

Development of Android-Based Rhythmic Activity Learning Media on Physical Education in High School

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Abstract

Rhythmic activity learning medium in High School can facilitate rhythmic activity learning for teachers and students. The present research aims to generate an android-based rhythmic activity learning medium and the effectiveness of the product. The developmental procedure used in this research including product analysis, initial product, expert validation, trial, product revision, final result, and effectiveness test. The instruments used questionnaire and interview. The subjects and study setting were High School teachers and students in Pekalongan Regency. The results of expert validation from material experts on the entire aspects were “excellence” with the mean score was 4.42. The value of media experts on the product was “excellence” with the mean score was 4.46. The trial for teacher and students were “excellence” with the mean scores were 4.18 and 4.41, respectively. The entire means of product effectiveness test of android-based rhythmic activity learning were “excellence” by 8%. It can be concluded that android-based rhythmic activity learning could facilitate learning process and be a learning source which was able to be used and utilised by teachers and students.

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INTRODUCTION

The rapid development of technology has influenced all aspects of life including economics, politics, social, arts, culture and even education. Advances in information and communication technology in education field has opened new insight to open opportunities (accesses) and improve quality of education on all levels, paths, and types of education (Syahrudin & Pongpalilu, 2014).

In education, the development of technology has changed the ways people learn, get and interpret information. Technological sophistication in education gives big challenge for educators to keep playing an important role in educating the life of the nation in globalization era. As Fidiana (2012) says, that technological advancement is increasingly demanding its human resources to develop as well. Learning activity in school is one of the important and influencing factors in forming students' characteristics to be addressed. Learning era is a civilization in which learning is no longer considered an obligation but a necessity. It is civilization because it brings consequences from the availability of learning materials which is no longer in conventional textbook form, but some materials presented in various e-learning dimensions and e-learning is one of the dimensions to find the availability of learning materials through internet media (Herianto, 2013)

One of the mobile learning developments is smartphone. Smartphone is a device that allows communicating such as calling and texting/sms (short message service), but there is also PDA (Personal Digital Assistant) function inside and it is able to operate like a computer. Smartphone had various operating systems supporting the operation of the device. The current most popular operating system is android (Titting, 2016).

According to Qumillaila, et al. (2017), android is an operating system for Linux-based mobile device including operating system, middleware and applications are platform open source that allow developers to make application

easily and can be used by various mobile devices. Unlike the other operating systems, android is very fast in launching new versions. The name of each version is unique by using names of food. In addition, the names of each version are also sorted alphabetically starting with the first letter C. This is intended to make it easier to sort it.

According to Anwar & Suroto (2015), physical education is part of entire educations that prioritizes physical activity and healthy life style for aligned and balanced physical, mental, social and emotional growth and development. As Pauweni (2012) says, physical education, sports and health to contain special characteristics associated with human motion. Human motion in its application are manipulated to produce motion skills.

Physical education, sport and health has been a part of the entire educational process with the intention to change students' behaviour. Besides changing students' behaviour, physical activity also attempts to achieve educational goals: to improve motor skills and functional values that cover cognitive, affective and psychomotor aspects (Setiawan, 2015).

The scope of Physical Education, Sport and Health subject includes the experience to practice basic skills of games and sports, developmental activities, self-testing, rhythmic activities, aquatic activities, and non-formal education (Achmad Paturusi, 2012).

One of the physical education, sport and health subject scopes is rhythmic activity. According to Agus Mahendra (2008), rhythmic activity is a set of human movement performed in bonding rhythm pattern, adjusted for tempo changes, or merely a motion of body expression that follow music or beats outside music.

According to Clark R.E (2017) media are mechanical devices used to deliver and distribute something that is informational. Furthermore, Saeroji (2014) explains that learning media are functions of media utilisation to achieve effective learning goals. Therefore, as a teacher, in order to improve innovative, enjoyable, and fun learning, he needs new innovations including strategies, techniques and learning media to create fun

learning and the materials will be accepted by students easily.

Rhythmic activity learning needs effective and efficient learning media, so that students are able to accept the materials delivered by the teacher. One of rhythmic activity learning media in school is video. Learning video can be Digital Versatile Disc (DVD) or videos downloaded from YouTube. It was as the previous research that produced Compact Disc (CD) product as a rhythmic activity learning medium. However, learning which used video in Compact Disc (CD) has some weaknesses, one of them is video displayed on Laptop or projector cannot be taken anywhere.

Some media such as LCD projector, DVD and Laptop are school facilities which have been used as rhythmic activity learning media. However, it will be better if they are added by contemporary media that keeps up with the times, one of the media is android on smartphone. It is in accordance with facilities given to students to bring smartphone to school and the level of smartphone use that reaches 95% or 30 out of 32 students. Students' interest related to rhythmic activity learning media application on smartphone is very interested by 100% from 32 students. In addition, if they are compared, smartphone is relatively cheaper than Laptop.

M-learning is defined as "learning with the help of handphone". As Wirawan (2011) says that mobile device is a simple computer unlimited to certain environment, stationer or location. Mobile Learning is related to students' mobility that should be able to engage in learning activities without performing certain physical location.

According to Elgame1, et al. (2012), "The fastest developing and rising computing platform with an estimated 1.6 billion mobile device users by 2013 is smart phones, mobile devices and PDAs". The devices spread in all levels from adults to children. In addition, mobile devices which are cheaper than other assembled devices such as computer make mobile devices new easy facilities in communicating and surfing into the virtual world.

Based on the initial observed data, the use of LCD projector, Laptop, DVD, and Sound

System was difficult for students and teachers to be taken anywhere. According to Paul Pocatilu (2010), mobile learning media or media that can be used anytime and anywhere such as software and special application needed for learning facilitate students and teachers in learning process.

A more effective and efficient medium is needed for rhythmic activity learning. An application on android smartphone can be used as a medium in rhythmic activity learning. It is expected that this learning medium would improve the weaknesses of existing media. By using android-based learning application, students are able to use it anytime and anywhere.

METHODS

The present research is Research and Development (R&D). According to Sugiyono (2012), research and development is a research method used to generate certain product and test the effectiveness of the product. Thus, research and development research is a method to generate certain product or perfect the existing product and test the effectiveness of the product.

The developmental procedures used in android-based rhythmic activity learning multimedia product on Physical Education, Sport and Health (PJOK) in High Schools (SMA) in Pekalongan Regency were: (1) product analysis; (2) initial product; (3) expert validation; (4) trial; (5) product revision; (6) final product; and (7) product effectiveness test. The data were used to give description of the quality of android-based rhythmic activity learning to be developed including; (1) view; (2) learning content or material; and (3) quality of learning material. The trial subjects were 12 PE teachers and students of High School in Pekalongan Regency who were being the target product users. The small trial was conducted to 10 students of SMAN 1 Kesesi and big trial was conducted to 122 students in SMAN 1 Kesesi, SMAN 1 Kajen, SMAN Kedungwuni, and SMAN 1 Bojong. The instruments used to collect data in this research were questionnaire and interview guidelines.

The data were collected from trials which were divided into two types; quantitative and qualitative data. Qualitative data were critics and suggestions stated by media and material experts, teachers and students and they were collected to improve the medium. Quantitative data analysis technique in the present research used descriptive statistics analysis obtained by questionnaire given to media and material experts, teachers and students. The questionnaire by media experts consisted of learning material and content aspect. The questionnaire by teachers consisted of view, content/material and learning aspect. The questionnaire by students consisted of view, content/material and learning aspect. These research questionnaires used Likert scale with the alternative of answers: excellence, good, fair, poor and very poor. In order to obtain quantitative data, the alternative of answers were used score; excellence = 5, good = 4, fair = 3, poor = 2, very poor = 1. Steps of analysis including: (1) collecting rough data, (2) giving scores, and (3) given scores were converted into scores with 5 scales.

Table 1. The Criteria of Product Score

Score	Value	Category
$X > 4.21$	A	Excellence
$3.40 < X \leq 4.21$	B	Good
$2.60 < X \leq 2.60$	C	Fair
$1.79 < X \leq 2.60$	D	Poor
$X \leq 1.79$	E	Very poor

(Suharyanto, 2007)

$$P = \frac{f}{N} \times 100\%$$

(Sutrisno Hadi, 2004)

where:

f = the frequency of the subject

N = total amount

To make a decision with the adjusted criteria by Sutrisno Hadi as follows:

Table 2. The Criteria of Product Score

Value	Assessment scale (%)	Qualification
1	0 – 55	Very poor
2	56 – 65	Poor
3	66 – 80	Good
4	81 – 100	Excellence

(Sutrisno Hadi, 2004)

RESULTS AND DISCUSSION

Based on the research stages, the final product was android-based rhythmic activity learning multimedia which was effective to be used as a material by teachers and a self-learning source for High School students on rhythmic activity learning in school. The product generated in this research was android-based rhythmic activity learn application namely “Aerobica” and it could be downloaded freely from playstore. The indicator of success of this product was the assessment of material and media experts on android-based rhythmic activity learning medium.

Based on the assessment of material expert I in stage I, the result of product was “Good” with the mean was 3.9 and stage II was “Excellence” with the mean of .06. The assessment of material expert II stage I the product was “Excellence” with the mean was .4 and stage II was “Excellence” with the mean was 4.45. From the assessment of media expert I stage I the product was “Good” with the mean was 4.14 and stage II was “Excellence” with the mean was 4.63. The assessment of media expert II stage I the product was “Excellence” with the mean was 4.3 and stage II was “Excellence” with the mean was 4.63. The assessments of material and media experts were feasible to be used as the sources of rhythmic activity learning on physical education, sport and health in High School (SMA).

The assessments of product from PE teachers were: (1) the aspect of view with the mean was 4.31 and “Excellence” criteria; (2) the aspect of content or material with the mean was 4.03 and “Good” criteria; and (3) the aspect of learning with the mean was 4.19 and “Good” criteria. Teachers’ assessments show that android-based rhythmic activity learning medium was “Good” with the total mean was 4.18.

The assessments of High School students in small scale consisted of 10 students were: (1) the aspect of view with the mean was 4.5 and “Excellence” criteria; (2) the aspect of content or material with the mean was 4.1 and “Excellence” criteria; and (3) the aspect of learning with the mean was 4.67 and “Excellence” criteria. The

assessments of students show that android-based rhythmic activity learning medium was “Excellence” with the total mean was 4.53. While the assessments of High School students in big scale consisted of 100 students were: (1) the aspect of view with the mean was 4.4 and “Excellence” criteria; (2) the aspect of content or material with the mean was 4.33 and “Excellence” criteria; and (3) the aspect of learning with the mean was 4.5 and “Excellence” criteria. The assessments of students show that android-based rhythmic activity learning medium was “Excellence” with the total mean was 4.41.

Table 3. The Quality of Android-Based Rhythmic Activity Learning Medium in Big Scale Trial

Aspect of assessment	Mean score	Criteria
Aspect of view	4.40	Excellence
Aspect of content/material	4.33	Excellence
Aspect of learning	4.50	Excellence
Total mean	4.41	Excellence

(The researcher’s data, 2018)

Product effectiveness test analysis was intended to make the generated product effective to be used in rhythmic activity learning on physical education, sport and health directed to affective, cognitive and psychomotor aspect. The assessments of affective, cognitive and psychomotor aspect on android-based rhythmic activity learning were: (1) affective aspect assessment has “Excellence” quality with the percentage was 84%, (2) cognitive aspect assessment has “Excellence” quality with the percentage was 84%, and (3) affective aspect assessment has “Excellence” quality with the percentage was 87%. More clearly these can be seen on Table 4 as follows:

Table 4. Data Analysis of Effectiveness Test of Android-Based Rhythmic Activity Learning Media Development Product

Aspect of assessment	Mean score of big scale trial group	Mean	Category
Aspect of view	44.01	4.40	Excellence
Aspect of content/material	43.29	4.33	Excellence
Aspect of learning	35.97	4.50	Excellence
Mean		4.41	Excellence

(Source: The researcher’s data, 2018)

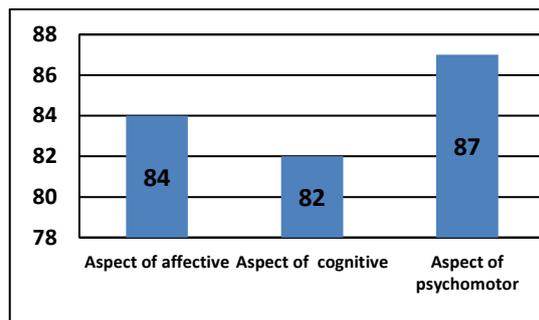


Figure 1. The Assessment of Learning

Media Product Effectiveness Test

The assessments of the affective, cognitive and psychomotor aspect of product effectiveness test above show that android-based rhythmic activity learning medium has “Excellence” quality with the percentage was 84%. The assessment of effectiveness test of android-based rhythmic activity learning medium product development had excellence results so that this product was feasible to be used in physical education, sport and health learning process.

On Aerobica application there were some menus including material and technique and in each menu had submenus. The submenus consisted of learning materials, technique videos, music and exercises to be used by students as performance materials. In addition, there were learning videos to make the movement technique explained on rhythmic activity technique submenu clearer. The videos attached with quantification to help counting. The videos were directly connected to YouTube, so that to play them the smartphone had to be online or connected to the internet.

The use of this application was not really suitable for schools in certain areas including rural areas or areas with low class society.

CONCLUSION

Based on the results and discussion about android-based rhythmic activity learning medium product development on Physical Education, Sport and Health (PJOK) in High Schools (SMA) in Pekalongan Regency, it can be concluded that there was an android-based rhythmic activity learning medium product in the form of

application and students could download it freely from playstore namely “Aerobica”. Teachers and students has interest in android-based rhythmic activity learning medium. It can be seen from the product assessment from teachers and students which was excellence. Android-based rhythmic activity learning medium product development was effective to be used as learning process on Physical Education, Sport and Health (PJOK) in High Schools (SMA) in Pekalongan Regency with the assessments of effectiveness test including the aspect of affective, cognitive and psychomotor show that android-based rhythmic activity learning medium had “Excellence” quality with the total percentage was 84%.

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