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Empowering Local Mind
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The Roles of Interactive Multimedia Learning Android-based Application for Primary Schools Teachers

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***Abstract*— This The obstacles faced by elementary school teachers in the learning process in the classroom is the difficulty to create an effective learning environment that is popular with student, and rises the curiosity. Therefore, Interactive Multimedia Learning Android-based Application is required as a companion for text book so that the result can be maximized. The purpose of this study is to determine the roles of interactive multimedia learning Android-based application for elementary school teachers in the problem faced in teaching activities in the classroom.**

Author Keywords: *Learning Media, Interactive Multimedia Learning, Android Educational Application*

1. INTRODUCTION

Indonesia is currently implementing 2013 Curriculum after experimenting a variety of replacement of previous curriculum.2013 curriculum is a thematic learning method that tend to emphasize the balance between three domains of education, namely: cognitive (intellectual), psychomotor (attitude) and affective (skill) (Sariono, 2013: 6). Currently textbook that are used by teachers are thematic that consist of textbook of teachers and students that were published by The Ministry of Education and Culture of the Republic of Indonesia. The rest depends on the creativity of teachers to develop learning media and their methods of teaching.
As disclosed in previous study that a teacher are strongly demanded to improve their pedagogic, academic, social, as well as leadership and management competences (Muzakki, 2013:7; Sariono, 2013: 7-8). Student motivation is closely related to learning media used by teachers when teaching in schools. In practice there are various problems associated with teachers' learning media that support the textbook. Development of learning media towards interactive multimedia Android-based application is required in order to bridge the problems faced by teachers in the classroom teaching activities.
Multimedia learning is a form of learning that is supported by multiple sources of information (e.g. text and graphics) that are coupled together to understand and remember the specific content (facts, concepts, procedures). According to

Mayer (2003:125) Multimedia learning is created when students build a mental representations of the words and images that are presented to them (e.g. print text and illustrations or narration and animation). The promise of multimedia learning is that students learn more in the multimedia message that were well designed consisting of text and images instead of the delivery of communication traditional that has only involved text.

Advances in information technology and communication could revolutionize learning. These technologies can be as a source of learning that is limitless. Except the teachers teaching, the gap between sciences are also bridged by the availability of educational content and information. (Permatasari, 2015).

One of the main tools that facilitate the information age are Smartphones. Smartphones continue to grow rapidly and do not have any signs of that it will soon recede. From different varieties of programs which are used in smartphones, android ranks first in the smartphone market share in Indonesia in the amount of 56.13% per period from July 2013 to July 2014. Virtually every aspect of our lives has been affected by mobile devices, one aspect that also affected the world of education. Class which is equipped with tools and technology that enable good learning and facilitate the need for knowledge that is growing is the hallmark of intelligent education (*smart education*) (Sykes, 2014). The magnitude of the potential of the Android-based smartphone will be excellent when used as a support for learning. Mohamad & Woollard (2012) stipulates that the development and implementation of mobile phone in the school will be very beneficial because it is a device that is best known by students and is the most widely used tool in the future of the learning. The development of Android based learning media is in line with the 2013 Indonesian Curriculum. One of the change that has been made in the 2013 curriculum is the integration of Information Technology in every subjects Salah. Information technology is no longer established himself as subjects but serves as a tool for all other the subjects. With the development of learning media that utilize mobile devices, students will increasingly play an active role in learning in accordance with the mandate of learning in 2013 Curriculum that is emphasized students as a learning center (Solihah dkk, 2015:458).

The purpose of this study is to determine the roles of interactive multimedia learning Android-based application for elementary school teachers in the problem faced in teaching activities in the classroom.

2. METHODS

The method used in this study is a qualitative one. Qualitative research is research that leads to a number of methodological approach, based on various principles of the theory (such as phenomenology, hermeneutics, and social interaction), through data collection and analysis of non-quantitative data, and aims to find the linkages of social relevance and to describe reality in accordance with the statement of the respondent (Sarantakos, 1998: 6). The approach into the category of qualitative research include interviews, participatory observation

(ethnography), and visual methods (Denzin and Lincoln, 2009: 1).
The sampling technique in this research is a purposive sampling. In this sampling technique, the researchers set goals when choosing who the subject is; an object that is relevant to the topic of research (Sarantakos, 1998: 152). Sampling is done by adjusting the ideas, assumptions, goals, objectives, and benefits to be achieved by the researcher (Endraswara, 2006: 115). The sample used in this study were all elementary schools in Surakarta that implement the 2013 Curriculum which totaled 10.
Based on data obtained from the Department of Education and Sports (Dikpora) Surakarta (2016), 10 elementary schools are: SD Negeri Kleco I, SD Negeri Kratonan, SD Negeri Begalon II, SD Negeri Bulukantil, SD Negeri, SD Muhammadiyah Program Khusus, SD Muhammadiyah 24, SD Al-Irsyad, SD Al-Abidin, SD Negeri Bayan 216, dan SD Warga. Data were collected through technique (1) questionnaires filled out by teachers and pupils in grade 1, primary school, (2) direct observation in an elementary school, (3) analysis of the contents of documents / files are media that has been used by teachers, (4) in-depth interviews with classroom teachers who have implemented the 2003 curriculum. Data after review of some key informants conducted further cross check with other sources and then analyzed by a theoretical model of multimedia learning design principles of Richard E. Mayer interactively through the steps of (1) reduction, (2) data presentation of data, and verification or draw conclusion (Miles and Huberman, 1984).

2. RESULTS AND DISCUSSION

3.1 The role of Interactive Multimedia Learning Android-based Application for Primary schools Teachers

The development of learning media towards Android-based interactive media provides solutions to various problems faced by teachers in thematic learning 2013 curriculum. Multimedia learning is a form of learning that is supported by multiple sources of information (e.g. text and graphic) that are coupled together to understand and remember the specific content (Fact, concept, procedure). According to Mayer (2003:125) Multimedia learning is created when students build mental representations of words and images that are presented to them (for example, printed text and illustrations or narration and animation). The promise of multimedia learning is that students learn more in the multimedia message that well designed consisting of text and images instead of the delivery of communication traditional that has only involved text. Interactive learning media Android-based app has a variety of roles for the activities of teachers teaching in schools.

3.2 Generating Student Motivation

One of the problems faced by teachers in the learning activities are that the teachers have difficulty in making an efficient learning media and raising students' learning motivation during activities in the classroom. Teachers need

learning media as support for textbooks. To maximize learning achievement it is not enough to merely lecture in the classroom, but also need to be supported by interactive multimedia so that students can learn by interacting directly.
In the *Cognitive Theory of Multimedia Learning* (CTML) according to (2003), humans have two ways to process any information through visual (sight) and audio (hearing) also call as *Dual Channel*. It underlies the concept of interactive multimedia learning media that is the combination of audio and visual elements.
According to the statements of the teachers, interactive media is a popular media with students. The learning experience of students through interactive learning material that been presented makes easy to remember. Each teacher requires learning media support that are the combination of audio-visual elements, and interaction. Hence Interactive Learning Media is shaped by Interactive story that seams really important it can improve the motivation of student to learn. Storytelling that are close to everyday life makes the student understand easily the material that are studied. Stories that visualized with illustration detailed and full filled with color is encouraging students on scientific approach. Fruitfulness of learning media is attained when students are encouraged to observe, question, reason, try and communicate or present things that they learned. Elementary school teachers state that the student's attention is enhanced when teachers are using interactive multimedia in learning activities. The interest of students can be built through the media with the composition of colors, images or illustrations that are clear and popular with student. When media in the form of audio-visual, like film and animation, the duration shouldn`t be too long because it may bored the students become. Messages that is wrapped with humor seem more attractive and popular with student.

3.3 Explain Teaching Materials with Detail and Concrete

One of the obstacles faced by teachers is the difficulty to illustrate materials that lead to an affective aspects, because for the purpose of the teaching is to make students to be able to understand the essential of the material, not only merely memorize it. Specifically teachers have difficulties in the conceptualization of story that easily accepted by students. Actually 1 grade Primary School student have 7 years old and at this stage is the transition of kinder garden and Primary school Taman. To attract more the attention of students the story that are submitted must be effectively hit the mark. According to Piaget at the age of 7 to 12 years old have structure of the development at their early age. Cognitive characteristics at that age is classified as concrete operational stage. At this stage the children understand concrete things faster, but not abstract (Frengky, 2008:153).
By the teachers' learning media interactive applications the story can be illustrate easily and became more detailed and concrete. It was able to bridge the problems of teachers by providing an explanation of the content that is affective. We recommend that the concept of the story is packed with language that could be easily assimilated by children with a duration not exceeding 5 minutes. As Mayer states that humans also have limited capacity of information received at the same time, these assumptions has been derived from the *Cognitive Load Theory* (Mayer, 2003).

3.4 As Mobile Learning

Mobile learning is defined as learning across multiple contexts, through social and content interactions, using personal electronic devices. A form of distance education, m-learners use mobile device educational technology at their time convenience (Crompton, 2013:3). The application can be downloaded and installed easily to the Smartphone of the user. *Smartphone* that is owned by most of the teachers, parents, and student. Through Interactive Multimedia Learning Android-based Application, learning activities can be done by the students either independently or with assistance. Besides of that learning activities can be carried out by students at any time and at any places. Another benefit is that it facilitate parents for mentoring, teaching, and measuring the ability of their child.

3.5 Easy to Evaluate for Teachers and Parents

Interactive Multimedia Learning Android-based Application is able to provide questions with a wide range of interactive customization with students craze. Based on interviews and observations done with the students most of them like the interactive form of puzzle, drag and drop, click and match, pick or sort pictures, and songs. Exercises are not only represented by text, the student may get bored quickly and loses their motivation. Exercises are also equipped with assessment (scoring) and key for the answer to help the teachers, parents and the students to measure the ability and facilitate the learning activities.

Picture 1. Result from an interactive question

3.6 Media that Used for Delivering Message which is Correlated with Norm and Ethic

The teachers provide support for the development of application-based learning on a Smartphone, according to teachers; it would give the student the ability to learn whenever and wherever they are. In addition parents can direct the student to a positive way to use smartphones, but teacher also expressed the weakness of interactive learning media that is the student that is will waste time and lower his awareness of the surrounding environment. To overcome this condition a

short message which leads to norms, ethics and concern for the surrounding environment, can be by inserted, such as: “Have you pray?”, “Have you cleaned the room?”, “Have helped your parents?” “Have you take a shower?”, “Have you acquainted with your new friend?” it can serve as a reminder for children to stay disciplined with the time and care about the surrounding environment. In addition, in the application setting there is a timer menu, so users can not use it with a duration that exceeding the specified time to be disciplined with time.

Picture 2. Notification or Reminder that remember to be aware of the surrounding environm

3. CONCLUSION

Interactive Multimedia Learning Android-based Application have a varieties of roles in the teachers teaching activities in school, that are (1) Arouse students’ motivation, (2) Explain materials learning in detail the and concrete, (3) As a Mobile learning, (4) Easy to evaluate for teachers and parents, and (5) Media that used for delivering message which is correlated with norm and ethic.

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