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Practical Model of Mobile Learning Applications

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Abstract: *The mobile device has been supported by the operating system that makes the phone has the potential to be a learning tool. The Android operating system is the mobile platform of high potential in education, plus it is open source, it can support independent learning. Availability of facilities and applications that can be installed offline, allowing an independent learning process starts from the students themselves. The purpose of this research is to find a practical model that can be applied in learning. Make mobile learning a practical model that can be used teachers, students and schools take advantage of the resources that already exist. The research method uses research and development, to mobile learning models that later developed into a model factual. Results The study concluded that: Android mobile application that is filled with interesting teaching materials can continue to invite progress within teacher as creator and students as users. Availability of Internet applications, making new teaching participants, can catch up with learning by opening apps without worry about the royalty claims. Android mobile application that supports online messaging greatly help communication between members. Results of the study are: a practical mobile learning model consists of four aspects, namely: Four Key Roles, Learning Tasks Accommodation, Interactive Content and the Modular Learning Outcomes.*

Keywords: *Mobile Learning Model, Android Learning, Learning Applications*

INTRODUCTION

Mobile Gadget Booming

Android operating system based mobile phone is growing rapidly, because it is effective in completing a task; work and meet the communication needs of its users, mobile content may include such information as well as entertainment. Android cell phone becomes a tool commonly used in various fields, as well as communication and socialization, and being a superior force in the media for information and entertainment. Android development is very rapid, beginning in 2012 there were 200 million users and Google Play can accommodate 400.00 Applications are ready for use, and to reach 10 billion apps downloaded via the Android Market (Wahadyo, 2012: 3).

Android applications are used in education by researchers, teachers and students in a variety of forms. Many virtual community of learners to share information about their hobbies and actual news using Android-based devices. Now more and more professionals build Android-based application to create media teaching, such as learning to play the guitar, recognize letters, as well as basic vocational subjects. Students also tend to use Android phones to support learning activities or just meet the needs of entertainment, such as games and movies. Android shows rapid growth, in 2010 there were 100,000 new devices are activated per day. (Rollins, 2013: 4) According to the chairman of Google Eric Schmidt, by April 2013 there were 1.5 million new Android devices per day.

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Advancing Community Learner

Android cell phone technology has important aspects in fostering the growth of the community use the Internet because it is open source. The first step to developing a science-oriented applications are: agglomerate users into the community, and provide media intensive communication among its members. The rise of the Android mobile phone usage activity of the members of the community, can be directed positively to the development of science. Topics of information obtained from the input of senior members of the community, so that other members can follow to learn.

Research Objectives

The research method used in this research is qualitative method. The approach used is to observe student activities in the classroom, holding interviews about the constraints faced by students while learning in the classroom. Conduct studies of books and journals on mobile learning, especially on the development of the Android operating system.

The objectives of this study are: To describe clearly to the community, teachers and learners, about the actual technology compatible for the implementation of education. Explains to the education community, about the Android facilities that can be used to build learning activities effectively.

Create a design concept or model of mobile device-based education application, which is practically applied in learning. Finding mobile learning techniques; The effectiveness of using Android technology to improve the quality of learning.

THEORETICAL REVIEW

The Famous Android Mobile

Android is a Linux based kernel mobile operating system developed by Android Inc and later acquired by Google (Jubile, 2010:1). The Android operating system is open to allow developers, even their users to be able to create and install Android apps freely. The Android operating system competes with other operating systems like IOs, Windows Phone and Blackberry.

Android superiority is its open source nature, making Android widely applied by leading device vendors such as: HTC, Samsung and Sony. Google as the company that released the Android operating system finally decided to plunge into the hardware level.

Android is a mobile operating system or mobile phone and tablet, as well as Microsoft Windows which is the operating system for Personal Computer (Mcgrath, 20:8). Almost all Google apps are in Android, like Gmail and Google Earth. In addition to the built-in app, Android allows its users to add downloadable apps from the Google Play Store. For example

there is an MX Player application that can play high resolution videos on mobile devices, while for the game there is Real Racing to enjoy the mobile device like a race.

Native Android Applications are written in the Java programming language, which is then compiled into Dalvick bytecodes. Dalvick is a virtual machine that simulates hardware. All Android apps including Adobe AIR apps run over Dalvick virtual machines (Chin, 2011:3). Android Architecture System consists of: Linux Kernel, Libraries and Runtime, Application Framework and Application.

User Friendly Platform

Android is not only an open source system, but it gives users the ease to share as an app creator. Before starting Android application design is very important to choose the software that will be used. Adobe Flash is a software that is familiar in making 2-dimensional animation, especially Tretola said that Adobe Flash is one software that can be used to develop mobile applications using Adobe Interchange Runtime technology abbreviated AIR.

Flash used in Android app development requires only conversion from Actionscript 2 to Actionscript 3. ActionScript 3 is more comprehensive in outlining interactive commands. The point is, that in addition to the open source nature, Android has the advantage of user friendly that allows users to create applications from popular software. The latest version of Flash Professional comes with AIR extension for Android, so software owners do not need to install additional software. (Brossier, 2011:2).

Learning Media

The word media is the plural of the word medium. Medium can be defined as an intermediary or introduction of communication from sender to receiver (O'Neill, 2002: 9). Mass communication process begins by a communicator (sender) who convey a message to the communicator (receiver) through the media (channel) and then communicant feed back on the message received to the communicator (Sari, 1993: 24). Media is one component of communication, namely as a messenger from communicator to communicant. Based on the definition, it can be said that the learning process is a communication process. The learning process contains five components of communication: teachers (communicators), learning materials, learning media, students (communicant), and learning objectives.

Media devices are: materials, equipment, hardware, and software. The term material is closely related to the term equipment and hardware terms associated with the term software.

Media is a tool used by a teacher to explain the lesson. Communication theory then affects the use of media, so the media as well as the channel of the message (UPI, 2007:206).

Learning is a process of communication between learners, teachers and teaching materials. Communication will not work without the aid of messengers or media (Simamora, 2008: 65).

As mobile connectedness continues to spread across the world, the value of employing mobile technologies in the arena of learning and teaching seems to be both self-evident and unavoidable. The fast deployment of mobile devices and wireless networks in university campuses makes higher education a good environment to integrate learners-centered m-learning .

Mobile Learning

Mobile learning allows anyone to access information and learning material from anywhere and at anytime (Ally, 2009 : 1). Learner have control of when they want to learn and from which location they want to learn. Mobile Learning use mobile technology that allow human to access learning material and information on the application through a certain method. Educator and learner are empowered since they can use mobile learning application to communicate each other from anywhere and at anytime. It is a concept that certainly concerned with learner mobility, in the sense that learner should be able to engage in educational activities without constraint of having to do so in a tightly delimited physical location (Traxler and Hulme, 2007 : 1).

What is specific in Mobile Learning is comes from the possibilities opened up by portable, lightweight devices that are sometimes small enough to fit in a pocket or in the palm of one's hand. These device refer to mobile phone / hand phone that can be carried around with relatives ease and used for communication for teaching and learning.

As has been cited in the paragraph above, that the main component of "mobile learning" is the communication between teachers and students, the openness of teaching materials and a portable system that accommodates the learning activity(Alsaadat, 2017). Through the use of mobile learning, user can access learning content without any borders so that it can be accessed at any time so that it can be accessed at any time with interesting illustration .

RESEARCH RESULT

The main result is a Model that android mobile learning must have, there are four main components consisting of: Subject, Activities, Content and Outcome. Each of the main components has criteria based on aspects of practical implementation, using android-based mobile learning applications.

Four Component Involved

Learning in schools involves not only learners and teachers, but all stakeholders. Learning outcomes are not only Grade, but also school performance. Expectations from the

utilization of mobile learning technology, is the improvement of school performance and improvement of learning outcomes. The use of mobile technology provides learning opportunities for both stake holders, students, instructors and administrators (Hanafi & Samsudin, 2012). Academic advantages can be achieved with the use of Android technology, as is known, that the learning process with Android utilization is very different from the conventional methods that go straight. As long as the school continues the process as in the conventional learning method, that is lecture and tutorial in the laboratory, it will increasingly distancing the self-learning potential possessed by the learner.

Parties that play an active role in learning using mobile learning consists of four elements, namely: Students, Teachers, Managers and Organizers. Students can increase their learning value, Teachers can improve their expertise, Managers can improve school performance and Organizer can improve its institutional services.

In Figure1 below explains that: there are four components involved in the Learning Application. Each learning component has a chance to improve a certain quality.

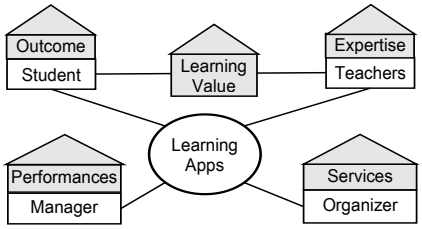

Figure 1. Stake Holder Performance Improvement Opportunities in Mobile Application Utilization

Task Activities Guidance

School has two methods of learning, First: face to face in the classroom, this is often called the Lecture method to deliver theoretical lecture materials. The second is the Practicum method, ie lab work in the lab to practice the theories that have been obtained in the classroom. The learning method is followed by assignment, theoretical task is Paper. The second form of task is, the project task to make the product based on certain criteria.

Learning process undertaken by learners often instruct the task to be completed in writing and project. Bjerede & Bondi revealed that more learners prefer mobile devices than netbooks. Some tasks can be easily solved using netbooks, but quickly accessible devices make up the majority of learners' choices in learning (learninguntethered.com, 2015).

Mobile learning must be able to accommodate the completion of learning tasks by students. The device used can be a tablet, netbook or smartphone. Based on the 2014 Baidu survey cited by tempo.co, states that 59.9 percent of Internet users in Indonesia access the internet via smartphone. In 2016 the Indonesian Association of Internet Service Providers'

research showed that internet users in Indonesia used 84.6 million smartphones and used 46.4 million computers to access email facilities. This fact makes the provision that mobile learning android using smartphone must be able to facilitate the student to complete the theory and project task.

Interactive Content

These advantage of learning using a handheld device, is the ability to access and share learning materials wherever and whenever (Lee & Salman, 2012). Lee & Salman's research developed a Mobile Collaborated Learning prototype, that learning with the use of mobile devices should provide access to content on a scheduled basis, reducing cognitive loads and further improving interactions among users. Like any school schedule, Android-based mobile learning applications demand commitment from its users, teachers and students. Implementation of this commitment principle is schedule and notification, whose application is an integrated and monitored system. For example: before entering the class the learner should read the references instructed by the instructor. Teachers should be able to monitor through the system or application that the students have completed the instruction to read the book before the theory classes begin.

Likes the implementation of Hariadi's learning with Brilian, that at the first meeting in the classroom, lecturers introduce Brilian application, its purpose, benefits and advantages to the learning process. Furthermore, lecturers introduce each menu and followed by exposure of study plan, so that students generally understand the learning purpose of the courses that they follow Hariadi

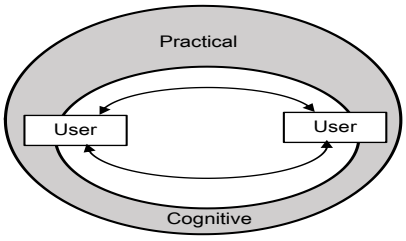

Figure 2. Practical Orientation of Mobile Application Content

Figure 2 above illustrates the majority of Practical Content on the System or learning application. Users of the application must be able to interact with each other in the system, and user activity should be documented so that it can be a tool to monitor student softskill.

Futuristic Learning Outcome

Mobile apps should be able to create problems that meet the complexity of the lesson syllabi. The question database should be monitored by the Teacher. The instructional application can be used as a reference for preparing exams held by the school. Existing application features are stored in an external database, so teachers and school officials have

access to the database (Oladele, 2014). The research focus by Oladele centralized the mobile-based exam application featuring a time feature, which monitors the duration of the learner in solving a question. Similar results are expressed by Zang, that mobile learning should increase flexibility in time and location schemes, allowing learners to obtain test results or exams instantly and effectively (Zang, 2010). Support for learning practice features or quizzes in mobile learning applications can train students or users to complete the real test.

Figure 3 explains the importance of a database that can be accessed by users in a certain level. Databases in instructional applications can generate exam questions as a real practice exam material.

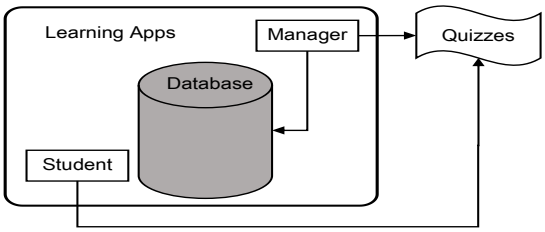

Figure 3. Exam Management System on Mobile Learning App

Battery issue is a problem in itself experienced by some vendors of handheld devices. Device innovation continues to grow significantly, while battery technology is still stagnant. The association of applications with battery hardware, is a continuity aspect of usage. If the instructional application opened by the user is battery saver, then the intensity of use or learning activity will last longer. Concerns for running out of batteries experienced by handheld device users, decreasing the intensity of the use of learning applications on mobile devices. Technically Lopes contributed, that learning using Android-based applications should pay attention to battery life (Lopes 2012). Android based learning applications should support the use of devices that tend to be long, so there needs to be features or application capabilities to disable the screen within a certain period.

CONCLUSION

The center of strength in designing learning technology is the creation of discussion and context development features (Prasertsilp 2013), the science of mobile technology must be able to bridge communication between teachers and learners, and can bridge communication among fellow learners. Prasertsilp points out the importance of mobile-based learning is the integration of mobile technology into innovative practical development. Based on research results Prasetsilp, whether mobile learning can not rely on a single mobile platform, such as Android.

The basic use of the Analysis Design Development Implementation and Evaluation (ADDIE) method by Berking also points out the same thing about the importance of utilizing a comprehensive mobile device, without being picky or leaning to one platform. The model produced by Berking 2012 is very practical using the ADDIE model, if indeed a teaching material is considered to be built for its mobile based project then it is decided to design a mobile learning interface that is certainly in accordance with the condition of the class. Regarding the resulting application, Berking expressed the importance of the ability of developers or teachers in detecting the usefulness of mobile learning applications that have been made to learners.

Discussion referred to as Social Coordination by Shih, is a core component in mobile learning, a mobile learning model that enables communication between users. Infrastructure computing and mobile communications must support the creation of a learning environment, thus mobile applications can serve as blended learning tools (Shih, 2005).

Several reviews from experts who have researched mobile learning contributed to making a suitable mobile learning model, especially for practical use by teachers utilizing existing facilities.

Android as a small part of the advancement of hardware technology can be the right choice for teachers to create teaching media to their students. In addition to easy to learn and free, the main option to take advantage of Android is a simple development tool.

Android-based digital learning media demands active participation of learners. This activity can be an added value of the soft skill aspects of the learner, ie adaptability, communication and problem solving. Soft skill education is very profitable, in addition to students gain knowledge, students also experience an intensive academic atmosphere.

Teachers' skills can be trained and developed to improve learning success, utilizing familiar technologies in the community. Education as one of the areas that are often monitored by the community, should be utilizing Android technology.

Based on the findings of practical models of mobile learning in this study, teachers can already start selecting applications in Playstore. Applications that can be used as teaching aids should be in accordance with the four criteria model: The subjects involved consist of students, teachers, managers and organizers; Has a function of theoretical and practicum management features, features time management and upload form documents; Content is more interactive, reduces material that is cognitive; Having detachable quiz databases and learning result reports, compatible with the majority of existing operating systems.

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