



Minimum Competency Assessment (MCA) Using Android-Based Try Out Application

Novi Hendri Adi¹ (✉), Arina Luthfini Lubis¹, Army Trilidia Devega¹,
and Remon Lapisa²

¹ Universitas Ibnu Sina, Batam, Indonesia
novi.hendriadi@gmail.com

² Universitas Negeri Padang, Padang, Indonesia

Abstract. The main problem in training students' abilities to work on the Minimum Competency Assessment (MCA) try-out questions is that each uses a textbook, where each student sometimes forgets to bring it to school, resulting in some students using two to three MCA books in working on these questions. So it is necessary to develop an Android-based MCA Try Out application. The purpose of this research is to develop an Android-based try-out application to solve student problems so that no more students work on try our questions in two or three. The development of the MCA Try Out application uses the Multimedia Development Life Cycle (MDLC) method based on 6 (six) stages consisting of Concept, Design, Material collecting, Assembly, Testing, and Distribution. The results of this study produced an Android-based MCA try-out application with the initial stages of analyzing application needs, secondly conducting application development display designs, thirdly collecting data and materials, fourthly carrying out material preparation and making applications, fifthly conducting application testing, and finally deploying and deploying the application to users. This MCA application can be used as a medium for practicing MCA try-out questions which are packaged in digital form. The MCA application also carried out a practicality test analysis, where the resulting application scored 80.02% in the practical category. The conclusion of this study is that the Android-based MCA try-out application can answer the problems that occur to students in working try-out questions and are more practical in their use.

Keywords: MCA Try Out Application 1 · MDLC 2 · Android 3

1 Introduction

The development of the world of technology is getting faster, to be able to compete in this technological development, quality human resources are needed in their respective fields [1], especially the development of gadgets is increasing rapidly, the use of gadgets is widely used by children, where most of the children who use gadgets only play games, play social media, and so on. -other. In fact, if Gadgets are used wisely, these devices can be used as learning media for children. Even through the Try Out application, students can practice working on questions that will be tested at school [2].

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Software is an application that is used for the purposes of processing documents and managing operating systems and so on. [3]. While Try Out is a trial conducted before the original exam. Try Out usually uses questions that are similar to the original exam so that students are ready for the original exam [4].

National Examination for students in the country will be the final year for the 2020. The Ministry of Education and Culture decided to replace the exam format with a Minimum Competency Assessment (MCA), Character Survey, and Environmental Survey. According to Ayuningtyas & Sukriyah MCA is a fundamental competency assessment by all students to develop self-capacity and participate positively in society and the government makes this update in order to familiarize students with critical thinking that is contextual with their daily lives and avoids students feeling tense in doing exam questions that contain only content in learning [5]. The Covid-19 pandemic has had an impact on schools, especially at the elementary level. In Indonesia, students who usually study face-to-face now experience limitations in conducting their studies. While there will be plenty of face-to-face meetings in 2021, they will not be full. On the one hand, MCA is important, but it also has limitations that make it difficult for teachers and students to carry out face-to-face exercises [6, 7].

To face the MCA test, students have carried out Try Out in the previous days, students practice their skills in working on MCA questions through MCA question books that are borrowed from the school during class hours and students are also told to buy MCA books from outside the school using personal money. He also conveyed the obstacles faced, namely the lack of MCA question books from schools that made students take turns to borrow and some students also did not buy books from outside the school, so students still often borrowed books from friends and not a few students felt bored while working on questions. About MCA in the book.

In research [8] with the title Microsoft PowerPoint Spin Learning Media Development Design Based Literacy Minimum Competency Assessment (MCA) produces MCA-based Microsoft PowerPoint Spin learning media showing that it is feasible to use with a score of 79% and can be used as an interactive medium characterized by interaction between teachers and students. The update in this study is that by using the Android-based MCA application, students have no difficulty borrowing the try out question book, because there is already an Android-based MCA application. The advantages of this application are equipped with an explanation of how to use the application and the scoring system according to the form of the questions, even so the MCA try out application can only be used on Android smartphones.

With the rapid development of technology, it provides opportunities and choices in using media as a more effective learning tool. The fact states that conveying information with multimedia can improve memory in learning because in the form of audio-visual it will be easier to capture and physiologically humans will be more sensitive to using their senses [9]. Android is a mobile software operating system that is open source, and the system can be modified by users [10]. From the description above, the researcher wants to take advantage of technological developments and apply them to Senior High School 4 Batam. Therefore, to address these problems, it is necessary to develop multimedia in the form of the MCA Try Out application at Senior High School 4 Batam.

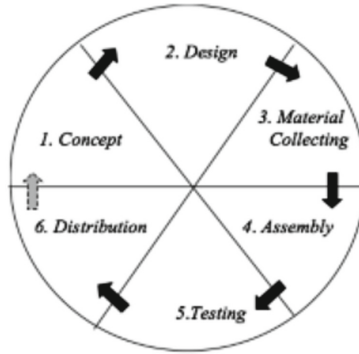


Fig. 1. Multimedia Development Life Cycle (MDLC)

The development of the media that will be designed in this study has the advantages and disadvantages of several developments that have been designed in previous studies, the advantage in this development is that the application is equipped with an explanation of how to use the application and an assessment system according to the form of the questions. This development has a drawback, namely that this media distribution can only be installed on Android students at Senior High School 4 Batam.

2 Method

This research uses the Multimedia Development Life Cycle (MDLC) development method. This research was conducted at state senior high school 4 Batam. [11]. According to Sutopo, who argues that the multimedia development method consists of six stages, namely the stages of Concept, Design, Material collecting, Assembly, Testing, and Distribution [12] (Fig. 1).

The stages of development in the Multimedia Development Life Cycle (MDLC), namely [12, 13].

a. *Concept*

Formulate the basics of the analysis of making applications that will be created and developed. Especially on the purpose and type of application to be made.

b. *Design (Design/Design)*

The stage where the application display design, menus and buttons in the application are described in detail. At this stage it will be known how the final result of the application will be.

c. *Material Collection*

The stages for collecting all the things needed in making this application, such as audio, images, etc., will be included in the application.

Table 1. Instrument grille

Aspect	Indicator
Convenience	a. Ease of use of the MCA application b. Ease of understanding MCA questions
Motivation	a. Interest b. Attention
Attractiveness	a. Display quality b. Attractiveness
Usefulness	a. Have a positive impact on students b. Increase student skills c. Give help to do the questions

d. *Assembly (Compilation and Manufacture)*

The multimedia files that have been obtained are then collected and arranged according to the design.

e. *Testing (Trial)*

After the application is finished, the application test is carried out. In testing this application, functional testing is carried out.

f. *Distribution*

After the application testing stage, and declared good and functioning in accordance with the development objectives, product distribution will be carried out, and applied to users.

After the MCA Try Out application has been distributed, the application is then applied to students of Senior High School 4 Batam. The author implemented the MCA Try Out application for grade XI using a questionnaire instrument filled out by students (Table 1).

To get the practicality value of the application used, it is obtained from the number filled in by students using the formula [14, 15]:

$$\text{Practicality} = \frac{\text{Total answer score for each item}}{\text{items ideal score}} \times 100\%$$

The score of the results of the analysis of the practicality of the application from the results of filling out the questionnaire carried out by students is grouped into categories [16] (Table 2).

Table 2. Practicality Score

No	Value Range	Class
1	81–100	Very Practical
2	61–80	Practical
3	40–60	Practical enough
4	21–40	Less practical
5	0–20	Not practical

3 Result and Discussion

Development research goes through stages in order to make it structured and neat. The development stage of the MCA Try Out application is adjusted to the stages of multimedia development described in the previous chapter. The development of this application consists of six stages, namely the stages of concept, design, material collecting, assembly, testing and distribution.

3.1 Concept

This MCA Try Out application contains national MCA Try Out questions for the high school level equipped with a time limit for working on the questions, there are several things that must be considered at this stage, namely determining the final goal in making this MCA Try Out application which can be used by students at Senior High School to prepare for the real national MCA exam. Identification of participants, determining material, animation and others are the stages of an initial concept. to determine application design such as size, appearance and so on is also determined by the initial stages of conceptualization.

3.2 Design

The design stage of the Try Out MCA application was designed using multimedia design tools, namely storyboards, flowcharts, and navigation structure designs. Storyboard is used as a tool in the multimedia design stage to describe the description of each scene. The initial stage is making a Storyboard, which is a manual image that is made as a whole so that it describes a Storyboard story that is described [17].

Flowcharts or flow charts are used to describe the work steps of the applications that are made to make it easier in the MCA Try Out application design process [18].

The navigation structure used in the design of the MCA Try Out application product is a hierarchical model navigation where the user navigates along the branches of the tree structure that is formed. The following is the result of designing a hierarchical navigation structure that combines the relationships between Scenes.

3.3 Material Collection

At this stage all the materials needed to make the MCA Try Out application are collected in order to produce an interactive and useful application for users. The materials used for the MCA Try Out application are:

1. Text data, the text data that will be used is national high school level MCA questions sourced from books.
2. Audio or sound data used in the MCA Try Out application, namely the sound on the button and some sound on the image.
3. The image data used in the MCA Try Out application are student images, emojis, several animated backgrounds.

3.4 Assembly

The first step in creating the MCA Try Out application is to create an Intro Process Scene to create components in the MCA Try Out application. In this scene there are animations, buttons, background images, personal data columns. Next, create a title scene. In this scene, use animation and use the Start button which functions to continue to the main menu scene. Then create the main menu Scene to create a menu in this application, in this Scene section use several buttons, namely buttons to go to the How to Use the Application Scene, Mapping the Coverage of Questions, MCA Questions, Answer Keys, References, Application Profiles. Next create a Scene How to Use the Application to see how to use the application, in this Scene section use the Main Menu Button to go to the Main Menu Scene. Next, create a Question Coverage Mapping Scene to see what kind of question coverage mapping will be tested in this Try Out application, in this Scene section use the Main Menu Button to go to the Main Menu Scene. Next, create the MCA Try Out Questions Scene to view and work on the MCA Try Out questions, in this Scene section use the Main Menu Button to go to the Main Menu Scene, the Question Button to view questions and the Answer Button to answer questions. Then create an Answer Key Scene to see the answer keys for the questions tested in this Try Out application, in this Scene section use the Main Menu Button to go to the Main Menu Scene. Next, create a Reference Scene to view reference sources from the contents of this application, in this Scene section use the Main Menu Button to go to the Main Menu Scene, finally create an Exit Scene to exit the application (Fig. 2).

To see whether the software is functioning properly or not, testing is carried out at the end of the design. Testing is carried out to see the input and output results that are designed whether they are in accordance with the requirements or not. Testing (testing) the introduction of computer components is first carried out with the aim of being able to find out whether the application is running well or not, if it is not running well then repairs are made to achieve maximum results by pressing preview. This test aims to get files with the extension. Swf so that it can run on Flash player. Next, publish the file to get a file with the.exe extension so that it can run without a Flash player instance. Functional testing is carried out so that the multimedia meets the criteria for assessing interactive multimedia. Functional testing shows the functionality of the Try Out application when it is run, that is, when the system receives input, the system will issue the correct output (Table 3).



Fig. 2. Assembly Stages

3.5 Distribution

This stage is the final stage of the MCA Try Out application development method. The test results have been received and obtained conformity, then the MCA Try Out application may be distributed or used as appropriate. The distribution of the MCA Try Out application is made in the form of multimedia that can run on Android. The files used are HTML5 and Flash files published from Articulate Storyline 3 then built with the Website 2 APK builder application into an apk file that can be run on Android (Fig. 3).

After the MCA Try Out application has been distributed, the application is then applied to students of Senior High School 4 Batam. The author implemented the MCA Try Out application for class XI, totaling 24 people. From the results of this implementation the author distributed student response questionnaire sheets to the practicality of the Android-based MCA Try Out application at Senior High School 4 Batam (Table 4).

Based on the results of application practicality testing applied to students. The assessment indicators from the practicality test results of the applications asked to students consist of four aspects. The first aspect is the ease of use of the application and the ease of understanding the MCA questions, the percentage of which is 81.17% in the very practical category. The second is seen from the motivational aspect which is seen from the interest and attention of students in working on MCA questions with a percentage of 73.93% in the practical category. The third is seen from the attractiveness aspect of the application which is seen from the display quality and attractiveness of the MCA application, the percentage of which is 85.83% in the very practical category. The fourth is seen from the usefulness aspect which can be seen from the positive impact on students, increasing students' skills in working on questions and providing assistance to work on MCA questions with a percentage of 79.17% in the practical category. Of the four aspects of convenience, motivation, attractiveness and usefulness of the application, the average value of the whole is 80.02% which is in the Practical category. So, judging from the use of the application that has been applied to students, it is practically used in working on the MCA try out questions.

Table 3. Trial Results

No	Page	Test	Result
1	<i>Intro</i>	The page will display the movement of the animation, sound, text fields to be filled and buttons to function.	success
2	Title	The page will show the animated movement of the title and text, sounds and buttons work.	success
3	Main course	The page will display content and movement of transitions, animations on buttons and text, sounds and buttons work.	success
4	How to use the application	The page will display the contents and movement of the transitions and buttons to function.	success
5	Question Coverage Mapping	The page will display the contents, buttons, scroll panes work.	success
6	MCA questions	The page will display the contents and movement of the transitions, buttons and scroll panes work. The result value is out in the results page section, the timer is working, and the emoji reaction on the answer result is working.	success
7	Answer key	The page will display the contents and movement of the transitions, buttons and scroll panes work.	success
8	<i>Exit</i>	The page will display a yes or no button option to exit the application	success

**Fig. 3.** Main Page

Table 4. Practical Results

No	Indicator	Score	Statement
1	Convenience	81,17%	very practical
2	Motivation	73,93%	practical
3	Attractiveness	85,83%	very practical
4	Usefulness	79,17%	practical
Average		80,02%	practical

4 Conclusion

From the results of the research that has been done, it can be concluded in this study that the minimum competency assessment try out application can help students Senior High School 4 Batam in working on try out questions, then makes it easier for students to practice their abilities in facing the actual MCA exam. Then the use of this try out application is also practically used by Senior High School 4 Batam students, this is evidenced by the results of the practicality test of the MCA try out application of 80.02% overall. The development of the Try Out MCA application based on Android uses only Articulate Storyline 3, with many variations of animation that can attract more user attention. It is hoped that for further development research the MCA Try Out application will not only be used on Android but can be accessed on all smartphone devices so that it is easier to use.

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