

Mobile Learning Development Based on Android Application for Islamic Education

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ABSTRACT

The Development of Android-Based Learning Media in Subject of Islamic Education for Grade XI in SMA Negeri 2 Malang was based on rapid development of technology, especially in field of communication gadget. Various advanced communication gadget called smartphone has been widely introduced in order to support our needs. Android-based Smartphone was very well-known up to among students. Besides, the fact of learning media for Islamic education was very least. Hence, it needed the development of android-based learning media for answering the challenge of globalization era which put forward a practical and fun information technology. The results of the development were (1) has detail explained the procedure of the development of android-based learning media (2) the development product has proved attractive and effective in increasing the students learning outcomes based on the results obtained from the questionnaire responded by validators, subject matter expert for 73.5%, 86.6% media expert, learning expert of 84.6%, and 88.1% from students responses.

I. INTRODUCTION

The rapid development of Information and Communication Technology has affected various aspect in society. Nowadays, information and communication technology is important thing in education aspect, economic aspect, social aspect, geographical aspect, religion etc.[1]

In the education aspect, the development of information and communication technology has changed how the people learn and find out any information. In other hand, it can be changed the people way to interpret the information. The sophistication of technology in education aspect gives a big challenge for educator to continue playing an important role in educating the nation's children in the era of globalization.[2]

The development of information and communication technology has encouraged the creation of innovations in all fields, such as education. It is characterized by the birth of concept of electronic learning (e-learning).[3] E-learning described as teaching and learning process that use electronic circuits to conveying the content of learning, interaction, or

guidance. In other side, there is definition of e-learning as distance education form that carried out by internet media.[4]

E-learning is a learning concept and a new learning that combined by the rapid development of information and communication technology. This learning concept make students and teachers easier to get some learning resources with easily access.[5]

Nowadays, e-learning concept begins to develop into mobile learning. Mobile learning created by adapting e-learning which are designed more simply and can answer the shortcomings that occur in e-learning. Mobile learning has a practice characterize and can bring everywhere. This makes mobile learning have its own interests.[6]

On the learning mobile development, one of them, smartphone has an android operating system. Android is operating system to cellular phone use linux as its kernel. Nowadays, android is referred to as the king of smartphone. The android operating system makes special learning media for students packaged in the form of software or application.[7]

This application easy to use and can integrate images, colors, video, and animation into learning material. Then, the student interests to read and learn it. Through this application, students can get the information from any resources and easier.

Mobile learning based on android system is easy learning media used and simpler. It provides learning concept in any distance, such as directly class learning and distance learning. This media doesn't require continuous internet access in its use, because this media is created to open and save into smartphone.[8]

Islamic education as a main subject for all national education system. Muhaimin said that Islamic education has education activity which is carried out by desires and intentions to implement Islamic teaching and values.[9] Otherwise, in its practice at Islamic learning, it is often known as conventional learning. In conventional learning method, teacher is too much talk in front of the students. It makes them bored and they prefer to choose other activities than listen their teachers' talk.

Mobile learning can be solution for Islamic education. It makes students feel better in the class and it is more fun. This application provides a material that consist of interesting design and add with audio to make it understandable. Because the human sense can respond quickly.[10]

Nowadays, in student's environment this smartphone very popular. Almost all of them used it. Based on the research conducted by Cambridge International, around 67% of students in Indonesia used smartphone when they studied in the class, and 81% of students use smartphone to do their homework.[11] This phenomenon happened in Senior High School student's (SMA Negeri 2 Malang). Ahmad Syaiful Ulum as a teacher's Islamic education said that around 99% students used the smartphone Android based. Based on the observation, most of students use handphone just for telephone, SMS, playing music or video, social network (facebook, twitter), even play the game.

Yektyastuti dan Ikhsan (2016) developed application Android based as a learning media in solubility material in the senior high school level. That research obtained 78% as the accuracy [12]. Otherwise, that research has limited in individual testing only. Thus, the accuracy still can improve. This research will use all of research and development stages conducted by Borg and Gall to improve the accuracy.

This research proposes to develop a media that can interest students' enthusiasm. This research chooses mobile learning development using Android based system. Android system is chosen because it is very popular in students' environment. In other side, Android system have any advantages, such as the audio-visual production activities.

II. METHOD

This research use research and development as an approach conducted by Borg and Gall. To appropriate with the research context, their theory is adopted. This research used some stages of all stages conducted by Borg and Gall [13],

such as (1) initial observation, (2) planning, (3) the initial product development, (4) expert testing, (5) product revision, (6) field testing, (7) the second product revision, (8) implementation and dissemination.[14]

The data result obtained by validation process and testing. The learning media validity measured based on the match of empirical validation results with determined validity criteria conducted by Akbar: [15]

TABLE I. VALIDITY CRITERIA

No	Validity Criteria	Validity Level	Eligibility
1	85,01 % - 100 %	Very valid, it can use without revision	Very Eligible
2	70,01 % - 85 %	Valid, it can use with minor revision	Eligible
3	50,01 % - 70 %	Less valid, it suggests to not use because it requires to mayor revision	Less Eligible
4	0.1 % - 50 %	Not valid, it can't be use	Not Eligible

III. RESULT AND DISCUSSION

This research carried out some tests based on the procedure conducted by Borg and Gall. The research and development learning mobile Android based described follows:

Observation and Collecting Information Stage

In this stage, researcher try to find out some problems in Islamic education learning subject at Senior High School student'. This research used interview method to collect the information. Based on the interview, we find out that students in the second level less focus when they try to understand the material. The focus failed to get the information caused students too busy with their gadget that should be used to learning support tools.

Based on the observation result, the students less focus and prefer to use their gadget for playing the games. There are students said that Islamic Education subject is bored. It's happened because the learning process model still use conventional model. Teachers often talk in front of the class and rarely to use learning media.

The material chosen in this research Islamic Development Figures in Islamic Education subject. This material chosen by the initial observation and find out that this material is too hard understandable and many students are not interested in this material. It can affect students' activeness.

Planning Stage

This research used Adobe Flash CS 6 action script 3.0. to develop mobile learning Android based. Otherwise, the material collected by the Islamic education package book that consist of Islamic figures. After compose the material, this research designing the layout for media. Then, make a questionnaire for the testing.

The Development of Initial Product Stage

This stage describes the initial product. There are some features in this media developed from introduction until quiz features. The media developed describes follows:

a. Introduction

In this page, there are creator name, icon, Islamic cartoon animation, start button, and the title that contain text about the second grade in Senior High School. It can be marked that this media use to second grade students. Introduction is made to attract students. Introduction page shown in Fig. 1.



Fig. 1. Introduction page

b. Main Menu

In this menu, there are title and buttons which are used direct us to the menu what we want, such as KI, KD, Material, Quiz, and Author, it shown in Fig.2.



Fig. 2. Main menu of learning media Android based.

c. KI, KD

In the KI and KD menus, they provide the main competencies and base competencies that suitable with the Education Ministry regulation. The main competencies and base competencies aim to show what should students get in this learning.

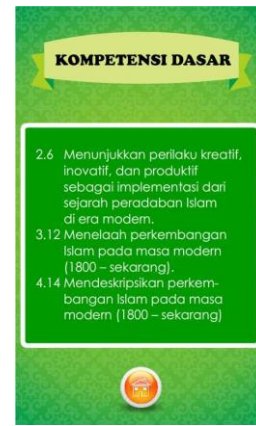


Fig. 3. Base Competencies

d. Material

This learning material provides map's concept about Waking up and Rising Islamic Warriors. The first material will study about Modern Islamic. In this material provides factors of Islamic rising, then innovations to promote Islam. The second material describes about Islamic figures.



Fig. 4. The material's menu.

e. Quiz

The quiz menu provides the evaluation learning. Students can answer and get the score directly.



Fig. 5. The quiz menu.

f. Author

For the last scene, the media provides the developer profile. In other hand, it contains references list and materials used in the development of this Android based learning media.

Preliminary Testing Stage by Validator

Product design developed in media proposed is tested by expert media such as lecturer to get some suggestions and validation result. In this case, we use two lecturers from IAIN Maliki Malang. Otherwise, to make the right material, this research use two teachers especially Islamic education learning as validator.

Validity activity aims to find out eligibility level of media learning on Islamic education Android based. It carried out before the media used generally. The result of validation is suggestions to improve the learning media on Islamic Education learning Android based. Validation data obtained by questionnaire score which are given by validator. Validator will give scores, suggestions, and criticisms to product developed in the questionnaire last section.

a) Material Expert Testing

Validation result of material expert carried out by Isti'annah Abu Bakar, M.Ag. as a teacher. The validation result shown as follows:

TABLE II. THE VALIDATION RESULT OF MATERIAL EXPERT

No.	Assessment Criteria	Score	Criteria
1.	Relevance concept with curriculum 2013	3	Eligible
2.	Students can learn the material easily	3	Eligible
3.	Writing the material more scientific	2	Less Eligible
4.	Suitable with learning propose	3	Eligible
5.	Suitable with competencies propose	4	Very Eligible
6.	Material component	4	Very Eligible
7.	Suitable with scientific learning characteristic	3	Eligible
8.	Clarity of material with the scientific approach	3	Eligible
9.	Material presented is able to increase students' insight	4	Very Eligible
10.	Material presented is able to stimulates students' curiosity and critical thinking	4	Very Eligible
11.	Material describes coherently	2	Less Eligible
12.	Material easy to learn	3	Eligible
13.	Attractiveness of the display material	3	Eligible
14.	Media suitability and precision	3	Eligible
15.	Material suitability for learning support	3	Eligible
16.	Suitability references	1	Not Eligible
17.	The breadth and depth of the material	2	Less Eligible
Total Σ		50	

Based on the validation result, the material composed in learning media Android based on Islamic Education subject can categorize as Eligible with the score 50/68 and its percentage around 73.5%. Besides that, there are suggestion to improve the learning media to be more effective used, such as: (1) the material need to compose coherently. It will make students easier to learn; (2) researcher need to read more references. It makes the material presented more suitable with SK and KD in the curriculum.

b. Media Expert Testing

The validation result of media testing carried out by Supriyono, M.Kom to get the effective media.

TABLE III. THE VALIDATION RESULT OF MEDIA EXPERT

No.	Assessment Criteria	Score	Criteria
1.	The right font size	4	Very eligible
2.	The right font type	4	Very eligible
3.	Composition of the text color against the background color	3	Eligible
4.	The narrative presented is easy to understand	4	Very eligible
5.	The effectiveness of animation to clarify the material	3	Eligible
6.	Easy to use	4	Very eligible
7.	Material presented systematically	3	Eligible
8.	Consistent in using words, terms, and sentences	3	Eligible
9.	Use a consistent layout	3	Eligible
10.	Easy page format for users to use	4	Very eligible
11.	Column width easy to read by users	4	Very eligible
12.	Easy to understand the button and text layout	3	Eligible
13.	Navigation to access presented pages	3	Eligible
14.	Effective login and logout function	3	Eligible
15.	Navigation function to material selection	4	Very eligible
Total Σ		52	

Based on the result in Table 2, we know that this learning media Android based is Very Eligible to use. The total score obtained by questionnaire as 52/60 with the percentage as 86.6%. Otherwise, expert media testing gives some suggestions, such as: (1) this media requires interactive animation and audio to be more effective. This may have an impact on the media learning easier to understand and to get fun learning; (2) update the evaluations and materials for Islamic Education subject so that students can continue to use this media.

TABLE IV. RESUME OF THE EXPERT VALIDATION RESULT

Assessment Aspect	The number of questions	V 1	V 2	V 3	Total score	Percentage	Criteria
Material	17	√			50	73,5%	Less Eligible
Media	15		√		52	86,6%	Very Eligible

Data set of all expert validators (Material and Media) shows a less eligible value (1) and Very Eligible (3) then it can be concluded that the learning media of Islamic Education based on android is declared eligible to be used in the study of Islamic Education. The development of this media provides breakthroughs and new views for teachers and students in the learning of Islamic Education, so that in the implementation of the learning process is more fun and memorable.[16]

Product Revision Stage

Revisions are based on responses, suggestions, and criticisms obtained from validators, which these revisions refer to the error parts submitted by the validator. The revisions are as follows:

1. Added animations to make media more interesting
2. Addition of audio/sound to the material
3. More varied addition of quiz
4. List references at the end of the media
5. Analyze content using 5W + 1H

Field Testing Stage

The field testing was conducted at SMA Negeri 2 Malang for 2 weeks in class XI IPS1 with a total of 26 students. Researchers replaced Islamic Education teachers to teach in class XI IPS1 by sharing applications that have been created by researchers through download in android play store. During the study the researchers provided tethering wifi because some students did not have a data plan. In the implementation of field testing, researchers also spread questionnaire to students to assess mobile learning based on android applications that have been developed by researchers, following the results of assessments from 26 students XI IPS1 SMAN 2 Malang

TABLE V. THE VALIDATION RESULT OF FIELD TESTING

No.	Assessment Criteria	Percentage	Criteria
1.	The right font size	94,2%	Very Eligible
2.	The right font type	92,3%	Very Eligible
3.	Composition of the text color against the background color	80,7%	Eligible
4.	Suitability of animations used with learning materials	87,5%	Very Eligible
5.	Animations used make it easier to understand learning materials	84,6%	Eligible
6.	Ease of operating learning media	87,5%	Very Eligible
7.	The button hints presented are easy to use	87,5%	Very Eligible
8.	Easy-to-use entry and exit button instructions	90,4%	Very Eligible
9.	Button functions to material options are easy to use	92,3%	Very Eligible
10.	Ease of accessing materials	85,5%	Very Eligible
11.	Using the available keys	86,5%	Very Eligible
Average		88,1%	

Based on the assessment data on questionnaire distributed to 26 students of grade XI IPS1 SMA Negeri 2 Malang, android-based learning media used in improving student achievement has a very good response score. This can be seen from the average percentage given by students of 88.1%. This number is between 86%-100%. Thus, the use of this media is stated to be very feasible to use in Islamic Education learning subject and in general, this android-based learning media is not required any more revisions.

The Second Revision Product Stage

Based on the results of the last field test, this learning media received a positive and enthusiastic response from students. In addition, students can use this learning medium easily. In general, this media does not need to be revised.

Dissemination and Implementation Stage

Dissemination is conveying the results of development in the form of Android-based learning media to users, namely teachers and students, by exploring android application-based mobile learning in google play store and publishing it.

IV. CONCLUSION

Android-based mobile learning development in this research and development in the form of applications developed using Adobe Flash Player CS 6, the material developed is Rise O Islamic Warriors contained in the material Islamic Education SMA Class XI. Based on the validation results of this media expert test is declared eligible for use. The results of data analysis from the questionnaire of material experts obtained a percentage result of 73.5%, which means this product is quite eligible to use. Media experts have a percentage of 86.6%, which means it's Very Eligible using. The learning experts obtained a percentage of 84.6%, and based on field trials conducted on 26 students of grade XI IPS1 received an excellent response with a percentage of 88.1% which means that this product is very eligible for use.

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