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Development of mobile learning applications for Android based on artificial intelligence

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ABSTRACT

In order to enable students to study autonomously and without being constrained by time and distance, this research was done to design an M-Learning learning media based on learning media on artificial intelligence. constrained by time and space, as well as to boost students' enthusiasm for studying. The following are the problems that need to be solved by this research: (1) How feasible is an android-based M-learning application for the field of artificial intelligence? (2) What are the students' reactions to the M-learning application built for Android in the Artificial Intelligence course?Research and development, sometimes known as R&D, is the research methodology employed. Students in the informatics engineering department at Raharja University served as the study's research targets. Techniques Instrument reliability and validity assessments as well as questionnaires are employed as data gathering methods respondents. Then, the examination of media viability and student reaction is performed as a data analysis approach. Descriptive analysis was done on the student replies. (1) Media validation by professional validators is calculated at 92.5% by percentage, according to the results. On the basis of this, it can be said that the android-based M-learning application falls within the category of "Very Excellent" and is appropriate for usage. (2) The results of the M-learning application for Android-based students were positive, with a 79.5% response rate.

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1. INTRODUCTION

Smartphones may be made into a comprehensive learning tool with the development of M-learning applications. The operating system chosen is a factor to be taken into account when creating an M-learning application for a smartphone, in addition to the benefits in terms of flexibility and capabilities. Android is now the operating system for smartphones

with the greatest usage. The fact that Android is an open source platform, allowing anybody to examine the source code and make improvements, gives it the benefit of being the most popular operating system. Thus, Android emerges as the most straightforward smartphone platform to create on, one of which is for applications that provide access to learning resources.

There are several types of artificial intelligence learning materials available, from print-based materials like student worksheets to technology-based materials like Flash and E-Learning that require a computer, however these materials still have drawbacks. Media is needed more than just an appealing display design when it comes to artificial intelligence since it demands deep knowledge. Movable Learning is a method of teaching that gives students the freedom of time and location while allowing them to study independently of those constraints.

1.1. Learning Media

The meaning of learning media itself is an intermediary from the source of information to the recipient of information such as video, television, computers and so on which are used to channel information to be conveyed.

1.2. Mobile Learning

Mobile Learning provides learning materials that can be accessed anywhere and anytime without being limited by time and space with a more attractive appearance.

1.3. Database Firebase

Firebase is a platform for mobile developers to develop great quality apps, quickly grow their user base, and monetize apps. It includes many features, which developers can use to fulfill their goals.

1.4. Artificial Intelligence

This course is a group of courses Information Technology Education Study Program, this course This course teaches about the basic concepts of building an artificial intelligence system, understand the fields of application of artificial intelligence and understand the various methods that exist in the topic of artificial intelligence. various methods that exist in the topic of artificial intelligence. Introduction to definitions, disciplines, fields that have been solved with artificial intelligence, and that have been solved with artificial intelligence, and Knowledge representation in an artificial intelligence system artificial intelligence system. Application of inference in First Order Logic (FOL). Introduction to problem solving methods with artificial intelligence techniques, artificial neural networks (JST), Fuzzy Logic, Expert System and Genetic Algorithm.

2. RESEARCH METHODS

The research approach employed in this study is known as R&D (research and development), and it has the ultimate goal of producing a product and evaluating its viability.

2.1. Location and Time of Research

1. Research Location.
   To research the development result of android-based M-Learning, Raharja University Informatics Engineering Department will be used as the research location.
2. Research Time.
   In the 2019/2020 academic year in the odd semester the research will be carried out.

2.2. Research Instruments

1. Validation of research tools

To find out whether the research device is feasible used in research, the research device will be validated first by three validators.

2. The three validators mentioned earlier will provide results in the form of a validation sheet containing values given by the validator to assess the suitability and feasibility of the research tools that will be used.

2.3. Data Collection Technique

To collect data in this study, the validation method and response questionnaire.

1. Instrument Validity Test
   Instruments that have been prepared by researchers validated to determine the level of feasibility before tested on students who are taking artificial intelligence courses in the department of Informatics Engineering Unesa. Validation is carried out by several experts in the fields of education, media or multimedia learning
2. Respondent Questionnaire Reliability Test
   Survey techniques with questionnaires will be used by the author to collect data in this research. To determine the feasibility of the product, 30 undergraduate students of Information Technology Education Information Technology Education 2018 undergraduate students who are taking the artificial intelligence course will be the respondents.

2.4. Data Analysis Technique

The data obtained will then be analyzed by as follows:

1. Validation Result Data
   to determine the feasibility of the research tool which has been validated by the validator, then the data obtained will be calculated by dividing the total number of scores. The data obtained will be calculated by dividing the total score by the maximum score and then multiplying by 100%.
2. Student Response Result Data
   Calculation of data on student response results formula used is the same as calculating data on the results of The rating scale used can be seen in the table below. table below. Data on student response results meet valid criteria if the calculation results are above 61%.

3. RESULT AND DISCUSSION

In this result and discussion will discuss the appearance of android-based M-Learning application in artificial intelligence courses.

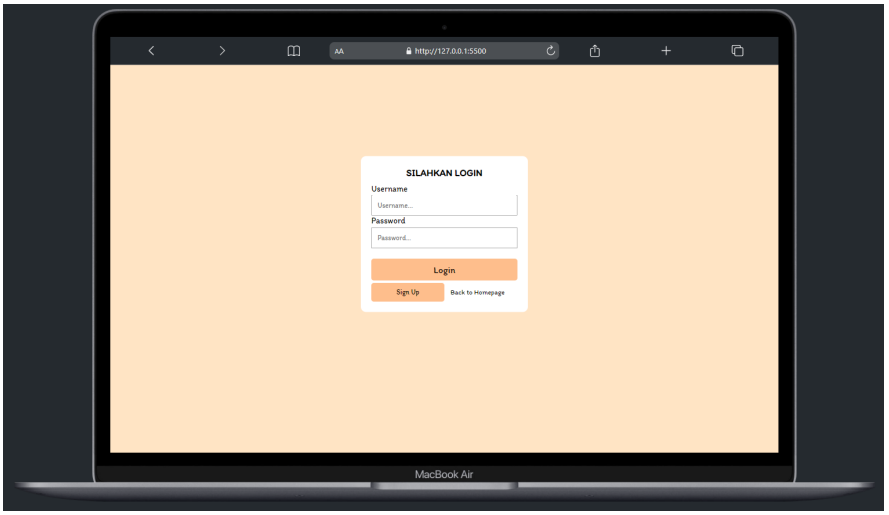

Figure 1. Login Page Display

There are two username and password forms to to access the application. If the username or password or password is entered incorrectly, an alert will appear to notify that the username or password is incorrect. Also there is also a Register option for users who have never accessed the application.

In this research step, the data from the validation results will be discussed, media, material, response questionnaire and student response data.

1. Three lecturers from the Informatics Engineering department were validators who validated the research tool. After calculating the value given by the validator obtained conclusions among others: (a) The media is very feasible to use because it gets a validation score of 92.5% (b) The material is said to be very feasible to use because the calculation of the validator's score gets a value of 90.5%. (c) The response questionnaire sheet is very feasible to use because it gets a score of 91.6% from the validator.
2. Student Response Results
   in the usage trial, the Percentage of Response Students after using the M-leraning Application application based on android is 79.2%. Henceforth it can be concluded that the development of the M-leraning application application development based on android artificial intelligence courses in Informatics Raharja University is included in the 'Good' category and valid for use.

4. CONCLUSION

Based on the results of validation and research on development of android-based M-leraning application artificial intelligence course in Informatics Engineering Raharja University, several conclusions can be drawn some conclusions, namely: (1) Based on the calculation Learning Media Validation obtained from Lecturers Raharja University, a percentage of of 92.5%. So it can be concluded that the results of Learning Media Validation are in the Very Good. Based on the calculation of Questionnaire Validation Learning Materials obtained from Lecturers at Surabaya State University, obtained a percentage of 90.5%. Raharja University Lecturers, a percentage of 90.5% was obtained. So it can be concluded that the results of the Validation of Learning Material Validation is in the Very Good category. Based on the calculation of the Student Response Questionnaire Validation Based on the calculation of Student Response Questionnaire Validation obtained from Raharja University Lecturers, a percentage of 91.6% was obtained. So it can be concluded that the results of the Student Response Questionnaire Validation are in the Very Good category. (2) Based on these calculations, the percentage of student responses obtained after using the android-based Mlearning application is 79.2%. Thus it can be concluded that the Development of Android-Based M-leraning Applications for Artificial Intelligence Courses at Raharja University Informatics Engineering is in the 'Good' category and is valid for use.

5. SUGGESTION

With this android-based M-learning application, is expected to increase student interest in learning and become a new means of learning so that students can learn independently without being limited by space and time time and provide motivation for educators in utilizing smartphone-based technology in learning activities. This research is also far from perfection, so the researcher hopes that there will be further development of this research.

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