

Mobile Learning Based Android Multimedia Development on Basket Ball Learning for Junior School Graders

Restu Aji Wicaksono^{1✉}, Heny Setyawati² & Rumini²

¹ Public Junior High School 2 Tenganan, Jawa Tengah, Indonesia

² Universitas Negeri Semarang, Indonesia

Article Info

History Articles

Received:
June 2018
Accepted:
July 2018
Published:
August 2018

Keywords:

basket ball,
development,
mobile learning

DOI

<https://doi.org/10.15294/jpes.v7i2.25123>

Abstract

The purpose of the research is to findout the development of Android based multimedia learning in the form of Mobile Learning to teach health and sport course specifically basket ball for Junior School graders and to findout its effectiveness toward the material. This developmental research has procedures of product development covering analysis of created product, initial product development, expert validation and revision, small group trial run and revision, larger group trial run and final product. The data collection is done by using questionnaire, gained from expert evaluation, and using field observation gained from students. The technique of analysing the data is descriptive percentage. The final trial run test is gained average score of product analysis equals to 84.5%, categorized “well”. The observation findings and questionnaires of the teachers gaines average score of product analysis equals to 83.2%, “well”. And the findings of observation and questionnaires from students in small group trial run test gain percentage of average score equals to 86%, “very well”. And the findings of observation and questionnaires in larger sclase is gained the average score 87%, “well”. From the findings can be concluded the resulted multimedia product in learning basket ball based android in form of application (apk) to be downloaded by teachers and studetns from Playstore thought keyword “Basket SMP”. Teacher and students in learning having more interest on the application. The product is effective to learn the material for Junior School graders in Tenganan district, Semarang.

© 2018 Universitas Negeri Semarang

✉ Correspondence address:
Karangduren, RT.01/RW.01, Karangduren,
Tenganan, Jawa Tengah, 50775
E-mail: restuaji281@gmail.com

[p-ISSN 2252-648X](#)
[e-ISSN 2502-4477](#)

INTRODUCTION

Physical education is media to support motoric, physic, knowledge and reasoning, understanding values (attitudes, mental, emotional, spiritual, and social), and also health living pattern behavioral conditioning to motivate growth and development (Putri Purwatiningsih, 2012).

The main purpose of physical education in primary school is to help students improving movement ability. The other main purposes are to make them happy and motivated in participating into various activities (Kusmiyanti, 2014).

Education technology has main role as a study to facilitate learning to effectively and efficiently occur. Association for Educational Communication and Technology (AECT) has reviewed and developed the definition of education technology as the development of learning paradigm and technology advancement proceeding. Education technology has developed from the assumption as ability to profession and study field (Ujang Nendra, 2017).

Multimedia comes from two terms, multi and media. Mutli means many or numerous and media can be interpreted as tools to deliver or create something, mediator, a deliverer, a form of communication such as newspaper, magazine, or television (Ghazali Indra, 2016).

The definition of media is taken from Latin and is a plural form from medium, literally, a mediator. Media is everything used to deliver message from senders to receivers to invoke reasoning, feeling, attention, and interest to create process of learning (Alfiyanto Pramuaji, 2017).

Learning multimedia is a type of mediated learning. The students later can use learning multimedia as independent learning sources (Liska Sukiyandari, 2014).

Learning media can be also used as information toward students about what they should do related to physical education activity from preparing stage before learning, getting into it, during or after having the activity (Samsudin, 2008).

In modern era, the use of information and communication technology in education domain always develops by means of various strategies basically grouped into system of Electronic Learning (E-Learning) as learning formation by using digital media. Mobile learning is said as a form using mobile wares and technologies. Mobile learning is a learning packaged through mobile device (Ence Surahman, 2017).

Android is a software platform and operating system for mobile devices based on the Linux kernel, and developed by google and later the Open Handset Alliance (Kirthika, 2015). In developing application based Android product can be used by using some PC softwares such as xclipse, Android studio, appinventor, phone gap, Android apps maker, and many more.

Erick Prayogo (2015) in his journal states Basket ball is a popular sport in America consisting from 2 teams, 5 vs 5 players to get points. Basket ball is a sport having specific social characters containing many tricks to pass the enemy, to compete in winning and creating every player having same chance to improvise freely to create score.

In basket ball has some basic techniques learn at Junior School. Those techniques are: passing, dribbling, shooting, and lay-up shoot.

In observation and interview results toward teachers and students related to basket ball learning are gained data showing the use of the learning media is projector or LCD in which are considered to be unmoveable. Therefore, this research has purpose to create mobile product or moveable product through smartphone.

METHODS

This research and development (R&D), according to Sugiyono (2012), are methods of research used to result specific product, and to test the effectiveness of the current product.

Nana Syaodih Sukmadinata (2006) defines research and development as research approach resulting new product to perfect the previous existed product. Thus, this research has method to result specific product or perfect current existed product and to test the product effectiveness.

The procedures of developing used in the learning multimedia are: (1) need analysis, (2) initial product creation, (3) expert validation, (4) trial run, (5) product revision, (6) final result, and (7) product effectiveness. The data used gives description about the quality of learning multimedia developed such as: (1) interface, content learning material, and (3) learning material quality. The subject of the test is target of product users, 8 health and sport teachers and Junior School graders in Tengaran, Semarang. The small scale trial run will be tested for 32 students in Public Junior School 2 Tengaran and the larger trial run for 94 graders of Public Junior School 1, Public Junior School, and Public Junior School 3 Tengaran. The instruments used to collect the data of the current research are questionnaire, and interview guidances.

The data gained through trial run activity can be classified into two, quantitative and qualitative data. The qualitative data is in the form of critique and suggestion stated by media and content experts, teachers and students then are set to revise this multimedia. The technique of analysing quantitative data in the research uses descriptive statistic analysis gained from questionnaire given to media experts, content experts, teachers and students. The questionnaire by media experts consists of display and programming aspects. The questionnaires by content material experts are quality aspects of learning material and content aspect. Questionnaire by teachers consists of display aspect, content aspect, and learning aspect. Meanwhile, questionnaire by students consists of display, content, and learning aspects. The questionnaire uses Likert scale by alternative answers; very well, well, sufficient, poor, and very poor. To get quantitative data, then alternative answers are given scores: very well = 5, well = 4, sufficient = 3, poor = 2, and very poor = 1. The steps of analysing data: (1) collecting raw data, (2) scoring, and (3) converting the gained scores into scales.

Table 1. Product Scoring Criteria

Criteria	Score	Category
$X > 4.21$	A	Very well
$3.40 < X \leq 4.21$	B	Well
$2.60 < X \leq 3.40$	C	Sufficient
$1.79 < X \leq 2.60$	D	Poor
$X \leq 1.79$	E	Very poor

The technique of analyzing product effectiveness development of gymnastic based on Android is percentage to analyse and assess the effectiveness toward product development by formula:

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

(Sutrisno Hadi, 2004)

Information:
 f = Subject frequency
 n = Total

To decide using determined criteria by Sutrisno Hadi as follow:

Table 2. The Criteria of Affectiveness Test

Score	Scoring Scale (%)	Qualification
1	0 – 40	Very poor
2	41 – 60	Poor
3	61 – 75	Sufficient
4	76 – 85	Well
5	86 – 100	Very well

RESULTS AND DISCUSSION

Based on research steps done, then it is gained final product in the form of learning multimedia about basket ball based on android used effectively as teaching source by teacher and independent learning source for the students. The product resulted in the research is learning application called “Flash Basket Junior” can be downloaded freely in playstore. Besides that, the product produced is guiding book to use the application. The indicators of successful product is assessment form from material and media experts toward multimedia learning product based Android.

Based on the judgement of first material expert, the first stage is gained “well” categorized product, averaged 4.1. In second step, “very well” with average 4.35. The judgment from second material experts in step 1 is “well” with average 3.95 and second step “well” with average 4.1. Meanwhile, judgment from media expert in first

step is gained “well” categorized product with average 3.95 and second step “very well” categorized product with average 4.25. The judgements from media expert two in first step is gained “well” categorized product with average 3.75 and in second step “very well” categorized product with average 4.25. The assessment from content and media experts are used as learning source for the students.

The product judgement from the teachers are: (1) learning aspect with average 4.38, categorized “very well”, (2) materi aspect with average 4.10, categorized “well”, and (3) display aspect with average 4, categorized “well”. The judgement of the teachers show the learning multimedia of gymnastic based android has “well” quality with overall average 4.16.

The judgment from Junior School graders in small scale train run: (1) display aspect with percentage 84%, categorized “well”, (2) learning aspect with percentage 883%, “well”, and (3) material aspect with percentage 945, “very well”. The students’ judgment show basket ball multimedia learning based android has “very well” quality with overall percentage 86%. Meanwhile, from the students’ judgment in larger trial run consisting 94 persons is: (1) display aspect with 86%, categorized “very well”, (2) learning aspect, with 85%, categorized “well”, and (3) material or content aspect with “very well” criterion. The judgement shows basket ball learning multimedia based android has “very well” quality with overall percentage 87%.

Table 3. The Quality of Basket Ball Multimedia Learning Based Android Trial Run in Larger Group

Scored aspects	Score summation	Percentage (%)	Categories
Display	332	86	Very well
Learning	319	85	Well
Content	169	90	Very well
Average	273.3	87	Very well

The analysis of trial run effectiveness to create effective product used in learning the material directed to affective, cognitive, and psychomotor aspects.

The adjustment from affective, cognitive, and psychomotor aspects can be explained as follow: (1) affective judgment aspect has “very

well” quality with percentage 88%, (20 cognitive judgment aspect with “well” quality with percentage 83%, and (3) psychomotor aspect with “well” quality and percentage 84%. Check the table below to see further.

Table 4. The Analysis of The Effectiveness of The Product’s Trial Run on Gymnastic Material Based on Android

Scoring aspects	Percentage (%)	Criteria
Cognitive	83	Well
Affective	88	Very well
Psychomotor	84	Well
Average	85	Well

The judgement of the effectiveness data above are affective, cognitive, and psychomotor aspects showing basket ball learning media based on android having “well” quality with 85% percentage. The effectiveness test score of the product developed shows very well allowing the product to be used in learning process.

From those four revisions done by media and content experts, small and large group trial runs then are resulted a final multimedia learning product for basket ball called Flash Basket Junior which can be downloaded easily by any teacher or student in playstore and can be used as learning source at school.

In the implementation, there are 4 main menu consisting from history, basic techniques, learning variation, and learning task. From each menu, some submenus still exist. The content from the submenus are learning material and excercises as performance task. Besides that, the learning video to explain the basic technique movements are explained in basic technique submenu. The video is complemented by slow motion containing notes about the steps of movements from each basic technique of basket ball in detail. The video is connected to youtube, then to play it in smartphone must be online.

This implementation of the application does not really work for schools in remote areas. Suburban or areas where the society are still powerless. The condition will hinder students’ determination or the society’s determination to have smartphone because of its expensive price. The students will prioritize to have handphone only for sending short message service or calling.

CONCLUSION

Based on the findings and discussion about the product development, then can be concluded that it has been produced basket ball multimedia learning product in the form of application based android and students can download it freely in android playstore named "Basket SMP". Teachers and students have high interest toward the multimedia. It is seen from product judgement data from teachers, "well" categorized and students "very well" categorized. The validation by material experts for overall aspects are "well", averaged 4.13. Media expert judgment toward the product is "Well", averaged 4.05. In teacher trial run test is "well" with percentage 83.2%. Then, smaller group scale of the student test is "very well" with percentage 86%. The test result from larger group test of the studnets is "very well" with 87% percentage. The effectiveness of multimedia learning product based android with average score "well" is 85%.

REFERENCES

- Indra, G. P., & FX. Sugiyanto. (2016). Pengembangan Pembelajaran Teknik Dasar Bulu Tangkis Berbasis Multimedia pada Atlet 11 dan 12 Tahun. *Jurnal Keolahragaan*, 4(2). Retrieved from <https://journal.uny.ac.id/index.php/jolahrag/a/article/view/10893>
- Kirthika, B. (2015). Android Operating System: A Review. *International Journal of Trend in Research and Development*, 2(5). Retrieved from www.ijtrd.com/papers/IJTRD174.pdf
- Kusmiyanti, Soegiyanto, & Setya, R. (2014). Pengembangan Model Modifikasi Permainan Bola Voli Mini "Serpasing" Pembelajaran Penjaskes SD Kelas V. *Journal of Physical Education and Sports*, 3(2), 73-77. Retrieved from <https://journal.unnes.ac.id/sju/index.php/jpes/article/view/4809>
- Liska, S., & Soegiyanto. (2014). Pengembangan Multimedia Pembelajaran Materi Bola Voli dalam Mata Pembelajaran Penjasorkes bagi Siswa SMA. *Journal of Physical Education and Sports*, 3(2), 78-82. Retrieved from <https://journal.unnes.ac.id/sju/index.php/jpes/article/view/4811>
- Pramuaji, A. (2017). Pengembangan Media Pembelajaran Interaktif pada Materi Pengenalan Corel Draw sebagai Sarana Pembelajaran Desain Grafis di SMK Muhammadiyah 2 Klaten Utara. *Undergraduate Thesis*. Yogyakarta: Universitas Negeri Yogyakarta. Retrieved from <http://eprints.uny.ac.id/51064>
- Prayogo, E. W., & Lismadiana. (2015). Pengembangan Pembelajaran Bola Basket bagi Anak SD Kelas Atas. *Jurnal Keolahragaan*, 3(1). Retrieved from <https://journal.uny.ac.id/index.php/jolahrag/a/article/view/4967>
- Putri, P., Cahyo, Y., & Hari, P. (2012). Pengembangan Model Permainan Lompat Kangguru "Longu" dalam Pembelajaran Lompat Jauh Gaya Jongkok pada Siswa Kelas V Sekolah Dasar. *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, 2(2). Retrieved from <https://journal.unnes.ac.id/sju/index.php/peshr/article/view/971>
- Samsudin. (2008). *Pembelajaran Pendidikan Jasmani Olahraga dan Kesehatan (Sekolah Menengah Pertama/MTs)*. Jakarta: Prenada Media Group.
- Sugiyono. (2011). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Sukmadinata, N. S. (2006). *Metode Penelitian Pendidikan*. Bandung: Remaja Rosda Karya
- Surahman, E., & Herman, D. S. (2017). Pengembangan *Adaptive Mobile Learning* pada Mata Pelajaran Biologi SMA sebagai Upaya Mendukung Proses *Blended Learning*. *Jurnal Inovasi Teknologi Pendidikan*, 4(1). Retrieved from <https://journal.uny.ac.id/index.php/jitp/article/view/9723>