

ANDROID BASED EDUCATIONAL GAME IN INDONESIAN TEYL

Fika Megawati

fikamegawati.umsida@gmail.com,
Universitas Muhammadiyah Sidoarjo, Indonesia

Sultoni

sulton.asmas@gmail.com.
Universitas Muhammadiyah Sidoarjo, Indonesia

ABSTRACT

Gadgets provide advantages for life. The current world-famous software available is Android. This software is believed to assist teachers in delivering knowledge effectively. In relation to that idea, this study aims to describe the effectiveness of Android based educational game to improve young learners' ability in learning English vocabulary. The fourth graders of primary school were pointed as the subjects of this research. Pre-experimental design was applied by using (pre- and post-) test as the main instrument. Based on the statistical analysis of the data, the results show that the use of educational game from Android (App Inventor) improved the students' English competence in learning vocabulary. The students get in-depth understanding about the topic of animal identified from the better score in post test. Furthermore, the game greatly encourages the students in giving active participation during the classroom activities. In brief, using Android based educational game is one of joyful alternative teaching innovations to support the creative young learners' teachers.

Key words: *Android based educational game, vocabulary, young learners*

INTRODUCTION

In the digital era, the support of technology is highly recommended in various aspect of life. The use of computers has become an important point in the teaching and learning process nowadays. This positively helps the teachers in delivering the materials and motivates the students' in accepting the new concept easily. In the teaching of English for young learners, the idea to insert technology through computer is a possible action to conduct. As the teacher, we need to know that young learners' enjoyment must be the priority. The students are still novice learners; thus, the learning process is blended interactively into activities or it is usually called learning by doing. Accordingly, the use of technology can help the teachers create a lot of interesting experiences from various applications. It is significant to remember that to build a new concept of language knowledge, the practice process cannot be underestimated. The meaningful learning they get will influence their long-term memory.

As the introduction step to the Basic English, vocabulary is the key words for the students. From the vocabulary mastery, the students can develop their skill both receptively and productively. Furthermore, rich vocabulary can foster the students' comprehension and new words acquisition. This is in line with Hedge (2000) who states that vocabulary plays an important role and becomes one of the most important aspects in foreign language learning. Due to the fact that teaching of vocabulary is something influential to the young learners, teaching technique and media are expected to build their willingness to learn and create language exposure to apply. The techniques that are commonly applied for lower class are listen and do, listen and repeat, question and answer, in pair and group discussion, modeling and demonstration, brainstorming, outdoor activity, singing song, and using picture. Meanwhile, for the upper class, the teachers tend to use listen and do, listen and repeat, in-pair or group discussion, modeling and demonstration, question and answer, concept mapping, game, and using picture (Wahyuni, 2012).

Considering the modern era that provides plenty of applications, Computer Assisted Language Learning (CALL) plays its big role in teaching. In this paper, the researchers promote an innovation through Android as the basis of creating game for educational purpose for vocabulary teaching to the primary school students. Android is a mobile operating system (OS) currently developed by Google. It has become the popular OS for tablets and smart phones.

Fortunately, it is also used on regular personal computers so that the users can develop various applications easily. Therefore, as English teachers in primary schools, it is a good idea to develop their potential in making materials or media by using technology, especially Android. Specifically, the researchers would like to promote App Inventor from Android as a device to make vocabulary game in the topic of Animal. Description of animal can be presented in detail based on the students' need and competence. It also produces sound and other image effects. Android becomes the researchers' interest because of some motivation. Firstly, it is easily accessible for the users due to the fact that Android is the well-known software available in telecommunication market. Secondly, Android based educational game is something new to introduce in EYL learning. Usually parents seem to complain on their kids' activities on their gadgets. However, after conducting this study, it is hoped that the young learners' action on playing their gadgets is meaningful for their language learning exposure. Thirdly, it is free charge software so that the people especially language educators can create, develop, and spread application without considering license problems. The teachers can develop it as many as possible to fulfill the students' need in learning.

Considering the benefits of Android and the need of innovation in teaching vocabulary to elementary school students, the present research's objective is formulated to know whether the fourth graders of primary school students who learn by using Android based educational games have better English vocabulary mastery in the topic of animal. The theoretical hypothesis of this study is that the students get better English vocabulary mastery after taught by using Android based educational game.

METHOD

This study applied pre-experimental research method or one group Pre-test-Post-test design. This research was controlled to identify whether there was any difference of students' vocabulary mastery or not. The researchers got the differences by comparing the results of pre-test and post-test in one class, not comparing the result between two different groups. 18 fourth grade students of SDN Waung, Krembung, Sidoarjo were selected as the subjects of the study because of time accessibility and the fact that the students had been taught the concept of Basic English in their first until third grade.

The (pre- and post-) test was the main instrument. The topic of the test was about animal. It was determined because of some consideration. Firstly, it was stated on the fourth grade curriculum so that the teacher suggested the researchers to explore more about that topic. Second, the materials were possible to be developed with the features of App Inventor from Android.

Four days were needed to accomplish this study. Two days were for pre- and post- test, and the other two were for treatment. In this research, the hypotheses are stated as follows:

- Ho: the students who learn by using Android based educational games do not have better vocabulary mastery in English class.
- Ha: the students who learn by using Android based educational games have better vocabulary mastery in English class.

The Research Implementation Step

1) Doing Pretest

Pretest was given for the students which had purpose to know the students competence in mastering English vocabulary before the use of Android based educational game. The pre-test consisted of 25 questions which were in the form of 20 multiple choices and 5 rearrangements.

2) Giving Treatment

Having computed the result of pre-test, the treatment was demonstrated by explaining the topic of animals through computer game in Android software as modeling. The sub topics that can be specified to answer the following questions: "What animal is it?", "What food does the animal eat?", "How to move?", "How is its sound?". The treatment was carried out in two days. On the first day, the students paid attention to the teacher's explanation through the game application. The application consisted of three activities: Description, Pronunciation (and spelling), and Quiz. It also showed the pictures of animals. In the first section, when the teacher clicked one of the pictures, the English vocabulary, the animal food, the animal sound, and the animal

movement would appear. Afterwards, in the second section, when the teacher clicked one of the items, the pronunciation and spelling appeared. In this part the use of a loudspeaker was important. Then, in the following meeting, to do the third section the students did the exercise followed by discussion of the answers.

3) Doing Posttest

Posttest was given for the students which had purpose to know the improvement of students' competence in mastering English vocabulary after the use of Android based educational game. Posttest was done after giving treatment. The posttest consisted of 25 questions which uses two types of questions. The first type of questions consisted of 20 multiple choices and the second was 5 rearrangements.

DATA ANALYSIS

The researchers analyzed the data by using t-test to calculate the result and to test the hypothesis. According to Arikunto (2010), the t-test formula can be used to analyze pre-experimental results using a pretest and posttest with one group design. The formula used in the t-test is:

$$t = \frac{Md}{\sqrt{\frac{\sum X^2 d}{N(N-1)}}}$$

Note

- Md = Mean (the difference between pre-test and post-test)
- Xd = Deviation of each subject (d – Md)
- $\sum X^2 d$ = Sum of deviation square
- N = Subject on sample

The researchers calculated the data by using t-test with dependent variable formula, and the result was compared to the critical which can be taken from a table of critical values with the following criteria:

- If the observed t value is higher than the critical t value, it means H_0 is rejected.
- If the observed t value is smaller than the critical t value, it means H_0 is accepted.

Finally, the data was interpreted to draw conclusion. The conclusion became the result of this study and it is described in detail in the following section.

FINDING & DISCUSSION

According to the result of t test, there was a difference between students' pre test and post test result. It showed that the use of Android based educational game used in the treatment in Waung Elementary School, Krembung, Sidoarjo affected the students' achievement since t_{observed} value (1.704) was higher than t_{table} value (1.33). Therefore, vocabulary mastery through learning by using the game in this context was enhanced. In other words, H_0 was rejected, and H_a was accepted. Besides, to give the additional information to the implementation of the application, the researchers observed that the students were quite motivated during the lesson. Reflecting on the result of this study, there are several points to highlight. Those are the effective use of CALL, the importance of learning motivation, and the solution to solve learning problems. The use of technology has become popular nowadays. This phenomenon gives big influence to assist the teaching and learning process. In language learning, the term is called CALL (Computer assisted Language Learning). Although the teacher gives material through computer, the computer is not the main point. It just makes the material easier. There are some principles in using CALL based on Brown's (2007: 200-201) ideas, namely, support the pedagogical goals, appropriateness, affirmed by students, accessible to all learners, effective use, efficient use, have back up plan. In CALL there are many applications, but in present study, it deals with Games. Games are used since it is fun and creates non-threatening atmosphere, so such activity is appropriate for young learners. The same conclusion was given by Deesri

(2002). She stated that games could decrease the stress-level in addition to giving a chance for the real communication. The relaxed situation is believed to help the learners get the lesson easier and quicker.

Games based learning has many advantages both for teachers and students. It is believed that games in classroom setting encourage students' motivation, critical thinking, and engagement in learning (Padmavathi, 2013). Basically, games can be offline and online. Offline games is flexible to conduct and can be easily developed as many as possible based on the students' need. However, as an Indonesian creative and innovative English educator, there must be something new to create in supporting the learning process and take a part in ICT development, not just follow the existing facilities instantly. To show the importance of ICT in language learning, Cahyani & Cahyono (2012: 142) mentioned that to create interesting language instruction and success in language learning, technology is a prerequisite.

Teaching foreign language to children is something challenging for teachers since young learners' characteristics are very special. One of those special things is easy to be bored. In elementary school, students still develop their own mother tongue. In this situation, the students' impression on the English teacher performance is vital to enhance their motivation. When they feel excited to the English materials, they can enjoy and focus on the activities. On the other hand, when the teacher cannot attract their attention in English instruction, their boredom will easily appear. In addition to introducing of new knowledge, the teachers should facilitate vocabulary learning by giving the learners meaningful words through strategies that can accommodate that condition. Meaningful vocabulary means words that are used in a high frequency. When they use the words, the listeners are able to get familiar with the utterance so that it can create effective communication. Thus, the topic should also be common in daily life with different lexical fields, such as colors, animal, days of the week, food, jobs, etc. (Linse, 2005). According to Cameron (2001), vocabulary teaching has a centre stage in foreign language learning and can be a stepping stone to learning and using grammar. In short, vocabulary mastery is extremely important for young learners to increase their communication skills, particularly in learning foreign language.

Despite of the positive effects, the researchers found some limitations in this study which probably became the factors influencing the significance level of the result. The detailed explanation is described in the following table.

Meeting	Treatment Session	Problems	Consequences
1	Material presentation	The classroom condition was not really supporting in terms of classroom setting (desk arrangement & lighting).	- The media (LCD Projector) could not be presented maximally. - Clarification from the teacher was needed when the students asked for unclear text.
1	Material presentation	The sound produced from loudspeaker was not really clear for the whole class.	The teacher needed to repeat what the sound said as the model.
1	Material Presentation	The condition of some students was tired since the previous lesson was Physical Exercise (PE).	The teacher gave some games and song to give encouragement.

Connecting the limitations with the theoretical framework, the researchers found that classroom condition could influence the students learning, especially desk arrangement and lighting. Hannah (2013) agrees that the students seating arrangement gives impacts to the students' motivation in the class. By whom the students are seated need to be paid attention. Unfortunately, this research could not completely achieve this environment. At that moment, the students were already set by the classroom teacher in a circle model with four up to six students.

However, the students' partners in one desk were not really supporting each other. Consequently, in certain time the students felt annoyed because they were disturbed by their friends. Hannah (2013) further mentioned that this condition could also decrease productivity.

Next, in term of physical setting, according to Yagang (n.d.), unclear sound resulting from poor-quality equipment can interfere with the listener's comprehension. This problem was found during the treatment. When the teacher explained the second section which produces the animal vocabulary items' pronunciation and spelling, sound from the loudspeaker was not clear enough for one class.

Lastly, due to the students' decreased energy after PE lesson in the first period, some students were very exhausted in following the English class. Accordingly, the teacher encouraged students through animal games and song. The song was already installed in the Android based educational game entitled ABCD song. After the teacher played the song in the laptop once, the students were asked to sing together for 3 times. The researchers selected this song since it could train the students' correct alphabet pronunciation. In addition to Android game, the teacher tried to make the students focus by giving another simple game by giving three key words. If the teacher said tiger, the students had to say strong. If the teacher said snake, the students had to say long. If the teacher said elephant, the students said big. To apply this, the teacher gave model first, then the students were selected randomly to respond the teacher's words. Song and game make students fun (Suyanto, 2007). In primary education context, *FUN* is important because one of the characteristics of young learners is easy to be bored. To keep their enthusiasm, learning activities is expected to be designed as joyful as possible.

CONCLUSION & SUGGESTION

Based on the result of the research finding, the researchers drew a conclusion that the use of Android based educational game gave influence towards the students' vocabulary mastery and their interest in learning English in the topic of animal. Besides, some limitations were found during the treatment. Thus, for better future implementation, it is expected that the development of this application can be improved, especially in the aspect of teaching preparation, multimedia format, and the form of quiz or exercise so that it will be more interactive and interesting for the students. Furthermore, considering the different alphabet sound between students' native language and English, training on the correct spelling should be emphasized more in the exercise in order that the students can master vocabulary items both fluently and accurately.

REFERENCE

- Arikunto, S. (2010). *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: PT Rineka Cipta. p.349
- Cahyani, H & Cahyono, B. Y. (2012). Teachers' Attitude and Technology Us in Indonesian EFL Classroom. *TEFLIN Journal*. Vol. 2, (2). July 2012. Pp. 130-148.
- Cameron, L. (2001). *Teaching Languages to Young Learners*. Cambridge University Press.
- Deesri, A. (2002). Games in the ESL and EFL class. *The Internet TESL Journal*, 9(9). Retrieved February 27th, 2016, from <http://iteslj.org/techniques/Deesri-Games.htm/>
- Hannah, R. (2013). *The Effect of Classroom Environment on Students Learning*. Retrieved from http://scholarwrks.wmich.edu/honos_theses. accessed on March 30th, 2016.
- Hedge, T. (2000). *Teaching and Learning in English Classroom*. Oxford: Oxford University Press.
- Linse, T.C. (2005). *Practical English Language Teaching: Young learners*. McGraw Hill: NY.
- Padmavathi, G. (2013). English Teaching and Learning in the Digital Era. *International journal of Modern Engineering Research (IJMER)*. Vol. 3, Issue.1, Jan-Feb 2013 pp.116-118.
- Suyanto, K.K.E. (2007). *English for Young Learners*. Jakarta: Bumi Aksara
- Wahyuni, A. (2012). *The Technique Used In Teaching Vocabulary to Young Learners at SDN SUMBERSARI Malang*. jurnal-online um ac.id. volume 2 no.2
- Yagang, F. (n.d.). *Listening: Problems and Solution*. Retrieved from <http://www.valrc.org/courses/ESOL%20basics/ESOL%20Basics/Lesson%205/Listening.pdf>. accessed on March, 31st 2016.

Appendix

No	Name	Pre test	Post test	d	Xd (d-Md)	$\sum X^2d$
1	Student 1	72	80	8	0,78	0,60
2	Student 2	44	100	56	48,78	2379,27
3	Student 3	76	90	14	6,78	45,94
4	Student 4	48	20	-28	-35,22	1240,60
5	Student 5	80	90	10	2,78	7,72
6	Student 6	76	70	-6	-13,22	174,83
7	Student 7	68	80	12	4,78	22,83
8	Student 8	84	90	6	-1,22	1,49
9	Student 9	92	90	-2	-9,22	85,05
10	Student 10	92	90	-2	-9,22	85,05
11	Student 11	84	100	16	8,78	77,05
12	Student 12	88	70	-18	-25,22	636,16
13	Student 13	88	100	12	4,78	22,83
14	Student 14	76	90	14	6,78	45,94
15	Student 15	72	80	8	0,78	0,60
16	Student 16	80	90	10	2,78	7,72
17	Student 17	72	100	28	20,78	431,72
18	Student 18	88	80	-8	-15,22	231,72
Σ		1380	1510	130		5497,11
Mean		76,67	83,89	7,22		17,96

$$Md = \frac{\sum d}{N}$$

$$Md = \frac{130}{18} = 7,22$$

$$t = \frac{Md}{\sqrt{\frac{\sum X^2d}{N(N-1)}}}$$

$$t = \frac{7,22}{\sqrt{\frac{5497,11}{306}}}$$

$$t = \frac{7,22}{\sqrt{17,964}}$$

$$t = \frac{7,22}{4,238}$$

$$t = 1.704$$

To know the significance level of the difference, the following formula was used.

$$t = \frac{t^2}{t^2 + (N - 1)}$$

$$t = \frac{1.704^2}{1.704^2 + (17)}$$

$$t = \frac{2.91}{19.91}$$
$$t = 0,14$$

Criteria of significance level	Description
$0,01 \leq t < 0,06$	Low significance (small effect)
$0,06 \leq t < 0,14$	Medium Significance (medium effect)
$t \geq 0,14$	High significance (large effect)