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"My Javelin Throw" Android-based Javelin Throw Learning Application

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Abstract. This research is motivated by the need for a new learning model with different and engaging learning media, particularly in javelin throwing education. The aim of this research is to create an Android-based learning media for javelin throw. The method in this research is Research and Development (R&D). The subjects and location of this research are 11th-grade students of SMA Negeri 1 Bantarbolang, Pemalang Regency. In the small-scale research, the sample consists of 21 11th-grade students, while in the large-scale research, the sample consists of 272 11th-grade students. The data collection technique used is a questionnaire as the instrument. The quantitative data analysis technique in this research utilizes descriptive statistical analysis. The final validation results from media experts indicate that all aspects are rated as "Good" with a score of 78%. Meanwhile, the final validation from subject matter experts indicates that all aspects are rated as "Excellent" with a score of 82%. According to the data analysis results in the small-scale trial, the percentage obtained is 86.17%.

Keywords: Learning Media, Android, Javelin Throw.

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1. Introduction

Education is learning provided through formal or non-formal education which is carried out as an effort to increase one's degree of intelligence towards something. Based on Law Number 20 of 2003, the definition of education is a planned and conscious effort to create an atmosphere of learning and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state. Education is carried out with the aim of educating the nation's life as stated in the preamble of the 1945

Constitution [1].

Learning media is a medium for delivering learning materials and information. Advances in technology and science have a significant impact on human life. Learning media in physical learning activities are used to facilitate the delivery of knowledge to students. Learners will be assisted when receiving the knowledge conveyed. The use of media has a role when providing learning experiences for students. Learning is communication between a person and other people, media, or with the environment [2].

Audiovisual media is a media that can comprehensively express the elements of image and sound when conveying news or information. In audiovisual lessons, you can express objects and events as real situations so that students can obtain information [2].

According to Sukadiyanto (2008, p.3) PE has two meanings, namely (1) education for the body, and (2) education through physical activity. Education for the body means that education aims to improve physical quality, for example: strength, endurance, speed, agility, coordination, balance, and so on. Education through physical activity means that physical activity is used as a tool to educate, while the purpose of education is the same as the purpose of education in general, namely the development of cognitive, affective, psychomotor, and kinesthetic aspects [3].

Javelin throw is one of the throwing numbers of athletics. The javelin throwing movement is relatively the easiest compared to other throwing numbers, for example: shot put, discus throw, and hammer throw, because the movement is the most natural compared to other types of throwing [3]. In physical education athletic material teacher creativity is needed to give birth to motion ideas that are easily carried out by students, teachers can utilize simple tools and the most important of all is the excitement factor in children arising from these activities, so that children are interested and start to like athletic sports [4].

Based on observations at SMA N 1 Bantarbola during this pandemic, teachers only give assignments and provide material through google classroom so that it is still considered insufficient as a support for the online learning process. According to the PE teacher, students are less enthusiastic in learning PE, including in the javelin throwing material, this can be seen from the students' response to the material provided by the teacher, the presence of students who are often late and some are not present at all, in the collection of assignments there are still many who do not collect their assignments. With innovative learning media, it can increase students' interest in learning.

Based on the results of [5] [6] research, the development of android-based learning media is very good for increasing student interest and motivation to learn, because android is used by students in their daily lives.

Based on the background above, researchers are interested in making the development of android-based javelin throwing learning media with the name "My Javelin Throw".

2. Research Method

The definition of Development Research or Research and Development (R&D) is often defined as a process or steps to develop a new product or improve existing products [7]. This research is a development research (Research and Development) which uses the Borg and Gall model with 10 research stages, namely: information needs analysis, planning, initial product development, initial field trial, revision of trial results, main product field test, product revision, wide-scale field trial, final product revision, dissemination and implementation [8].

The sample in this study were SMA Negeri 1 Bantarbolang Class XI MIPA 1 students for small-scale product trials and all SMA Negeri 1 Bantarbolang Class XI students for large-scale product trials.

The quantitative data analysis technique in this study uses descriptive statistical analysis, which is in the form of statements that are very less, less, quite good, good and very good which are converted into quantitative data on a scale of 5, namely by scoring from numbers 1 to 5.

Data analysis using theoretical analysis based on the data obtained and then analyzed using theories that have been put forward [9]. The steps in data analysis include: collecting rough data, scoring, the scores obtained are then converted into values with a scale of 5 according to Suharyanto, 2007: 52 which is presented in the table below:

Score	Rate	Categories
X > 4,21	A	**Very Good**
3,40 < X ≤ 4,21	B	**Good**
2,60 < X ≤ 3,40	C	**Good Enough**
1,79 < X ≤ 2,60	D	**Enough**
X ≤ 1,79	E	**Very Less**

Table 1. scoring criteria
(Suharyanto, 2007: 52)

3. Result and Discussion

My Javelin Throw has undergone 4 stages of revision based on evaluations conducted by media experts, subject matter experts, large-group testing, and small-group testing. As a result, a developed javelin throwing learning media product based on Android was obtained, which is deemed suitable for use as a learning media for students of SMA Negeri 1 Bantarbolang.

a. Media Expert Validation Results

The results of the validation of android-based javelin throwing learning products by media experts are the average scores given to the display aspects and programming aspects of these things have been presented in the table below:

Table 1. Media Quality Results of Media Expert Validation

Assessment Aspect	Expert	Media	Average	Category
	Phase I	Phase II		
Display Aspect	80%	77,14%	78,57%	Good
Programming Aspects	80%	80%	80%	Good

b. Material Expert Validation Results

The results of the validation of android-based javelin learning products by material experts are the scores obtained in the aspects of learning quality and the quality of the content of the material the results of the assessment have been presented in the table below:

Table 2. Media Quality Results of Material Expert Validation

Assessment Aspect	Expert	Media	Average	Category
	Phase I	Phase II		
Learning Aspects	80%	80%	80%	Good
Aspects of Material Content	80%	84%	82%	Very good

c. Small Scale Trial

The assessment of learning products during the small group trial was included in the "Very Good" criteria with an assessment score of 86.03%. These have been presented in table 3 below:

Table 3. Quality of Android-Based Javelin Throwing Learning Media from Small Scale Trial

Results

Assessment Aspect	Average Score	Kriteia
Display Aspect	85,24%	Very good
Learning Aspects	86,82%	Very good
Overall Average	**86,03%**	**Very good**

d. Large Scale Trial

Student assessment on the display aspect explained that the Android- based javelin learning media had a "Very Good" quality with a score of 82.91%. As well as the learning aspect obtained a quality of "Very Good" with a score of 82.19%

Table 4. Quality of Android-Based Javelin Throwing Learning Media Results of Large Scale Trial

Assessment Aspect	Average Score	Kriteia
Display Aspect	82,91%	Very good
Learning Aspects	82,19%	Very good
Overall Average	**82,55%**	**Very good**

According to the observation of small-scale trial data, a percentage of 86.03% was obtained. Based on the quality that has been determined, this android-based javelin learning media meets very good quality. Therefore, the small-scale trial application is suitable for use by SMA Negeri 1 Bantarbolang students. The thing that this media can be accepted by SMA Negeri 1 Bantarbolang students is that from all the criteria tested, students can use the application properly. This android- based javelin throwing learning media can be well received by SMA Negeri 1 Bantarbolang students, so this small-scale trial model can be used for SMA Negeri 1 Bantarbolang students.

Based on observations of large-scale trial data, a percentage of 82.55% was obtained. Based on predetermined standards, android-based javelin throwing learning media is very good, it can be concluded that the development of android- based javelin throwing learning media is suitable for SMA Negeri 1 Bantarbolang students.

Discussion

After going through 2 revisions based on evaluations conducted by media experts, material experts and trials on a small scale and large scale, it can be obtained that the product development of android-based javelin throwing learning media with the name "My Javelin Throw" is suitable for use as an interesting and innovative learning tool.

The following is the appearance of the "My Javelin Throw" application shown in the picture

Figure 1. Main Menu Display

Figure 2. Menu View *"Teknik"*

Figure 3. Menu View *"Video"*

Figure 4. Menu View *"Quiz"*

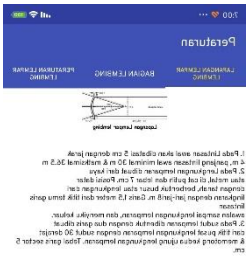

Figure 5. Menu View *"Peraturan"*

Figure 6. Menu View *"Petunjuk"*

The advantage of this application is that it makes it easier for students to learn with new and innovative media. In addition, the material displayed is complete starting from history, material, videos and practice questions. However, this application also has disadvantages including that it can only be used for android devices, not yet multi-platform, besides that an internet connection is needed to be able to play videos in the application.

Learning media makes it easier for students to learn. Especially if you use modern media that is currently in great demand by students, namely smartphones [10]. This research is in accordance with [11] research that the interactive media displayed in the application, makes students more interested in learning. It is also similar to [12] research that android applications that are widely used by students in their daily lives, would be very good if they are also used for learning.

The word "Media" comes from Latin which is the plural form of "medium", literally meaning intermediary or introduction. Association for Education and Communication Technology (AECT), defines the word media as all forms and channels used for the information process. [13].

The benefits of learning media are as follows [13]:

a. Equalizing Student Perceptions. By seeing the same object and consistently, students will have the same perception.
b. Concretize abstract concepts. For example, to explain the government system, economy, wind blowing, and so on. can use images, graphs or simple charts.
   Bring objects that are too dangerous or difficult to obtain into the learning environment. For example, the teacher explains using pictures or movies about wild animals, erupting mountains, oceans, the north cap etc.
c. Displaying objects that are too big or small. For example, the teacher will convey an overview of a ship, airplane, market, temple, and so on. Or display objects that are too small such as bacteria, viruses, ants, mosquitoes, or other small animals/objects.
d. Showing movements that are too fast or slow. By using slow motion techniques in film media, you can show the trajectory of a bullet, the flight of an arrow, or show an explosion. Likewise, movements that are too slow such as the growth of sprouts, the blooming of wijaya kusumah flowers and others.

4. Conclusion

Based on the results of research and validation of media experts and material experts, it can be concluded that android-based javelin throwing learning media with the name "My Javelin Throw" is suitable for use.

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