MODEL LEARNING TUTORIAL FOR MOTION ACTIVITIES FOR PHYSICAL EDUCATION TEACHERS USING ANDROID APPLICATIONS

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ABSTRACT

The purpose of this study was to improve the quality of learning outcomes of Physical Education Teacher activities by applying a tutorial model that applies the WhatsApp android program. The study was conducted on 30 elementary school physical education teachers in Tasikmalaya City, West Java, Indonesia. The research instrument used in this study was the skills test of the learning process of physical activity material movement activities with observations of national certified physical education learning experts. The location of the study was the sports complex. The results of the study is- i) the android application 'WhatsApp program' is effectively used for physical education teacher activity tutorial material; ii) comparative test results which uses audio visual media are significantly more effective using the android application. To improve the effectiveness and efficiency of motion material tutorials for physical education teachers it is recommended to use the WhatsApp android application, and it can be used for the e-learning process.
Keywords: Learning, motion activities, physical education, android applications.

1. INTRODUCTION

The Indonesian government continues to be consistent in promoting education by developing curriculum in accordance with the current situation. Physical education in the elucidation of the 2003 National Education System Law article 37 is that the physical education and sports study is intended to shape the character of students to be physically and mentally healthy, and foster a sense of sportsmanship, encourage physical growth, psychological development, motor skills, knowledge and reasoning, appreciation of values (mental, emotional, sportsmanship, spiritual, and social attitudes), as well as the habit of healthy lifestyles that lead to stimulating the growth and development of a balanced physical and psychological quality.

In Indonesia, the 2013 physical education curriculum of all levels has been revised in 2017. Revisions are made on several things, but not on the substance of the learning process. The learning process is carried out with the concept of Active, Innovative, Creative, Effective, and Enjoyable Learning (Bafadal, 2018). Active means that in the learning process the teacher must create an academic atmosphere in such a way that students actively ask, question, and express ideas. Innovative learning can adapt from a fun learning model. 'Learning is fun' is the key that is applied in innovative learning. If students have planted this in their minds there will be no more students who are passive in class, feeling depressed by assignment deadlines, possible failures, limited choices, and of course boredom (Marwan, 2018).

Physical education begins with the term bodybuilding or physical activity. In the course of history have also experienced the term sports education, physical education physical health recreation, physical education health, before returning to the term physical education today (DeFreese & Smith, 2014). The term gymnastics that once existed in America, occurred around the 1800s, which referred to physical activities or exercises performed at the gymnasium. Another term that has emerged in the United States is physical culture, very close to the theme of physical training, which refers more to physical condition training programs (Dubnewick, Hopper, Spence, & McHugh, 2018). Physical education focuses on all forms of physical activity that activate large muscles (gross motor), focusing on physical movements in games, sports, and basic functions of the human body (Bano & Mohammad, 2019). In the learning process an average of 82% is still applying traditionally and not innovative (Marwan, Rohyana, & Listyasari, 2016).

To improve the quality of physical education teachers if carried out in special meetings, after identified there are obstacles including- i) the schedule of activities does not interfere with the learning process; ii) the distance and travel time of the place of activity is relatively far from the residence or from school; iii) relatively large activity budget; iv) the large number of teachers is difficult to control; and v) if

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the module is made requires a lot of costs. To anticipate this, supported by ownership of communication devices in the form of mobile phones with Android applications, the researchers tried to conduct research using the available facilities. The activity was carried out by doing a tutorial on the physical education learning process for some teaching materials for motion activities. The industrial revolution 4.0 has brought fundamental changes to patterns and needs of life. Industrial innovations including digital technology are growing and developing rapidly. The development of technology provides convenience in accessing learning media. Learning media can now be accessed using a computer or other device that can be used to display the media (Juraman, 2014).

Various software is available to make learning media. This software support can make learning media more interesting and can be easily produced. Learning media must be able to be used massively, easily reproduced and used in various places (Arsyad, 2017). Learning media in the form of multimedia are easily made copies. To use multimedia, a device that supports this media is needed (Yazdi, 2015). Computers are tools that can be used to reproduce or to use media. The advantages of mobile learning can be used to overcome the limitations of a PC. The advantages of mobile devices include being easy to carry, being able to connect to the network anytime and anywhere, more flexible in accessing learning resources, proximity of communication, students can be involved and active (Woodill, 2016). Ease and low prices are the main advantages.

The ease in making educational applications has also received support from several parties. Some application stores have provided special space for educative application developers to offer their own applications. The use of mobile learning in schools is still small. The UNESCO annual report states that the use of mobile phones in schools is still considered taboo. In schools the use of mobile phones is still prohibited so that if there are students who use cell phones will be confiscated (Chimbelu, 2014).

WhatsApp is an instant messaging application for smartphones, if seen from its function WhatsApp is almost the same as the SMS application used on older mobile phones. But WhatsApp does not use pulses, but rather internet data. This application does not have a short character length limit as long as the internet quota is sufficient (Hamidin, 2015). Further explained this method facilitates learning by discussion and question and answer, so that he can do other activities, in addition to learning tutorials also continue to be carried out (Hamidin, 2015). WhatsApp was created in early 2009 by Ian Koum, a Ukrainian immigrant who lives in Mountain View, California. Ian Koum has the desire to give smartphone users a way to share statuses like instant "I am busy" or "At the gym" with their community. This is why this application is called WhatsApp. The name of this application was chosen because it sounds like "what's up" which means "what about what". Slowly many people are starting to use this application as a voice messaging service and status updates (Wulandari, 2016). Since the beginning of 2009 WhatsApp began to be used as a whole so that it became a social application giant by expanding into Android, BlackBerry and other platforms as well as continuing to add new features to surpass.

Bringing new technology into the classroom can create more innovative learning (Bhasin, Sudha, & dan Anegundi 2014). Developing mobile-based learning media can increase student interest in the learning process (Chyung, Moll, & Berg. 2010). The ease of accessing the media can also make students more likely to reopen the material delivered outside class hours. Mobile technology is growing rapidly marked by the emergence of several mobile operating systems such as BB OS, Windows, iOS and also Android.

This research has a specific purpose to make the development of physical education activity learning tutorial models using Android technology with the "WhatsApp" (WA) application program or e-learning model. The results of the study have benefits for instructors, teachers, lecturers, or related institutions in curriculum development and implementation and are useful so that the physical education tutorial process runs effectively and efficiently. Several studies have shown that the use of WA is becoming more widespread in learning and an effective tool. WA is not only easy to use, but also helps encourage independent learning in the social environment for students and puts control in student learning (Susilo, 2014). Based on the description, the researcher makes the development of a physical education activity learning tutorial model for physical education teachers in accordance with the physical education curriculum using the android application program "WhatsApp".

2. METHODS AND MATERIALS

2.1 Types of Research

The research design used in this study was research and development (R&D). Sugiyono (2016) suggested that R&D design is used to produce certain products and test the effectiveness of these products. This research involves lecturers as assessors and advisers to improve and perfect the product being developed.

The development model used was a model 4D (4-D Models). The stages of the 4D development model include the defining stage, the design stage, the develop phase, and the disseminate stage.

2.2 Research Subject

The subjects of this study were selected using cluster random sampling techniques, namely physical education teachers with teaching experience of 5 to 10 years and have passed the certification of educators were chosen randomly so that 30 teachers were selected. Thirty fifth grade students were selected as a test model of physical activity from 5 elementary school.

2.3 Data Collection Instrument

The instruments used in this study were assessment or validation sheets, student questionnaire response sheets, post-test pre-test question sheets, and student motivation questionnaire sheets. Media data collection techniques were used in research data collection. The data collection phase begins by conducting a limited test to determine students 'responses to the media in order to find out the quality of the media and the shortcomings of the media, as well as testing the question instruments to determine the results of the item analysis based on the students' answers. The next stage was the field test as well as the stage of research data collection that is motivation data and student learning outcomes which were divided into two classes, namely the experimental class and the control class. In this case, the experimental class was a class with the implementation of independent learning resource media based on the WhatsApp instant messaging service application developed in research.

2.4 Data Analysis Technique

The feasibility of learning media based on WhatsApp instant messaging service application was determined based on the results of the validation by a physical education expert lecturer. The results of expert validator assessment were useful for determining the quality of instructional media designed. Learning media assessment data were analyzed using the calculation of ideal assessment criteria.

Testing the validity of test questions were analyzed using ITEMAN computer programs, with the results of the calculation of the validity of the questions shown on the biserial point value. According to Azwar (1997) the magnitude of the biserial point approaching number 1 indicates the validity of the problem, but if the magnitude approaches 0 then the problem is weak validity. The validity testing of the instrument was carried out using ITEMAN computer programs.

Classification Value ≥ 0.7 High 0.7> ≥ 0.3 Medium <0.3 Low Multivariate analysis of variance (MANOVA) was a variant test. The difference with ANOVA was in the compared variance that comes from one dependent variable, whereas in MANOVA, the variant compared comes from more than one dependent variable (Sadiman, 2014).

3. RESULTS AND DISCUSSION

The Feasibility of Learning Resources Application Based Media WhatsApp

The feasibility of developed learning resource media is known based on the assessment of expert validators using a media feasibility questionnaire. In the questionnaire there are three aspects of assessment, namely the characteristics of appearance in the media, functions and benefits, and learning material. The results of the assessment were analyzed using ideal assessment criteria so that it can be known that the media developed was fit into the eligibility criteria. The results of the media feasibility assessment on the three aspects of assessment are presented in Table 1.

Table 1: Media feasibility assessment results

Aspect	Average Score	Criteria
Display Characteristics	54	Very Decent
Function and Benefits	42.5	Are Very Decent
Learning Materials	43.5	Very Worthy
Total Score of	140	Is Very Decent

The assessment results show that the independent learning media developed fit into the criteria very well, with details of validator 1 giving a total score of 134 with good categories, and validator 2 giving a total

score of 143 with very good categories. The average of the two scores was 138.5 so it was concluded that based on the results of media validation by expert validators, the media developed were classified as very good criteria.

The aspects of appearance characteristics in the media consist of several assessment points, namely creative, attractiveness, simplicity, layout design, readability, font selection, coloring of image clarity, communicative, quality of presentation, and clarity of information. This aspect serves to assess the media in terms of appearance and function of the media visually. The validation score of the aspects of media display characteristics obtained an average score of 49 and included in the very feasible category.

The second aspect is the function and benefits of the media which include media can facilitate learning, the media generate motivation, the media can increase curiosity, the product can be used as a source of independent learning, the product is user friendly, maintainable, usability, and media compatibility. In this aspect the assessment is aimed at the usefulness or role of the media in assisting students in learning or specifically in this case independent learning. Aspects of the function and benefits of the media obtained an average score of 38.5 with a very decent category.

The third media feasibility assessment is the aspect of learning material. Assessment criteria on aspects of learning material include the relevance of learning objectives to the curriculum, the suitability of the material with the learning objectives, the material is divided into sub topics, depth of material, easy to understand, systematically coherent clear logic flow, concept truth, use of standard sentences, and appropriateness of illustrations with material. This aspect is part of the assessment of the content of the material in the media developed, both from the relevance or suitability of the material and the preparation of the material in the media. The aspect of learning material obtained a mean score of 42.5 with a very decent category.

Response of Physical Education Teachers and Students

In the limited trial phase, a media trial was conducted on 12 physical education teachers and students in order to obtain students' response data to media learning resources based on the WhatsApp instant messaging service application that was developed. Students and physical education teachers fill in a response questionnaire consisting of 12 statements with a score of 1 to 5 on each item, so that the ideal maximum score for a questionnaire response is 60.

Questionnaire responses from physical education teachers and students consisted of three aspects of assessment, namely aspects of media appearance, aspects of learning material, and aspects of media functions and benefits. The display aspect was assessed using statements of physical education teacher's interest and students' interest in the appearance or design of the media, the readability of the text, and the use of sentences in the media. The second aspect of learning material is assessed using clarity of illustrations and the content of the material on the media. Aspects of function and benefits are assessed using statements about the ease of use of the WhatsApp application, curiosity and increased interest after using the media, as well as the usefulness of the media as a source of independent learning. The results of physical education teacher responses and students are presented in Table 3.

Table 3: Results of physical education teacher responses and students

No	Category	Amount	Percentage (%)
1	Fairy Good	1	8.3 %
2	Good	10	83.3 %
3	Very Good	1	8.3 %

The results of physical education teacher responses and students to the media developed showed positive results. In general, students assess the aspects of good media appearance, aspects of good material content, as well as aspects of the function and benefits of good media. The mean score from the overall response of students was 45.42, which means the media entered into a good category based on the responses of physical education teachers and students.

In this case the role of the learning app media based on the WhatsApp application that was developed can help elementary school physical education teachers in adopting sources of learning material that was developed.

Tutorial on Physical Activity Based on Android Application

The development of technology provides convenience in accessing learning media. Learning media can now be accessed using computers or other devices that can be used to display the media (Stiggins, 2014).

Making learning media is also easier. Various software is available to make learning media. This software support can make learning media more interesting and can be easily produced.

Learning media must be able to be used in masses, be easily reproduced and used in various places (Arsyad, 2017). Learning media in the form of multimedia are easily made copies. To use multimedia, a device that supports this media is needed. Computers are tools that can be used to reproduce or to use media students have difficulty using learning media. The limitations of the tool become obstacles in accessing learning media. Personal computers such as laptops are still considered expensive for the lower middle class. Facilities provided by schools also cannot be used at any time because the amount is limited. An inexpensive device is needed to facilitate students in accessing learning media. The development of mobile device technology is an alternative device that is cheaper than personal computers such as desktop or laptop computers (Clark, 2014).

The existence of inexpensive devices can make it easier for students to access learning media. With this cheap device, students from the lower middle class can buy the device (Jonathan, & David, 2017). Mobile phones have tremendous potential to help the learning process. In the future smartphones can solve the problem of access to learning resources (Ali, 2015).

A smartphone is a device that has capabilities that are relatively comparable to PCs. Creating learning media based on mobile devices has several advantages. Mobile learning has advantages including lower costs, supporting multimedia content, can be used in various places, reducing training costs (Lehmann, 2014). Mobile devices are also lighter than books or laptops. But mobile learning also has several challenges such as battery life, screen size, limited format support and memory limitations.

The advantages of mobile learning can be used to overcome the limitations of a PC. The advantages of mobile devices include being easy to carry, being able to connect to the network anytime and anywhere, more flexible in accessing learning resources, proximity of communication, students can be involved and active (Woodill, 2016). The ease in making educational applications has also received support from several parties, for the use of mobile learning in schools. However, there are still schools where the use of mobile phones is still prohibited so that if there are students who use cell phones will be confiscated (Chimbelu, 2014).

The results of this study can strengthen the development of software using Android is an advantage of the Android operating system. The motion activity tutorial model that will be created is an android application that will display learning material (Hartatik, Cahyaningsih, Purnomo, Hartono, & Bawono, 2017). It is hoped that using Android will be easier to develop applications (Marwan et al., 2016). Learning media in the form of an android application can increase student interest in participating in learning. ease of use and can be used in various places make students more often access the material.

Ally (2015) explained that mobile learning is learning through mobile wireless technology that allows anyone to access information and learning material from anywhere and at any time. In this study the physical education teacher can arrange for himself when he wants to learn and from whatever source of learning he wants. Darmawan (2016) explained that mobile learning is one alternative that learning services can be implemented anywhere and anytime. Mobile learning is based on the reason that learning can be done anywhere and anytime. Has a broad scope because it uses commercial cellular networks (Yu, Frommer, & Lenhart, 2016) can be integrated with various e-learning systems, academic systems and instant messaging services. Mobile learning is the opposite of learning that occurs in traditional classes where students just sit, move, pay attention to the teacher standing in front of the class (Woodill, 2016).

Darmawan (2016) explains the development of mobile learning against the background by the very rapid penetration of mobile devices. There are more mobile devices than PCs. Mobile devices are easier to operate than PCs. Mobile devices can be used as learning media. Whereas Attewell, Savill-Smith, & Douch (2014) explained the technology used for mobile learning is handheld technology such as personal digital assistance (PDAs), mobile phones, smartphones, MP3 and MP4 players, other portable multimedia players, game consoles, ultramobile PCs, mini notebooks or netbook, GPS and others. Woodill (2016) explains that smartphones develop when cellular phones get smaller and have more features and uses.

Other equipment such as tablets, net-books, set-top boxes and even cars also adopt the Android operating system (Steel, Schmidt, & Shultz, 2015). Suharyanto and Mailangkay, (2016) explains that Android is an operating system for Linux-based mobile devices that includes an operating system, middleware and applications. Pressman (2015) explains computer software is a product made by professional software makers, where the software is built and then has long-term support. In software development must meet the usability goal. Preece, Rogers, and Sharp (2015) suggested that software development must meet 6 usability criteria, namely effectiveness, efficiency, safety, utility, learnability and memorability.

Sadiman (2014) describes the media as an intermediary or messenger of messages from the sender to the recipient. While Ahmad (2017) explained that the nature of teaching and learning activities is a

communication process. The communication process must be realized through the delivery and exchange of messages or information by each teacher and student. Through this communication process messages or information can be absorbed and internalized by others. In the process of communication there can be differences in perception so it needs a means to help the communication process called the media. The results of this study are relevant to Nining, (2017) support the argument that distant learning can be a means of providing quality training courses to health professionals. It can overcome barriers due to distance, financial or time constraints and provide access to continuing medical education when time and distance or both separate the source of information and the health professionals.

E-learning is a generic term for all technologically supported learning using an array of teaching and learning tools as phone bridging, audio and videotapes, teleconferencing, satellite transmissions, and the more recognized web-based training or computer aided instruction also commonly referred to as online courses (Ahmed & Mohammad, 2019a,b; Suharyanto & Mailangkay, 2016). Mobile information using Android makes it easier for students to learn wherever they are (Mobile learning). E-learning does not mean replacing conventional learning models in the classroom, but it reinforces the learning model through enriching content and developing educational technology.

The application of the WhatsApp application as a means of transferring learning material to support educational goals is inseparable from the obstacles encountered. Every application of any educational method must not be separated from deficiencies (Nazrudin, 2014; Taufik, 2014).

The role of educators and parents to get involved in the world of application becomes a necessity, even an obligation to find out, (Wahid, 2005). With the aim of parents and educators can provide choices of positive applications that support children's development, especially in supporting their education. Positive smartphone applications can support the achievements of a student (Rahman, 2015).

4. CONCLUSION

From the results of the study it is concluded that the WhatsApp application is effectively used as a means of tutorial models conducted by Physical Education Teachers with their functions and roles as education, evaluation, and control of the progress of the learning process that is active, innovative, creative, effective, happy, and weighted. The results were also obtained as a two-way informative path between the instructor and the activity participants, to control the level of development of understanding of the object of the displayed movement of movement. As a means of connecting information from both the school to students, the school to parents, and vice-versa. Product test results are i) the android application WhatsApp program is effectively used for physical education teacher activity tutorial material; and ii) comparative test results using audio visual media the results are significantly more effective using the android application.

Recommended research results so that physical education teachers are not left behind with the advancement of information technology, or the innovative Industry 4.0 revolution, furthermore it is recommended that every physical education learning activity be made in the form of short films to make it easier to carry out reflections. The use of the WhatsApp application is prioritized for enhancing the abilities and varied understanding of physical education learning models.

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