Analysis Of Impact Android-Based Literacy Learning Media (Mpba) Application To The Development Of Skills In Interest And Literacy Of Kindergarten Students

Hartatik1*

1Informatics Engineering Departement, Faculty of Mathematics and Natural Sciences, Sebelas Maret University, Surakarta, Indonesia

*hartatik@mipa.uns.ac.id

Abstract. Early childhood education is very important and is a very important period for children's growth. The education process is a process for generating activities in education. Activities can produce changes in cognitive, psychomotor and affective students. This applies to every learning in the teaching and learning process. Student learning success is a learning process that is innovative and innovative. Android games are alternative software that is chosen, with the reason Android tends to be used on mobile drivers such as smartphones and tablet PCs. In the current technological development, children tend to be more familiar with various gadgets, children under five are now events exposed to various gadgets.

With the existence of Android games and supported by attractive features, it can be seen from the t-test for the purpose of the game that is obtained p value in the t test that is p = 0.000 which means that there is an influence of android learning games on child development.

Keywords: Game, Android, children.

1. Introduction

Education expert from Jakarta State University Prof. Dr. Soegeng Santoso reminded that educating smart, creative children and skills must begin at an early age [1]. Pre-school age (TK) is the most sensitive age for children. Therefore, it is the most strategic starting point for measuring the quality of a child in the future. Every child has creativity. With the creativity of children can be creative and manifest themselves in the realization of themselves, including one of the basic needs in human life, creativity needs to be nurtured and developed, especially creativity that starts with children can be stimulated through play [2].

Education Games is an educational game, a game that contains educational elements that are designed and created to stimulate children's thinking and train to solve problems [3]. Educational games include: puzzles, matching games, coloring, math games etc. [4]. The entry of games in the learning process gives birth to a pleasant atmosphere because the child can control the speed of learning.
according to his abilities. The influence of education games on children can train children's thinking skills and language skills. In addition, it can train fine motor [5]. In this study will develop an android-based learning media especially for kindergarten children and test how it affects the development of children's learning.

2. Method
The method used in this study is observation and then build applications according to user needs in the field of education. Based on the initial survey found that 80% of the people who are children, kindergartens and elementary schools need applications to learn to write and read [5]. Forming the application menu network structure is the most complex design with many objects in each direction on each object in a multimedia application. The scheme of rule of application and the network structure can be seen as shown in Figure 1 and figure 2.

![Figure 1. Rule of application](image1.png)

![Figure 2. Structure of Menu](image2.png)

The testing method that will be used to develop the Android-based literacy learning media (MPBA) is blackbox testing. Blackbox testing is a functional test, where testing is done by observing the results of testing and checking the functionalities of the game [6]. Testing the effect of MBPA on children's development in learning using the t test with SPSS [7],[8].

3. Result and Discussion
This multimedia application is an education games application as a learning medium for early childhood. This application is designed for early childhood especially for ages 5-7 years. The making of this
application aims to train early childhood thinking skills that are packaged in concepts of training and multimedia-based games that are educational in nature. This application is presented with interesting objects in order to attract the interest of children and to develop children's creativity and imagination[9]. These objects are presented in the form of animated graphics so that the appearance is not monotonous and the addition of accompaniment music can make the atmosphere more relaxed in the learning process. Besides that this application can also be used to introduce computers to children[10].

The target of this multimedia Educational game for early childhood especially for ages 5-7 years. In the use of this multimedia application, it is best to be accompanied by people who understand more about the problem of the questions submitted by parents, or the teacher. in its use it will be measured the effect of educational games on children's motor development and any influential variables[7].

Making multimedia education games for early childhood applications will be divided into 5 main menus, for each menu has a different discussion of the content of the material. For each menu has a submenu, for detail can be seen in figure 3[11,12].

![Figure 3. Main Menu](image)

The main menu page has 5 buttons, the button matches the image, selects the image, guess the word, let's count, and let's color it. The main menu page display can be seen in Figure 3. The fruit worksheet menu page is a fruit matching exercise page. The practice of this question is in the form of a quiz pairing pictures of fruits with pictures according to each order by clicking on one of the images then dragging while holding in the direction of the right picture. If the answer is correct, an animated arrow will appear that moves from the top of the image to the bottom image. If the answer is wrong, no animation will appear. The questions displayed on each page are four questions. The next navigation button is used to proceed to the next question. The page display of fruit worksheets can be seen in figure 5.

![Figure 4. Fruit menu](image)
And to measure the psychomotor abilities of children, the nature of the application is coupled with evaluation, in the form of score scores that are measured by the number of appropriate answers[13,14]. It is very helpful for students to learn which is 83% student of kindergarten require the application for study and 65% said that the application is very helpful in figure 5.

And the test can be concluded that the application of Android-based learning media (MBPA) at table 1 has an effect on children's learning, namely getting $t = -49.118$ and sig $= 0.000$ which means that there is an influence of the MBPA learning application on children's motoric and psychomotor development.

### Table 1. Result of t-test

| Paired Samples Test | Paired Differences | t   | df | Sig. (2-tailed) |
|---------------------|--------------------|-----|----|-----------------|
| Mean               | Std. Deviation     | Mean | 95% Confidence Interval of the Difference | Lower | Upper |
| Mean               | Std. Error         | Mean | Difference | Mean | Lower | Upper |
| 20.300             | 4.1328             | .41329 | -21.12006 | 19.479 | -49.118 | 99 | .000 |

### Figure 5. public test results

4. Conclusion
From the results of development and testing of MBPA, it can be concluded that the MBPA has been successfully develop and there is an influence of the MBPA learning application on children's motoric and psychomotor development with $t$ value SPSS software is $-49.118$. It is hoped that MBPA can be an alternative to increase children's learning interest

### References
[1] Sillalahi, Ulber. 2005. Social Research Methods. Bandung: Unpar Press  
[2] Izhar, S. 1998. Pre-school Education Unit. Jakarta: PT. Gramedia Widiasarana Indonesia  
[3] Zimmerman, Eric. 2003. Game Design Fundamentals. Cambridge: The MIT Press
[4] Safaat, N. H. 2011. *Android Programming Mobile Applications for Android-based Smartphones and Tablet PCs*. Bandung: Informatics

[5] Henry, Samuel. 2010. *Smart with Games*. Jakarta: PT.Gramedia Pustaka Utama

[6] Conder, S. 2012. *Learning Android Application Programming for the Kindle Fire: A Hands-On Guide to Building Your First Android Application*. Addison-Wesley Professional

[7] Ghozali, Imam. (2011). *Aplikasi Analisis Multivariate Dengan Program SPSS*, 4 edition. BP-UNDIP. Semarang.

[8] Hartatik, etc . 2011. *SPSS Application Book in the Quick Count*. Elex Media Computindo. Jakarta

[9] Garrett, A.J, Mazzocco Garrett, and Mazzocco, Baker, L. 2006 . *Development of the Metacognitive Skills of Prediction and Evaluation in Children with or without Math Disability*. Learning Disabilities Research & Practice 21(2) pp 77–88

[10] Vygotsky, L.S. 1978 *Mind in Society: The Development of Higher Psychological Processes*. (Harvard: Harvard University Press)

[11] Nilwan, A. 1998. *Animation Programming and Professional Games 4*. Jakarta: Elex Media Komputindo

[12] DiMarzio, J.F. 2008. *Android Programmers Guide*. United States: McGraw Hill Professional

[13] Hermawan, S. 2011. *Easy to Make Android Applications*. Yogyakarta: Andi Publisher

[14] Berk R A .2009. *Multimedia Teaching With Video Clips: TV, Movies, You Tube and MTVU in The College Classroom*. International Journal of Technology in Teaching and Learning. 5(1), 1-21. Retrieved January 1, 2014.