

Application Based Android as a Development of English Learning Media

Muzayyanna Zatulifa

Student's education technology of Lampung University
Jl. Prof. Dr. Sumantri Brojonegoro No. 1 Bandar Lampung 35415
TelpFax (0721)783682
Corresponding Author: Muzayyanna Zatulifa

Abstract. This study aimed to 1) describe the conditions and potential of English language learning media development based android, 2) Describe English learning media based android, 3) analyze the effectiveness of English learning applications based android; 4) analyze efficiency; 5) analyze the attractiveness of English instructional media through an android application. This research used the design of Research and Development by Borg and Gall consisting of 10 steps, but in this research only consists of 7 steps, that were: research and information collecting, planning, develop preliminary form of product, preliminary field testing, main product revision, operational field testing, and final product revision. The data were collected using observations, questionnaires and tests. The collected data were analyzed using descriptive and t-test. The conclusions of this research were: 1).The condition and potential of students for self-learning was high, so it had potential to develop android-based learning applications for English subjects. 2) Produced an android based English learning application, 3). The effectiveness of this media increased with the average post test score of 77.56 with 87% of students reaching minimum completeness criteria, 4) English learning using android based application was 45 minutes more efficient than traditional learning using books or student worksheets, 5) The attractiveness of android-based English learning app was 3,40 with a predicate very attractiveness so it allowed students to improve their learning motivation and creativity.

I. Preliminary

According to Sanni Merdekawati and Himmawati Puji Lestari the teacher must prepare students to face global competition by developing science and technology (2011). The importance of integrating technology into the learning process has been praised by many people around the world (Nyagorme, P., Enoch, SB, & Arkorful, V.2017: (4 25) 26-37). Along with the rapid development of Information and Communication Technology (ICT), the need for a concept and mechanism based information and technology of teaching and learning (education) becomes inevitable. The concept which was known as *e-learning* has the effect of the transformation of conventional education into digital form, both in content and system. According to Waleed Mugahed Al-Rahmi, et al (2018, Vol.6) E-learning refers to online learning, which depends on technical education and training. This type of learning provides students with a virtual environment where students participate in various activities. The concept of *e-learning* is certainly inseparable from telephone / *mobile phones* and even more sophisticated ones in the form of *smartphones*. According to Nan Zhao, Minghu Wu and Jingjing Chen (2017, Vol. 54 (1) 3-16) a learning that uses *Smartphone* having the advantages in providing a comprehensive learning environment, promoting the understanding of content, and facilitating the interaction between teachers and students.

Currently *Smartphone* technology has grew rapidly with a variety of operating systems, one of which is in great demand today is *Android* can be operated on various types of Smartphone and tablets (Widyaningsih, M., & Zunfekar, MIY (2017)) *Android* is an *open source* operating system , released under *Apache* 's *open source* license owned by *Google* . *Android* is preferred because it is more efficient and effective . Applications that develop through *android* technology are more efficient and effective than other technologies such as *Window* or *Symbian* (Pahriah, P., & Khery, Y. (2018). 5 (1), 24-34). The *Android* operating system is a new generation *mobile platform* that gives developers the opportunity to develop as expected. The *mobile learning system* can be applied easily and cheaply but only as a complement in the learning process. *Android* based Smartphone can be used not only to communicate but also to learn, one example is implementation of interesting learning media. If *Android* can be used as a tool to convey interesting stories in the form of *fotovovela*, of course it can be used also to convey learning material (Setiawan, H., Alimi, MSF, Alimah, S., Kurniawan, FH, & Zahro, RN (2017). This certainly can be used as an opportunity for teachers to use it as a learning media.

One of hardware that can be developed like Learning media with criteria that can provide a broad learning environment are *smartphones* or *mobile phones* (Saefi, M., Luk iati, B., & Suarsini, E. (2017) .

Learning media using *mobile* technology can be an alternative in learning because they are flexible, capable of being carried anywhere and can be used at any time. Learning media using *mobile* is often referred to as *mobile learning / M-Learning* (Anam, C., & Hakim, L. (2017) 5 (3)). According to Wijayanti, A. , & Sukanto, S. (2017) using media in the learning process is one of the efforts to create a more meaningful learning quality. using instructional media like *mobile learning* can make learning more meaningful because students learn on their own volition or motivation that arises within them.

Smartphone users are not only adults, but also students or children. The use of *smartphones, ipad, playbooks, tablet PC* are more widely used today for various reasons and choices than on a PC (Personal Computer) at home. 10 reasons presented by Masterweb Corporation, on its website (World of Technology and Lifestyle: 2011) has been stated that because it is light, fast, easier to use, and carried while traveling (practical) are the 4 reasons with the highest rating. *Smartphone* is considered effective as a media of education for children because it is more practice and attractive, especially in the *smartphone* based *android*.

English has become a world language that dominates the communication era to connect and transfer knowledge throughout the world. Requirement that to be able to speak English both actively and passively have been anticipated by the State of Indonesia to include English as a local subject in kindergarten and elementary school, and become compulsory subjects in junior and senior high school. Teaching and learning English is not an easy process. This is because not all students understand English. Many students especially junior high school level in Indonesia, think that English is a difficult subject to understand because of different between pronunciation and written and difficult *grammatical* rules. In addition, the use of learning resources has not been used optimally, teachers also only use classical methods, learning is still centered on teachers as a message source (*teacher centered*), conventional media, classroom-based learning media so that English learning is not interesting . Students feel bored when studying English subject. In addition, the availability of internet networks that owned by the school has not been utilized optimally. Fun learning media will attract students to learn English so students will not be afraid to learn English. The use of learning media will be very helpful in teaching and learning languages to improve student achievement (Rahayu, WA, & Riska, SY2018, 15 (3), 63-68).

Learning innovation using *Android* and the internet network will provide a different atmosphere that can change students' perceptions of learning English . Sugeng Purwantoro, Heni Rahmawati and Achmad Tarmizi (2013: 177) said " *Android* is a *software* used on *mobile devices* (running devices) including operating systems, *middleware* and core applications". *Android* by Satyaputra and Arita (2014: 2) is an operating system for *smartphones* and tablet. System operation can be illustrated as a bridge between the device and the user, so the user can interact with his *device-* and run applications that are available on *the device*. While Arif Akbarul Huda (2013: 1-5) argues that *Android* is a Linux operating system that is specific to mobile devices such as *Smartphone* or tablets. The operating system of android is *open source* so that many programmers create or modify this system. Programmers have a huge opportunity to engage developing *android* applications for the *open source* reasons. In addition, the application on *Android* can be used anywhere and anytime. The mobile application allows many users to access data from applications without limited to space and time (Indrayana, INE, DP, NW, & Sudiartha, IK (2018)).

Using *Android* -based learning media will shift monoton learning into varied learning. Using *android* will make it easier for users to learn something, this is because users can access the material, test the ability through applications *on Android* wherever and whenever. This study discusses how to design and build an English learning application. The applications can be run on *the Android platform*. With this application users or students can be helped in understanding and motivating in learning English. By using this application students can also study anywhere and anytime because it uses *the Android platform* and based on *e-learning*. *E-learning* allows students to operate their own learning in accordance with their self-directed abilities with the authority to choose their own place, time, content and direction of learning (Rosli, MS, Saleh, NS, Aris, B., Ahmad, MH, Sejzi, AA, & Shamsudin , NA (2016)) .

II. Method

In this study the implementation Of the ten steps developed by Borg and Gall, only reached the seventh stage due to time and cost factors. The steps of the development procedure from the seven steps of the Borg and Gall development model can be described as follows:

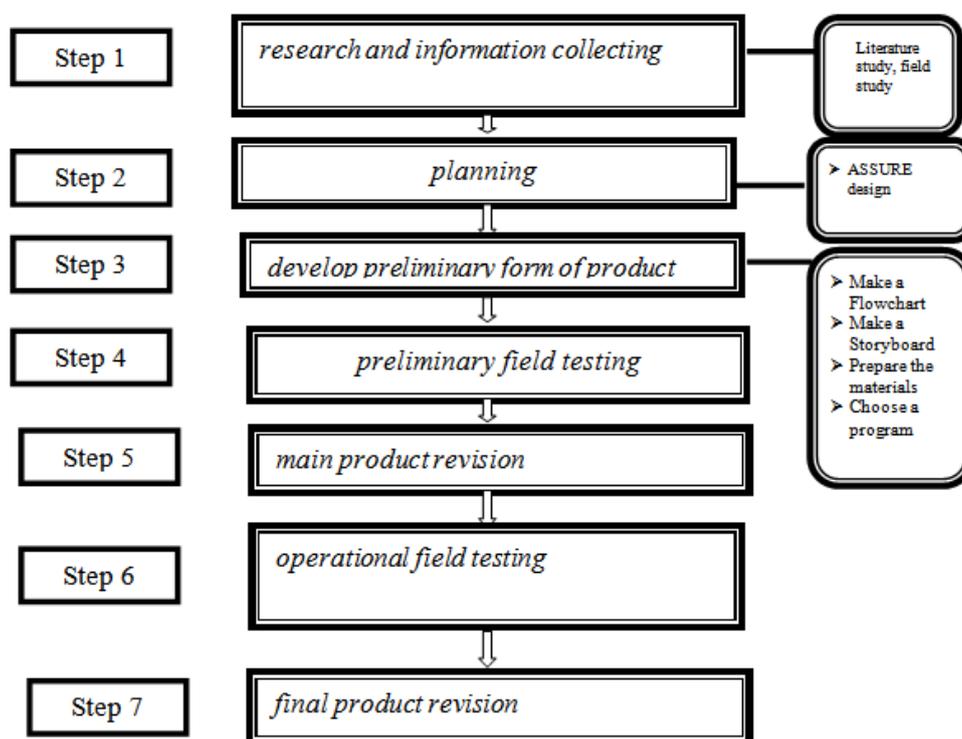


Figure 1. Bagan Langkah-Langkah Pengembangan Media Pembelajaran Berbasis Android

The experimental design in this study compares the *pretest* with the *posttest* value . The experimental design can be seen in the following:

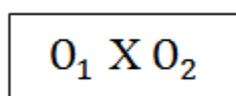


Figure 2. Experimental Design *One-group pretest-posttest design*

Source: Setiadi (2006: 143)

notes:

- O₁ : *pretest* value
- X : treatment
- O₂ : *posttest* value

A. The level of product effectiveness

Effectiveness is obtained from the average gain of normalized *pretest* and *posttest* values. The level of effectiveness based on the average normalized gain can be seen in the following table:

Table 1. Level of effectiveness

Average value Gain Normalized	Classification	Effectiveness level
$\langle g \rangle \geq 0.70$	High	Effective
$0.30 \leq \langle g \rangle < 0.70$	Medium	Effective enough
$\langle g \rangle < 0.30$	Low	Less effective

The average of normalized gain is calculated by the following equation:

$$\langle g \rangle = \frac{Sf - Si}{Sm - Si}$$

Notes :

<g> = normalized gain
 S_f = Value Post test
 S_i = Pre test value
 S_m = maximum value

B. Efficiency

Efficiency of learning is measured from several resources needed, how much costs are incurred and how long it takes to achieve the learning objectives that have been set.

C. Attractiveness

The total instrument assessment does from the number of scores obtained then divided by the total number of scores then the results are multiplied by the number of answer choices. To test the attractiveness of the product, a questionnaire arranged with a Likert scale.

Table 2. Scoring Answers

NO	Choice answer1	Choice Answer 2	Score
1	Very attractive	Very good	4
2	attractive	Good	3
3	Less attractive	Not good	2
4	Not attractive	Not good	1

The assessment score can be searched using the following formula :

$$\text{Assessment Score} = \frac{\text{Number of scores on the instrument}}{\text{The highest number of scores}}$$

Classification interval according to Agustina (2012) is obtained by using the following formula:

$$\text{Interval Value} = \frac{\text{Highest score} - \text{lowest score}}{\text{Number of answer choices}}$$

if the highest score according to the answer choice is 4, the lowest score is 1, and the number of answer choices is 4, then the interval value is as follows:

$$\text{Interval Value} = \frac{4 - 1}{4} = 0,75$$

So, the classification of attractiveness, convenience and usefulness of the media is obtained as in Table 2. Classification is done by calculating the average score of an appraisal score, and then generalizing. Grouping based on the average score also applies to the components of easiness and usefulness. If for convenience, the classification consists of "very easy", "easy", "less easy" and "not easy". Likewise, benefit, consisting of "very benefit", "benefit", "less benefit", "no benefit".

Table 3. classification of attractiveness

Average score	Classification
3.26-4.00	Very attractive
2.51-3.25	attractive
1.76-2.50	Less attractive
1.01-1.75	Not attractive

III. Results And Discussion

Based on the results of a preliminary, especially in schools that are used as the subject of study, those schools have had a school internet network and almost all students have had a *smartphone* or an *android*. Sudirman Siahaan (2009.7-8) states with using technology (in this case is an interactive audio cassette media), there was efficiency, means teachers still have time left available. The remaining time is the added value generated through utilization of technology.

The potential of information, communication and technology (ICT) when used integrated and optimized in education / learning, then the impact is among others to expand access to education, improve management efficiency of learning activities, improve the quality of education, encourage students to learn independently, allows teachers to presents various types of difficult subject matter, and helps students to learn the subject matter easier .

The product of this study is an English learning application called *Mubeling* application . *Mubeling* application is an application designed through the *Appypie* program which consists of material, English dictionary, video learning, *E-Reader* , evaluation questions, and so on.

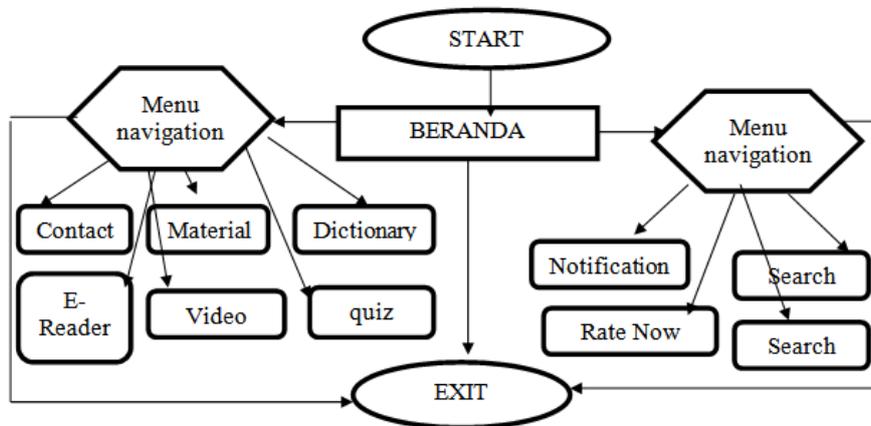


Figure 3. Application processing flow



Figure 4.main menu on the application

The test results of the effectiveness of English learning applications based android on improving student learning outcomes, from 95 students who became the research subject, there was an increase in learning outcomes from before using learning applications based-android. The average value of learning outcomes of students' *pre-test* is 65.00 , but after the product is used, there is an increase in the average value of learning outcomes *post-test* students is 77.50. Learning outcome is then tested by using SPSS version 17 using *Wilcoxon* test result is obtained conclusion that English language learning application based android is effective enough to improve students' learning outcomes English in junior high school.

Based on the Reigeluth's theory (1983: 1 4 5), product development called efficiencies if the achievement of learning objectives more quickly achieved than if not using the product of learning development. in using android based applications, student learning time is maximized because learning does not just happen in class but anytime and anywhere.

In this study, aspects of efficiency measured by the time required to achieve learning objectives. Rationally based on the time and the time required used $1, 3 > 1$, the product application android-based English language learning more efficiency of previous learning model. Hamzah.B.Uno (2010: 98) argues if student success achieved in the timeframe shorter, so from the efficiency of learning can be achieved.

The test of the attractiveness of the application for 95 students stated that this product was very interesting with index 3 , 40 .

Table 4. Results of product attractiveness

No.	Question	Answer Options			
		4	3	2	1
1	<i>layout</i>	16	19	-	-
2	Menu layout settings	18	17	-	-
3	Use of letters according to their legibility.	20	15	-	-
4	Use of images in accordance with the writing.	25	10	-	-
5	Use of color according to the background.	26	9	-	-
6	Easy to <i>login</i> .	35	-	-	-
7	Easy to <i>log out</i> .	35	-	-	-
8	Easy to access materials.	30	5	-	-
9	Easy to access the quiz	25	10	-	-

The main indicator is the teaching of English by using application based android is very easy and practice to use. easilly and practicality of the application for android that can be taken anywhere and materials can be accessed and studied even with Internet access.

IV. Conclusion

The conclusion of this study were: 1) .the condition and potential of Junior high school's students to learn independently, so the potential for developing English learning application based android. 2) produce English learning application based on Android, 3). The effectiveness of this media increases with the average post test score of 77.56 with 87% of students achieving MINIMUM COMPLETENESS CRITERIA, 4) learning English using this android based application 45 minutes more efficiently than traditional learning using books or student worksheets, 5) the attractiveness of English learning application based android is 3, 40 with a very attractive predicate so this allows students to increase their learning motivation and creativity.

Referensi

- [1]. Alimudin, A., & Faizal, A. (2016).Pengembangan Aplikasi Mobile Interaktif Narrative Text & Storytelling Bahasa Inggris.*Nusantara Journal of Computers and its Applications*, 1(1).
- [2]. Al-Rahmi, W. M., Alias, N., Othman, M. S., Alzahrani, A. I., Alfarraj, O., Saged, A. A., & Rahman, N. S. A. (2018). Use of E-Learning by University Students in Malaysian Higher Educational Institutions: A Case in Universiti Teknologi Malaysia. *IEEE Access*, 6, 14268-14276.
- [3]. Anam, C., & Hakim, L. (2017).Pengembangan Mobile Learning Berbasis Android Sebagai Media Pembelajaran Pada Materi Akuntansi Kas.*Jurnal Pendidikan Akuntansi (JPAK)*, 5(3).
- [4]. Arif Akbarul Huda, (2013), *24 Jam Pintar Pemrograman Android*, Yogyakarta : ANDI.
- [5]. Astra, I. M., Nasbey, H., & Nugraha, A. (2015).Development of an android application in the form of a simulation lab as learning media for senior high school students.*Eurasia Journal of Mathematics, Science & Technology Education*, 11(5), 1081-1088.
- [6]. Febriani, V. W., Ardityo, D. S., & Sanjaya, R. (2014).Idea Development on Games of Education for School s Entrepreneurship Sustainability.*International Journal of the Computer, the Internet and Management*, 22, 9-19.
- [7]. Gall, And Borg.1983.*Educational Research An Introduction*.New York and Longman.inc
- [8]. Indrayana, I. N. E., DP, N. W., & Sudiarta, I. K. (2018, January).Heuristic query optimization for query multiple table and multiple clausa on mobile finance application. In *Journal of Physics: Conference Series* (Vol. 953, No. 1, p. 012049). IOP Publishing.
- [9]. Lin, P. C., Lu, H. K., & Liu, S. C. (2013).Towards An Education Behavioral Intention Model For E-Learning Systems: An Extension Of Utaut. *Journal of Theoretical & Applied Information Technology*, 47(3).
- [10]. Martono, K. T., & Nurhayati, O. D. (2014).Implementation of android based mobile Learning application as a flexible learning Media.*International Journal of Computer Science Issues (IJCSI)*, 11(3), 168.

- [11]. Nyagorme, P., Enoch, S. B., & Arkorful, V. (2017). Instructional Media Usage And Students' Academic Performance In Colleges Of Education, Ghana. *Advances in Social Sciences Research Journal*, 4(25).
- [12]. Pahriah, P., & Khery, Y. (2018). Aplikasi Pembelajaran Berbasis Android Pada Materi Sistem Periodik Unsur Untuk Peningkatan Pemahaman Konsep Mahasiswa. *Jurnal Kependidikan Kimia Hydrogen*, 5(1), 24-34.
- [13]. Rahayu, W. A., & Riska, S. Y. (2018). The Analysis of Innovative Vocabulary Game as Instructional Media. *International Journal of Engineering and Future Technology*, 15(3), 63-68.
- [14]. Reigeluth, Charles, M. (1983). *Instructional Design Theories and Models: An Overview of Their Current Status*. New Jersey: Lawrence Erlbaum Associates.
- [15]. Rosli, M. S., Saleh, N. S., Aris, B., Ahmad, M. H., Sejzi, A. A., & Shamsudin, N. A. (2016). E-Learning and Social Media Motivation Factor Model. *International Education Studies*, 9(1), 20-30.
- [16]. Saefi, M., Lukiaty, B., & Suarsini, E. (2017). Developing Android-Based Mobile Learning On Cell Structure And Functions Lesson Subject Topic To Optimize Grade XI Students' Cognitive Comprehension. *Jurnal Pendidikan Sains*, 5(2), 57-63.
- [17]. Sanni, M., Lestari, H. P., & Si, M. (2011). Developing Student Worksheet In English Based On Constructivism Using Problem Solving Approach For Mathematics Learning On The Topic Of Social Arithmetics. In *PROCEEDINGS International Seminar and the Fourth National Conference on Mathematics Education*. Department of Mathematics Education, Yogyakarta State University.
- [18]. Satyaputra, Alfa dan Aritonang, Eva Maulina. (2014), *Beginning Android Programming with ADT Bundle*, Jakarta : PT. Elex Media Komputindo.
- [19]. Siahaan, Sudirman. 2009. Multigrade Teaching. Diambil dari www.e-dukasi.net. Pada 10 februari 2018
- [20]. Setiawan, H., Alimi, M. S. F., Alimah, S., Kurniawan, F. H., & Zahro, R. N. (2017). Implementing Contextual Biology Game Learning (Cbg) In Digital Era With Pterodovela In Smartphone To Improving Senior High School Student's Abilities In Learning Diversity Of Bryophyta And Pterodophyta In Indonesia. *People: International Journal of Social Sciences*, 1(1).
- [21]. Tarigan, J. (2012). Factors Influencing Users Satisfaction on E-Learning Systems. *Jurnal Manajemen Dan Kewirausahaan*, 13(2), 177-188.
- [22]. Widyaningsih, M., & Zunfekar, M. I. Y. (2017). As Media Augmented Reality Promotion of College with Marker Logo in Brochure. *International Journal of Scientific Research and Management*, 5(9), 7047-7055.
- [23]. Wijayanti, A., & Sukanto, S. (2017). Development of Heat Transfer Learning Media Based on Android Application Inventor (AI) to Instill Student Self Directed Learning. *Journal of Innovative Science Education*, 6(2), 205-211.
- [24]. Yusof, Y. M., & Rahman, R. A. (2001). Mathematics education at Universiti Teknologi Malaysia (UTM): learning from experience. *Jurnal Teknologi E*, (34E), 9-24.
- [25]. Zhao, N., Wu, M., & Chen, J. (2017). Android-based mobile educational platform for speech signal processing. *International Journal of Electrical Engineering Education*, 54(1), 3-16.