



The development of mobile learning based physical fitness learning media in grade x high school students in Pasuruan Regency

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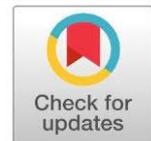
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Abstract: This research aims to develop a mobile learning-based learning media based on physical fitness material for high school students in grade ten. The method used in this study is research and development. The data collection technique uses interviews with sports teachers and the distribution of questionnaires to grade ten students at Senior High School 1 Purwosari, Senior High School 1 Gondangwetan, and Senior High School 1 Lumbang. The data analysis technique in this study utilized a Likert scale which examined the gradation of the score. The products are firstly validated by experts, such as media, learning and material experts. The score results of each validator are 93% of the scores from the validation of media experts, 82% of the scores from the validation of learning experts, and 84% of the scores from the validation of material experts, while for large group trials, the score obtained is 85%. Thus, referring to the data results, the development of the product in this research is feasible, can be used and disseminated.

Keywords: physical fitness; learning media; mobile learning.

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INTRODUCTION

Education is a real and systematic effort to produce the spirit of studying through the learning process in order to push students to play an active role to foster their potential in mastering religious spiritual power, self-regulation, noble character, and be able to have the expertise they need for the society, nation and country (President of the Republic of Indonesia, 2003). In general, what is meant by physical health is a person's resilience in carrying out activities every day efficiently and without feeling excessively tired so that they can return to their activities when filling their free time (Irianto, 2004). The basic components contained in physical fitness that needs to be considered include: the endurance of the heart and lungs, muscle endurance, muscle strength and flexibility.

Preliminary study was carried out by interviewing 3 sports teachers and the needs analysis was held in the form of distribution of questionnaires to 90 grade ten students from three different schools. The preliminary study was held on 21-24 January 2020. The results of the interviews with the sports teachers at Senior High School 1 Purwosari, Senior High School 1 Gondangwetan and Senior High School 1 Lumbang exposed that each school has incomplete sports facilities and infrastructure, but for the learning and teaching activities indoor, there were computer laboratories and LCD screen projectors available which were commonly used as teaching media.



The sports material given in grade X is in accordance with the current curriculum, one of which is physical fitness material. The sports teachers in two schools held 2 meetings, whereas one school had more than 4 meetings to complete the physical fitness material in one semester. Only one of the schools applied learning inside and outside the classroom, while the other schools conducted learning outside the classroom for physical practice.

The teaching materials used also vary. Some teachers only refer to the curriculum, using teaching books, but there are also those who use materials from the internet. The performance of the learning process in physical education, sports and health subjects in the three schools is still low, because the teachers were unable to optimally integrate the use of learning media. Referring to the results of the needs analysis in the form of questionnaire distribution to 90 students of Grade 10 prove that there is a compatibility with what the sports teacher stated during the interview. There were 76% students from each school who use textbooks to help them understand the physical fitness material better, and 68% of students say that they rarely receive online learning assignments to be done at home, and 83% of students agree if in learning sports, especially on the materials of health fitness, such as the components of heart and lung endurance, muscle endurance, muscle strength and flexibility should also be developed in the form of mobile-learning based learning media, because it is necessary to recognize the correct movements and theories besides that it can also be done from home.

Learning is an interaction involving educators and students which is supported through various learning resources such as printed books that can be considered effective in achieving a student's learning outcomes ([Mae, 2017](#)). Based on a research conducted by [Pamungkas & Dwijoyo \(2020\)](#), 100% students felt the need to learn using mobile-based learning media, 65% of students never used mobile applications, 100% of students felt the urge for having learning media as learning tools, 70% of students have ensured that mobile-learning based learning media is an appropriate learning tool, and 100% of students need mobile-learning media to understand physical fitness materials better.

The educational process that often prioritizes physical activity, sports and games, as well as having the use to develop physical, mental and emotional conditions in every individual or student effectively and thoroughly is through physical education ([Lengka & Sofa, 2017](#)). There are various materials in sports subjects, one of which is physical fitness. Physical fitness can be interpreted as the physical or body endurance of each individual when able to carry out activities every day without experiencing excessive fatigue and able to move to other activities ([Alamsyah et al. 2017](#)). Various kinds of physical fitness components that can be used as a benchmark of one's fitness include speed, strength, endurance, flexibility, balance, etc ([Gumantan et al. 2020](#)).

The purpose of learning media is that students are expected to be motivated and their learning desires to be increased when classes take place in order to achieve the desired learning goals. As the times pass, education and technology are required to be able to adjust with each other in order to meet the challenges

impacted by the evolution of individual needs from complex levels to an instant as a result of a new discovery in order to create modern education (Titting, et al., 2016).

Research conducted by Purwaningtyas (2017) entitled, “Development of Online Electronic Modules of Physical Education, Sports and Health Grade 11 through the use of Edmodo”, explained that the research development that has been carried out has reached trials in small groups and was categorized as good, proven through acquisition of a percentage of 82.5% from 12 students who voted at random elections. However, during the field trial (large group), the research received a higher percentage of 85.66% with the research subjects of 30 students. Thus, it can be concluded that online-based learning media can be effective if used as a teaching material for physical and health education.

Based on the background literature which has been presented, it can be drawn that in learning sports, specifically on physical fitness material, it is necessary to develop mobile learning-based learning media as to its practicality and flexibility to be used inside and outside the classroom. The hope of the implementation of the development of this product is to help students when understanding the material and that they are motivated to be active in the learning process. Therefore, the researcher will conduct a study entitled, "Development of Mobile-Learning Based Physical Fitness Learning Media in Grade Ten of High School Students in Pasuruan Regency".

METHOD

This research and development will refer to the multimedia development model that has been presented by Darmawan (2015) with the following steps: (1) analyzing the needs, (2) identifying the material, (3) determining the learning model, (4) creating a flowchart design or description of the procedure of the program, (5) writing a story board or explanation of each plot, (6) submitting the collection of graphics materials, (7) submitting the collection of animated materials, (8) programming, (9) finishing or final stage, (10) trial, (11) product revision. The stated steps are used to solve a research problem in which the results are in the form of a product.

The instrument used to collect data from experts and subjects of both small group and large group trials in the development of mobile learning-based learning media on physical fitness material is a questionnaire that suits the product needs. Questionnaires for specified experts are focused on the product that has been developed. The data analysis technique in this study uses a Likert scale by looking at the score gradation. Sugiyono (2012) explains that the Likert scale is used to measure the attitudes, opinions, and perceptions of individuals or groups of people about social phenomena. Based on the quantitative analysis, answers can be assessed from a scale of 1 to 5. The assessment scale is elaborated in the following table 1.

Table 1. Assessment Scoring Rubric (Sugiyono, 2012)

No.	Scoring Detail	Score
1.	Strongly Agree	5
2.	Agree	4
3.	Hesitant	3
4.	Disagree	2
5.	Strongly Disagree	1

RESULTS AND DISCUSSION

Based on a survey conducted on high school students in Grade Ten in Pasuruan Regency, when researchers-initiated observations by distributing questionnaires and interviews, it was inferred that there was a lack in the delivery of the teaching material or learning media used, as almost all schools only use printed teaching materials such as the book given by the ministry, without any other supporting teaching media, such as applications or video playbacks. Media is one of the teaching tools that can help achieve learning goals because it is a tool that can be utilized as a communication channel (Liu et al., 2018).

Learning media is a tool that can function as a liaison of information from the source of information to the recipient (Umar, 2021). Learning media is the ability of an object/tool used to direct information from its sources to students as the recipients (Arrasyid et al., 2020). Mobile learning refers to any application that is able to bridge teachers and students through an online learning process. Mobile learning is made with the aim of bridging boundaries between the teacher and students, especially in terms of different time, place, condition and circumstances. Mobile learning is made with the aim that both teachers and students can facilitate the learning process at any time and anywhere, without having to be in the same time and space when the learning process takes place (Biswas et al., 2020).

In connection with the statement that has been quoted, the researcher concludes that learning media or mobile learning is needed as a supporting tool so that the learning process can be easily done anywhere and anytime. Mobile learning media is expected to facilitate the achievement of learning objectives in accordance with the established competency standards. Based on the data collection obtained by the researchers, the needs analysis, learning media expert data, teaching expert data, material expert data and group trial data will be described as follows.

Needs Analysis

There are 76% of students from each school who use textbooks to support the physical fitness learning process and 68% of students said that they rarely receive online learning assignments to be done at home. Additionally, 83% of students agreed if in learning sports, especially on the physical fitness material, mobile-learning based learning media is developed in order to comprehend the context on heart-lung endurance, muscle endurance, muscle strength and flexibility better, because it is felt necessary to understand the correct movements and theories. To add, students were expected to be able to experiment it themselves at home.

The results of the interviews with sports teachers at Senior High School 1 Purwosari, Senior High School 1 Gondangwetan and Senior High School 1 Lumbang stated that the sports material given in Grade

Ten was 100% in accordance with the latest curriculum. The meeting held outside in each school is 65% of all meetings. The teaching materials used vary, as 75% of the respondents used only textbooks, whereas the 25% used not only textbooks, but also internet. The teaching of physical education, sports and health in those three schools is still considered low quality because the teachers were unable to optimally utilize learning media in the classrooms. Based on the preliminary research, namely the needs analysis, which was done by distributing the questionnaires to Grade Ten students, proves that there is a compatibility with what the sports teachers stated during the interview.

Based on the survey distributed, 83% of the students agreed that in sports subjects, the teaching of physical fitness materials should be further developed. The researchers inferred the interview results which explained that the learning media used mostly only referred to textbooks, without any interesting application or other supporting teaching media used. According to previous research conducted by Prayoga et al. (2022), there needs to be developments in the form of innovative learning models that are modified into fun games to provide students with a sense of comfort and to avoid having them feel forced to participate when the learning process takes place.

Learning Media Expert Data

In connection with the data that has been obtained through the validation of the R&D experts, a percentage of 93% is obtained as the average score of all aspects. Furthermore, it is elaborated that in the aspect of text assessment, a score of 100% is obtained, while in the aspect of picture/photo, a score of 96% is received. Additionally, the audio/sound aspect obtained 100%, the video aspect obtained 87%, the design aspects/display obtained 85%. Thus, the data above classified the product quality assessment criteria to be scaled in the "Very Good" criteria. The product of developing mobile learning based physical fitness learning media in Grade Ten high school students in Pasuruan Regency can be continued in group trials

Referring to a previous study carried out by [Arief et al. \(2021\)](#), the assessment of media experts that the team developed consisted of 6 aspects, in which the average of the percentage obtained is 91%, so it shows that the product developed is valid and feasible to be used in group trials. Based on previous research by [Arief et al. \(2021\)](#) and what has been carried out by researchers there is a similarity that the products made have the criteria for "very good" and can continue research on group trials in the next stage.

Teaching Expert Data

Related with the data that has been obtained through the validation of learning experts, a score of 82% is obtained of the average of all aspects outlined; the clarity assessment obtained 88%, aspects of accuracy obtained 80%, aspects of suitability 80%, aspect of convenience obtained 80%, and aspect of attractiveness obtained 80%. From the data above, it can then be drawn that the product quality assessment criteria received the "Very Good" criteria, so group trials can be carried out in the next stage.

Referring to the data that has been obtained through the validation of learning experts, an average score of 82% is obtained from the average of all aspects of the assessment, therefore the conclusion obtained is that

the product of developing mobile learning-based physical fitness learning media for Grade Ten high school students in Pasuruan Regency can be trialed for testing try groups. Referring to previous research data conducted by [Ardilla et al. \(2021\)](#) in which the assessment of learning experts consisted of three aspects, the percentage obtained was 90%. This indicates that the product developed is valid and suitable for use in group trials.

Material Expert Data

In line with the data that has been obtained from the validation of teaching experts, an average percentage of 84% is obtained of all aspects, which when translated into the clarity assessment aspect obtains 81%, the accuracy aspect obtains 100%, the suitability aspect obtains 80%, the convenience aspect obtains 80%, and the attractiveness aspect 80%. The data obtained is then classified in the product quality assessment scale criteria. It was concluded that the product of developing mobile learning-based physical fitness learning media for grade ten high school students in Pasuruan Regency also obtained the criteria of "very good", so group trials can be carried out for the next stage.

In regards with the data that collected through material expert validation, 84% is obtained as the average score of all aspects of the assessment, therefore the conclusion obtained is that the product being developed can be used for testing try groups. Similarly, the product developed by [Firdaus et al. \(2020\)](#), in which the expert assessment of physical fitness there are 5 aspects, the percentage obtained is 88%, indicating that the development product is valid and suitable for use in group trials.

Group Try Out

Concerning the results obtained from the validation of large group trials, an average of 85% of all aspects was obtained, which was then elaborated into: the clarity assessment aspect obtained a score of 85%, the attractiveness aspect obtained 85%, the convenience aspect obtained 84%, the usability aspect obtained 86%, and the score for conformity aspect was 85%. After that, these data were classified in the product quality criteria rating scale. Thus, it can be concluded that the product of developing mobile learning-based physical fitness learning media for grade ten students in Pasuruan Regency has received the criteria of "very good" and receive no revisions, which meant that it can be used in high school / equivalent for grade ten.

Referring to the data that has been obtained through large group trials, an average score of 85% of the average of all aspects is received. Nevertheless, the conclusion that can be obtained is that the product of developing mobile learning-based physical fitness learning media for grade ten students in Pasuruan Regency has been categorized into very good criteria, thus it can be used in high school/equivalent schools for grade ten and received no revisions. This was supported by a study conducted by [Mukhlis et al. \(2020\)](#), in which after conducting group trials, a percentage of 87% was obtained, indicating that the product developed is valid and feasible to use without any revisions.

CONCLUSION

To conclude, with the development of a physical fitness learning media product for grade ten high school students, sports teachers are to find convenience and practicality in terms of delivering physical fitness material inside and outside class hours. The product can be used to enhance student knowledge and is able to motivate students' learning desires, even though they are studying inside or outside school hours. It is also expected that students will gain new knowledge when practicing independently or in groups.

Based on this explanation, the conclusion obtained is that the developed product of physical fitness material for grade ten high school students is feasible to be used as teaching materials as well as learning resources, and can also be used as a reference for future related product developments.

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