



Problem Based Learning Android App Innovation

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Abstract

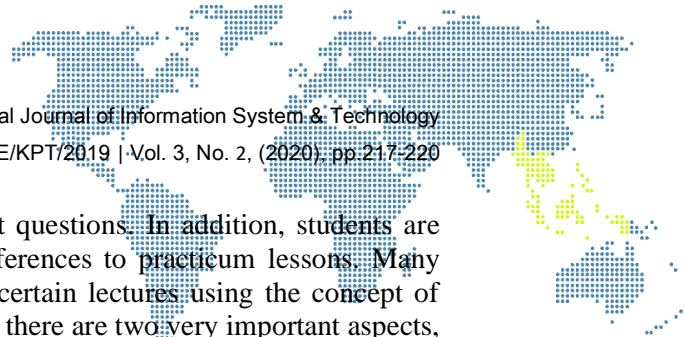
Nowadays, there are many learning media that have been developed by many programmers either based on mobile or not have become the needs and viewed as a normal situation in education activity. However, there are many learning media in the market that used by many users are still have many problems on it, such as learning media are not able to adjust to the learning problems needed that are facing in higher education. For this reason this research was conducted to create an Android app that applies the concept of Problem Based Learning in order to produce a mobile learning media so that it is expected to be able to improve the achievements of students in schools because it is more effective and efficient.

Keywords: Learning media, android, mobile learning

1. Introduction

Mobile learning has been widely used in education and a number of applications based on Android-based. E-learning has been used to facilitate users, especially students in college. However, the user interface, content, and features become obstacles for users. Mobile learning innovations are still being developed and adapted to the needs of each institution which is expected to increase the absorption of students. Various learning methods with a variety of creative content can also help to increase the interests of students. One of learning media is able to accommodate the growth and development of problem solving abilities for students is problem-based learning Problem-Based Learning/PBL [1]. One of the products of information technology integration in education is through the use of Mobile Learning in the teaching and learning process. Mobile learning is essentially a form of conventional learning as outlined in digital format and presented through information technology. Android-based mobile learning refers to the use of mobile devices such as smartphones and tablets. The growth of mobile device users is very fast and more than personal computers, because mobile learning is relatively easier to operate, can be used anytime and anywhere, thus offering independence of time and place in the true sense. The use of Android as a learning medium is very possible considering that Android itself is an operating system for Linux-based mobile devices.

Gandhewar, [2] explained that Android is open source so that Android developers can customize the operating system according to user needs without having to deal with licenses or copyrights. Developers are given access to use the libraries and tools needed when developing applications. In Mobile learning technology, all conventional teaching and learning processes are done virtually. [3], defines mobile learning as a provider of education and training using PDAs, tablet computers, *smartphones*, and mobile phones. Whereas according to [4] in the present time the use of the internet through mobile equipment is increasingly dominant, then e-learning will easily become mobile learning without specific changes in the content of the content. STMIK Indonesia Banda Aceh has 70% computer courses and produces many students as programmers every year, in learning process, students face obstacles in solving every single problem in software development. There are only few students understand the material given and also the



terms in completing computer course with different questions. In addition, students are still confused to find the learning materials and references to practicum lessons. Many universities throughout the world have carried out certain lectures using the concept of mobile learning. On the other hand, [5] in education, there are two very important aspects, namely the learning method and the learning media as a tool in the teaching and learning process. [6] added that the level of development of mobile devices is very high, the level of use is relatively easy, and the price of devices are still reasonable, compared to personal computer devices, is a driving factor that further expands the opportunities for using or implementing mobile learning as a new trend in learning, which forms the learning paradigm that can be done anywhere and anytime.

2. Research Methodology

The research method consists of several stages as follows:

a) Planning

The planning stage is the initial stage of system development that defines estimates of resource requirements such as hardware and budgets in general. In this stage the steps are also carried out such as defining the problem, determining the system goals, and identifying system constraints.

b) System Analysis

The analysis phase is the stage of research on a running system with the aim of designing a new system using tools, symbol / data flow diagram notation.

c) System planning

The design stage is the stage in determining the data process required by the new system with the aim of meeting user needs. The design process will translate the requirements for a software design that can be estimated before coding is made .

d) Maintenance

After implementing the new system, the next step that needs to be done is to use or use the system, audit, maintain, repair, and develop the system.

3. Result and Discussion

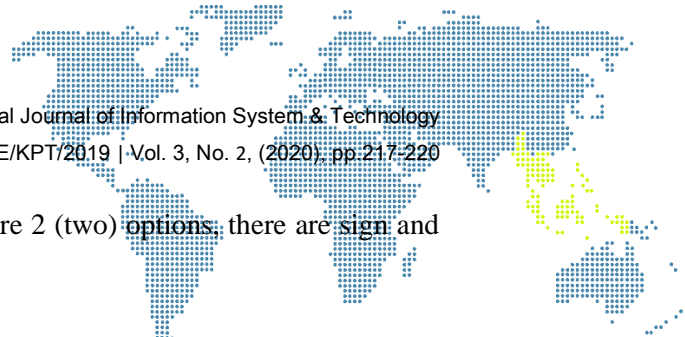
In the process of developing an application it is necessary to have a form that functions as a media interface for users to interact with the good designed application. Through the form, users can carry out a series of activities. The design of forms needed in the Problem Based Learning Innovation Application consists of:

a) Main Page

The main page display is the media interface for the menu to be selected, the main page of the application is shown as below:



Figure 1. Main Page



In Figure 1 above it can be explained that there are 2 (two) options, there are sign and registered feature.

b) Display Login/ Registration

This *form* serves registration system for lecturers and students. It is shown in Figure 2 below.



Figure 2. Registration Display

c) Login Display

This form functions to log in if you have registered the login appearance is shown in Figure 3 below:

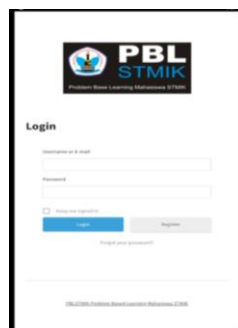


Figure 3. Display Login

d) Display Ask a Problem / Question

In the following figure 4 shows where to ask questions / problems form related to the course taken.



Figure 4. Display a Problem/ Question

e) Problem / Question Archive

Problem archive form is the result of a collection of questions raised by users. each student can see the existing archive as a reference.



Figure 5. Problem / Question Archive

4. Conclusion

This Innovation application has been designed and ready to use by every student and lecturer and has been tested using the blackbox method and has been running well, and can be installed on mobile phones using the Android application. This application can facilitate interaction between students and lecturers in the delivery of problems / questions about existing courses so that students will get the answers for every problem the face.

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