Designing Android-Based Interactive Media for Early Childhood as an early Introduction to Reading Concepts and Technology

Rakimahwati¹ and Hendra Hidayat²

¹(Faculty of Education, University of Padang, Padang, West Sumatra-Indonesia)
²(Faculty of Teaching and Education Science, Bung Hatta University, Padang, West Sumatera-Indonesia)

Abstract: This research is aimed to describe the design of interactive media of android-based for early childhood as an introduction to reading concept and technology early. The research method is development research limited to designing interactive media of android-based for early childhood. The first stage is conducting needs analysis needs for designing interactive media of android based for early childhood. Needs analysis at the beginning is done through direct observation and interviews. Then, designing of interactive media of android-based for early childhood was carried out. The results of the research are an android based interactive media design. The android based interactive media can help the learning system while playing in the classroom, in the family, school and society which must be under the control and supervision of an adult.

Keywords: media, interactive, early childhood, android.

I. INTRODUCTION

Early Childhood Education is an efforts of guiding children from birth to the age of 6 years by providing stimulation of education to help the growth and development of the physical and spiritual so that children have the readiness to enter further education (Law No. 20 of 2003 on National Education system Chapter 1, Article 1, Item 14). Santorck & Yussen (1992) also considers pre-school age as the period which is full of important and unique events (a highly eventful and unique period of life) that place the foundation of a person's life in adult age. Goleman explains that a period of three or four years is a fertile period for the growth of the human brain to be able to reach more than two-thirds of the adult brain size. It can be concluded, that the experts agree on how essential phase of preschool age for children further development. In addition, referring to the nature of learning and development, according to Bateman (1990), on the function of the cerebral hemispheres, one of them, show that children who during the preschool get enough stimulation to develop both sides of his brain will acquire the readiness thorough to study successfully at the time of entering Elementary School. Marcon (1993) explains that a child's failure to learn at an early stage will be an important predictor for failure to learn in subsequent classes. Similarly, early learning mistake could be a barrier for further learning process.

Technological developments that have been entered into the family environment, especially early childhood like android technology, tablet and notebook and laptop provide space for children to get involved into the use of a technology device. It is about 52% of children of ages 0-8 years had been able to access a Smartphone, tablet or similar electronic equipments (Guernsey, 2012). If the use of technology mentioned without supervision and control of the parents would also have a negative impact on the development of children growth such as concentration deficiencies, children become lazy and social interaction is reduced. Several research reports on children aged two to four years, they are on average of two hours / day watching at devices screen such as TV / Tablet / Smartphone (Rideout, 2011), other studies have found that children aged two to five years spend more than 32 hours a week in front of screens (McDonough, 2009), so that this phenomenon should be immediately identified an alternative solution without restraint technologies and playful learning can run well.

One alternative is developing android based interactive media can help learning system while playing in the classroom, in the family and society which must be under the control and supervision of an adult (Bhaskar K., 2013). This interactive media will give effect on building digital literacy and children's reading stimulus. It was claimed that it multimedia technologies is prepared as good as possible can influence the effectiveness of learning to read and helps in the process of teaching and learning (Pasnik et al., 2007; Neuman, Newman, & Dwyer, 2010; the Corporation for Public Broadcasting, 2011). To improve the learning outcome, both teachers and students markedly uses Information Communication Technologies (ICT) (Nilay M.Vaidya et al., 2016), the meaningful use of technology and innovation in learning technologies impact the learning environment better.
II. REVIEW OF RELATED LITERATURE

A. Early Childhood Viewed From Media Technology Aspects

Early childhood is unique, in the range 0–8 years old, have high curiosity, self-centered, and continues to experience growth and development of age appropriate children who are strongly influenced by the environment through stages of playing (Sujiono & Conscience, Y. 2009). The use of media in learning may arouse new entrant’s desire, improving motivation and stimulation of learning activities, and even affect the child psychologically (Hamalik, 1986). According to the agency of policy regarding media and communications in the United States or the policy statement of the American Academy of Pediatrics (AAP) Council on Communications and Media (2011) describes the interactive media with high quality can provide benefits for children in improving social skills, language and reading readiness in school. In line with the National Association for the Education of Young Children (NAEYC) and the Fred Rogers Center for Early Learning and Children's Media (2012) describes the technology and interactive media can be utilized in the development and early learning. The role of media is very large, the culture media can affect children how children behave and keep one another, how they learn, what they learned, and what they want to learn (Levin, 2013).

Educators agree that literacy today means developing digital literacy (technology-handling skills), much as it meant concepts about print (book-handling skills) in the past (the National Institute for Literacy, 2008), educators agree that literacy or readability nowadays means digital readability development (skills of the use of technology), which is meant before as print or books readability. So it is necessary to understand on how the technology is used by children, according to Epstein (2013) results of shows that: a) the parents allow the use of media technologies such as tablets, smart phones and others under supervision and guidance of parents (AAP, 2011), b) containing educational content (Wainwright & Linebarger, 2006), c) technology will be effective when teachers or parents are also involved in the development of mental impact on the learning experience (Plowman and Stephen, 2005; 2007). But if it is managed property from the use of technology can have an impact on children's language development, vocabulary, understanding of mathematical logic, skills of problem-solving, self-regulation, and the development of social skills (NAEYC-Fred Rogers Center, 2012), from the explanation of early childhood are closely relates in their life with interactive media, they grow up with digital devices that become culture among at home, school, workplace and community.

B. Overview About Digital literacy and Reading Kids

1. Digital literacy for Early Childhood

Digital Literacy or readability of technology is very clear in our lives because of the developments in technology. The patterns have been developed on the reading and writing text-based electronics, including the technology readability (Marsh, 2004), a new readability (Lankshear & Knobel, 2006) and digital readability (Merchant, 2007, 2008). All of these terms refers to the skills, knowledge and understanding necessary to analyze, produce and create text processed spread out through electronic media, such as computers, televisions, gaming devices, mobile phones, and touch screen technology as the iPad.

Many use of digital technology for early childhood have impact marked with the child being active, creative and fun in their world (Marsh, 2005) because digital technology offers the potential children development to engage in more creative (Bruns, 2006). So, interpreted digital literacy for young children is a digital readability and all elements of the development, deployment and use of technology in the context of mental stimuli and physical and spiritual development of children. Readability technology in this study is limited to the child who is able to understand and recognize the use of technology.

2. Reading for Early Childhood

Reading in early childhood is a complex problem because there are many factors which are influence and relevance of various components in affecting a child being able to read well, not only read but also expected to interpret. Stimulate early childhood reading is closely related to literacy or readability and meaning. This activity is a long process of gradual and sustainable until the child can read.

According to Wicarksana (2011) reading is a set of mind activities which is done with full notices to understand the information through seeing sense in the form of complicated symbols arranged to create a meaning. Prasetyono (2008) reading is brain activities to transcribe, understand, and interpret the symbols. Meanwhile, susanto (2011) early reading is reading which is taught program to children at preschool age. This program focus on notice complete words which is meant in the context of children personal and materials which is given through playing and interested activities as learning interim. Reading in this research is still in knowing letters for early childhood because its implementation is for 3 to 4 years children age.
III. METHODOLOGY

This study is a research and development or development research (RnD). This research includes research that develops and produces android based interactive media for early childhood.

The first stage is conducting a needs analysis android based interactive media design for early childhood. This stage begins with a needs analysis is to describe the initial conditions of early childhood school. Needs analysis at the beginning is done through direct observation and interviews. Furthermore, the design of android-based interactive media for early childhood was carried out.

IV. RESULTS

The results obtained from analysis initial needs of design are as follows:

a. The use of media technology in children is limited, so hindered the development of digital literacy and children reading ability.

b. The introduction and use of technology is made only on the theme of communication tools

c. The technology has not been used as a medium of learning.

d. Children's ability in the use of technology is not developed optimally.

e. Children are not able to build on the knowledge and experience through the use of media technologies.

Based on these initial conditions, researchers are trying to design Android-based interactive media products for early childhood. The results of the design carried out by researchers as follows:

Figure1: The starter view and process of playing Game recognizing letters

A first design generated, as shown in Figure 1 above consists of a home page and opening. Furthermore, there is a display *let's recognize the letters* with four menus i.e., start to play, help, about and exit. After that, if pressed button start playing, it will display the correct letters mate choice, children are invited to choose the right. If the answer is correct then the answer will appear exactly true.
Figure 2: Instructions and other information of the game let’s recognize letters

Next to the image 2, it can be seen that continuation phases of the game, if the answer given is correct then the student does not show up response from the gaming system to answer “not quite right”, with the menu selection and return the main menu. If you want to get out you can click the menu out.

V. CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH

Conclusion
The produced design of interactive media is merely the introduction of reading and technology for early childhood, to interpret the process of playing while learning. The process of playing while learning must of course be under the supervision and guidance of adults, teachers and parents. Building a cozy atmosphere and give children the opportunities to try and learn without realize. All concepts play while learning course has rules to stay how adults organize and direct that this process will have a positive meaning for the growth and development of young children.

Suggestions
It is time for educators to try varying the learning process through interactive media, especially media touching, so the atmosphere will be able to begin to decrease boredom and emerging high sense of desire to learn from the students. In addition, the learning process through interactive media to facilitate varies learning styles.

VI. REFERENCES
