addition to the two above data, the results of our review of the student feels supervised by teachers, because there are features that send the rote last into the server, then connect to the teacher module.

From the experimental results, we conclude that the student module in the form of mobile learning to memorize the Koran has the potential to increase the speed of memorizing, increasing the frequency of memorizing, making students more actively to try the application, make it easier for teacher performance, and increase students' understanding of how to read Qur'an is excellent and accurate. In general, students memorize not monitored by anyone; it is most likely with the development of mobile learning to memorize the Koran can help students to be more frequent. Mobile devices have various distinctive features such as individualized interfaces, real-time access to information, context sensitivity, instant communication, and feedback [19]. The experimental results are consistent with the user's comments that the student after trying, comment students when compared to using the old methods, modules, students will be more promising. After seeing the test results of students feel motivated, they will use this application as well as possible.

Features of the module students are still in the development stage, there are still many in need of testing and analysis of data, so far there has been no shortage of significant applications, but we need to add the feature to display the score or similarity value with a qory, so students do not need to be corrected by means of manual. With features that are currently available, the student measure his ability to listen to the recording, while hearing students also sometimes no harm, for example, the reading "wamaa" requires two beats long, but by the students only read one beats long, and most students do not realize their mistakes, so that if one reads it will happen when the correct on memorization,

In the development of mobile applications that are used to memorize the Holy Qur'an. Studies report that resistance to change plays an important role in accepting technology in education [20]. the ultimate goal is to increase students' interest in memorizing, increase the frequency of memorization, and increase the speed of memorizing. So with this study, students are expected to be motivated in the process of memorizing the Quran. Coupled with the advantages of using mobile learning as described previously, this application quiet intended for students, so that can be used anywhere and anytime, especially outside of school hours. Making these applications, we use Courselab software to integrate the learning material in a learning module. Besides that, the framework to convert from the desktop to mobile use software framework PhoneGap and HTML5 + JavaScript as the programming language.

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