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Development Of Interactive Learning Media for Volleyball Games Based on The Adobe Flash Professional Application Through Student Learning Outcomes

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Abstract

The objectives of this study are 1) Producing interactive learning media for volleyball games based on the adobe flash professional application to improve student learning outcomes, 2) Knowing and analyzing the level of effectiveness of using interactive learning media adobe flash professional application-based volleyball games to improve student learning outcomes 3) Producing a product that can be helpful to accepted by teachers and students as a means of facilitating the learning process volleyball game. This research uses research and development (R and D) methods with experimental design (before-after). The population in this study was junior high schools at SMPN 1 Tegal, SMPN 5 Tegal, SMPN 6 Tegal, SMPN 7 Tegal, SMPN 8 Tegal, SMPN 14 Tegal, SMPN 15 Tegal, SMPN 17 Tegal, SMPN 18 Tegal and SMPN 19 Tegal. The sampling technique used a saturated sampling of 58 students. The results of this study: 1) Volleyball interactive learning media products based on the adobe flash professional application, which is an application that can be accessed via smartphones and computers. 2) Volleyball interactive learning media products based on the adobe flash professional application are effectively used in learning volleyball forms volleyball theory and practice. Then the productvitas effect test research showed that volleyball learning media based on adobe flash professional applications have "Excellent" quality, averaging 81.8% in the volleyball learning process. Based on the results of the study, it can be concluded *that an* adobe flash professional-based interactive learning media *product* has been produced, and the results of the product assessment show that teachers and students have a high interest because they have a good level of product effectiveness.

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INTRODUCTION

Sports education is physical education, and sports are a regular and continuous educational process to acquire knowledge of personality, skills, health, and physical fitness. Sports education as part of the general education process carried out by education units, both formal and non-formal education units, is usually carried out by educational teams at each level of education; physical education teachers assisted by sports personnel guide the implementation of sports activities.

Kuntjoro (2020) states that sports are one of a person's physical and psychological activities that help maintain and improve one's health. According to Avip (2020), Penjasorkes is a stage of a general education program that contributes to children's overall growth and development, primarily through movement experiences. According to Rafikoh (2018), Physical education is a stage of a general education program that contributes to children's overall growth and development, primarily through movement experiences. According to Kusmiyati (2018), Penjasorkes is an educational process through physical activities and, at the same time, is an educational process to improve physical abilities (psychomotor), improve attitude abilities (affective), and improve intellectual abilities (cognition). According to Liu (2020), Effective sharing of online educational resources can facilitate the development of in-class and out-of-class integration of physical education.

Volleyball games have two techniques, namely *passing* strategies and service techniques. According to Saputra (2019), Volleyball games have basic processes, which include serve, passing, smash, and block. *Bottom passing* is the essential basic technique taught to students or beginner players. *Bottom passing* is done with both arms to pass or play on one's field. According to Achilleopoulos (2022), volleyball players' performance is influenced by a series of physical and physiological parameters.

Kastrena (2020) states that bottom passing is one of the basic techniques in the game of volleyball that serves to give passes to teammates. The movement of the bottom passing technique involves several activities of the limbs, including foot position, body position, the position of both hands and further actions. These body parts are a series of lower passing movements that cannot be separated in execution to produce good bottom passing quality and perfection. Top passing is done with both arms to pass or play on one's field. The upper passing technique involves several movements of the limbs, including foot position, body

position, the position of both hands, and further actions. These body parts are a series of upper passing movements that cannot be separated in execution to produce perfect upper passing quality.

In the volleyball learning process during learning, there is a component to support the essential technical skills of the volleyball game students. These components consist of mastery of basic volleyball techniques, understanding the learning theory of volleyball games, and understanding how to apply a method in delivering a learning playing volleyball. Optimal volleyball learning can be carried out with various supporters; these supporters are a medium that can help the smooth process or not of a volleyball learning game. Learning is a process in helping students who at first can only do the basic technical movements of the game of volleyball they can do the exercises properly and correctly.

Syarif's (2018) learning outcomes are values that can be used as concrete evidence of changes experienced by people who learn. Moon (2022) Capitalizing on reflective practices to examine the existing knowledge base and its implications for future teacher education programs is crucial. According to Imansyah (2018), Learning outcomes are marked with assessment criteria; some are bad, enough, good, and very good. Poor learning outcomes are usually characterized by patterns and ways of students' attitudes during the learning process.

The learning results conclude that physical education is the final result owned or obtained by students after experiencing the learning process. A scale of values characterizes physical education in the form of letters, symbols, or numbers; this is usually used as a benchmark for the success or failure of these students in physical education learning using Adobe Flash Professional application media tools on volleyball service and passing materials.

According to Putri (2019), learning media is used by teachers as a communication tool to convey the message or purpose of learning itself. Sukiyandari (2018) Effective learning is using appropriate learning methods and media by the subject matter a teacher means to students. According to Ajid (2019), audio-visual media allows teachers to show things to students that may not be said clearly. According to Fakhri (2018), learning media using Macromedia Flash can increase student interest in learning. According to Choirun (2020), the expected development by providing a learning medium to students can later improve the quality of their education. According to Socrates (2021), the animation presented contains too much

information, and students will need help digesting the information. Adobe Flash Professional application-based learning media is a media that can elicit a good response from students. The media displays an image, a video summarized into a single unit in a file as an animated video. Learning media is embedded through animated videos so that the media will be more accessible during the learning process both in class and in the field.

Android is a comprehensive, open-source platform designed for mobile devices. Android is a Linux-based operating system intended for mobile devices. Bhakti C.P (2020) concluded, "so it is expected that from the development of android applications exploration career based on multiple intelligence can make students better understand information about good and true dual intelligence based career exploration."

Android is the right operating system to use for mobile learning development. Ilmi (2021) concluded that operating on a smartphone has fun with an android operating system (Ramadan et al., 2020; Ilmi, 2021). Multimedia learning significantly influences and benefits students in increasing motivation and learning outcomes at school. Multimedia interactive learning of volleyball games is expected that students can understand the concept first so that students who cannot do basic volleyball game technique movements will be able to do basic volleyball game technique movements and, at the same time, can improve learning outcomes. According to Sartono (2022), interactive multimedia for elementary school students determines the effectiveness of interactive multimedia.

According to Haryanto (2020), Interactive media is a very complex media that combines several media elements involving integrated text, graphics, images, photos, audio, video, and animation. Interaction between teachers and students, students and students encourages an innovative learning process, which can trigger every activity and bring up a creative mindset idea. Good learning can be supported by a conducive learning atmosphere, and communication between teachers and students can run well through these learning media.

When learning volleyball practice, students are previously expected to understand in advance what will be delivered by the teacher by seeing and understanding the animated learning media that has been displayed during the learning process. They said that several factors caused students' lack of skills in volleyball games: students had difficulties in the online

learning process due to signal constraints, students had difficulty mastering the material in online learning, and teachers could not accompany students when doing practice at their respective homes.

The following are the results of the skill test of grade VIII students during online learning of volleyball game material. Based on interactive multimedia, researchers intend to highlight the learning process so that students can learn by utilizing various media, such as images, text, and videos, all of which students can control and control as needed in learning. So that the learning interaction between teachers and students is well established and is expected to have an impact on learning outcomes that are able to achieve these learning objectives.

The results of observations were obtained that the results of skill tests in volleyball games for grade VIII students at SMP Negeri 17 Tegal, SMP Negeri 18 Tegal, SMPN 14 Tegal, SMPN 15 Tegal, and SMPN 8 Tegal had not significantly improved during online learning, because during online learning SMPN 17 Tegal students from 32 students who did not participate in learning as many as 20 students and who were actively learning as many as 12 students. At SMPN 18 Tegal, out of 31 students who did not participate in online learning, 20 and 11 were actively learning. At SMPN 14 Tegal, out of 30 students who did not participate in online education, 18 and 12 were actively learning. At SMPN 15 Tegal, out of 32 students who did not participate in online education, there were 20 students and 12 students who were active in learning. At SMPN 8 Tegal, out of 31 students who did not participate in online learning, 19 and 12 were actively learning. The average score in class VIII A at SMPN 17 Tegal was 29.02, class VIII A at SMPN 18 Tegal was 27.93, grade VIII A at SMPN 14 Tegal was 31.70, grade VIII A at SMPN 15 Tegal was 27.92, class VIII A at SMPN 8 Tegal was 30.39, class VIII A at SMPN 1 Tegal was 38.51, Class VIII A at SMPN 5 Tegal was 28.52, class VIII A at SMPN 6 Tegal was 25.28, class VIII A at SMPN 7 Tegal was 32.73 and class VIII A at SMPN 19 Tegal was 33.89. So with these results, it can be said that the average score achievement has not been able to reach the KKM (Minimum Completeness Criteria) set by schools (SMPN 7 Tegal, SMPN 8 Tegal, SMPN 15 Tegal, SMPN 17 Tegal, and SMPN 18 Tegal) which is 75, schools (SMPN 14 Tegal) which are 77, SMPN 6 Tegal schools are 70, schools (SMPN 5 Tegal and SMPN 19 Tegal) are 76 and SMPN 1 Tegal school are 80.

Based on these problems, researchers provide solutions through more interesting

learning media. The learning media used is animated learning media assisted by Adobe Flash Professional applications applied to sports learning.

So that the results of applications on computers or mobile phones (Android) can be used as much as possible to improve student learning outcomes, the objectives of this study are 1) Produce interactive learning media volleyball games based on adobe flash professional applications to improve student learning outcomes, 2) Know and analyze the level of effectiveness of using interactive learning media volleyball games based on adobe flash professional applications to improve student learning outcomes, 3) Produce a product that can be helpful to accepted by teachers and students as a means of facilitating the learning process of volleyball games.

METHODS

The variables studied: 1) The independent variables are: interactive learning media volleyball games based on adobe flash professional. 2) Dependent variables namely: student learning outcomes. This research was conducted in 10 Junior High Schools (SMP) in Tegal City. The research and Development method is used to produce a particular product and test its effectiveness (Ramadan & Juniarti, 2020; Iskurniawan; 2020). Research and development are carried out to correct weaknesses in the field test stages.

Qualitative data is in the form of criticisms and suggestions put forward by media and material experts, sports teachers, and students. At the same time, quantitative data results from product assessment and product effectiveness in helping students during the volleyball learning process. This research technique is carried out to collect data that will be used to assess and determine the feasibility of the product developed by the researcher. The stages of testing this product include: 1). Establish a trial design, 2). Assign test subjects, 3). Assign data types, 4). Assign instruments, and 5). Data analysis techniques.

The instruments used to collect data in this study were questionnaires and interview guidelines. Interview guidelines are carried out at the time of initial observation. Tools given to media experts, material experts, and students are used to determine the quality of the feasibility of product produced and the effectiveness of the product in helping students in the volleyball learning process. The instrument is used as a tool to collect data from material experts, media experts, and students, in connection with criticism, suggestions, and improvements and test the extent to which this product can help

students, then also useful for the quality of the products produced. The data obtained through trials are classified into quantitative and qualitative.

Qualitative data is in the form of criticisms and suggestions by media experts, material experts, teachers, and students. Then it was compiled to improve the development of interactive learning media for volleyball games based on Adobe Flash Professional applications. Quantitative data analysis techniques in this study use descriptive statistical analysis in the form of statements remarkably lacking, lacking, good enough, sound, and very good, which are converted into quantitative data on a scale of 5, namely by scoring or scoring from numbers 1 to 5. The steps in data analysis include 1) Collecting rough data, 2) Giving skol / value, and 3). Score/value obtained and 5) Converted into a value with a scale of 5.

FINDINGS AND DISCUSSION

1) Produce interactive learning media volleyball games based on adobe flash professional applications to improve student learning outcomes. 2) Generate the level of effectiveness of the product using interactive learning media volleyball games based on adobe flash professional applications to improve student learning outcomes. 3) Produce a product that can be useful and accepted by teachers and students to facilitate the learning process of volleyball games.

Findings

The volleyball practice assessment was divided into two sessions in the control class. The first session of test assessment, pre-test evaluation, and direct volleyball practice assessment without any process of understanding the material and treatment using adobe flash professional application-based volleyball learning media, and the second session of post-test evaluation test assessment, and direct volleyball practice assessment without any process of understanding the material and treatment using adobe flash professional application-based volleyball learning media. In understanding the material and treatment using adobe flash professional-based volleyball learning media, two meetings were held in the experimental class.

The following are the results of the assessment of student learning outcomes in the control class before there was treatment using adobe flash professional-based learning media with the average results of final student scores (pre-test) in the control class of 76.2 with the results of "Good" criterion of 76.2% and the assessment of final student results (post-test) in the control

class of 80.0 with an impact of the "Good" bar of 80.0%. Then there are the average results of students' final scores in the experimental class (pre-test) of 77.6 with the results of the "Good" criterion of 77.6% and the assessment of students' final results (post-test) in the experimental class of 83.6 with the results of the "Very Good" criteria of 83.6%.

Table 1 Analysis of Dor Uji Effectiveness of Produk

Class	Treatment	Average	Persentase	Average
Control Class	Pre Test	76,2	76,2%	Good
	Post Test	80,0	80,0%	Good
Experimental	Pre Test	77,6	77,6%	Good
Class	Post Test	83,6	83,6%	Excellent
Overall Average			**81,8%**	Excellent

Discussion

Research conducted by Andung Dwi Haryanto (2020) entitled "Development of Volleyball Learning Media for Vocational High School Students." This conclusion is a volleyball learning media for vocational students that refers to the 2013 curriculum, packaged in one keeping Compact Disc that contains elements of text, images, video, and sound. Volleyball learning media for vocational students that refer to the 2013 curriculum can effectively improve student understanding.

Research conducted by Try Sevita Haryanto (2020) entitled "Development of Volleyball Game Learning Using Interactive Media in SMP Negeri 6 Situbondo Regency. This conclusion results from product research in the form of interactive media volleyball games suitable for use in SMP Negeri 6 Situbondo Regency. Dzulfikar WS (2021) conducted research entitled "Development of Multimedia Learning of Volleyball Material in Health Assessment Subjects. This conclusion is the production of multimedia learning products for volleyball material in teaching subjects suitable for use in teaching and learning activities.

Product description of volleyball learning media development based on Adobe Flash Professional application that can be accessed via computer and smartphone. The resulting adobe flash professional application-based volleyball learning media development product is the volleyball learning media application. (Iskandar & Ramadan, 2019; Ramadan & Ningrum, 2019) This application contains materials on volleyball learning in volleyball subjects, volleyball theory and practice in junior high school (SMP), and videos that

can help students practice volleyball. This application can also be applied to teachers and students from elementary to high school, with a note that practicing and learning volleyball must always be accompanied by coaches, teachers, and parents (Hadiana et al., 2020). The assessment of product effectiveness tests shows that volleyball interactive learning media based on the Adobe Flash Professional application has "Very Good " quality with an average percentage of 81.8% in the volleyball learning process.

CONCLUSION

The study's conclusion shows that the interactive volleyball learning media based on the Adobe Flash Professional application is effectively used in volleyball learning through volleyball theory and practice in ten Junior High Schools (SMP) in the Central Java region, namely Tegal City. The average learning result of students (pre-test) in the control class was 76.2 with the results of the "Good" criterion of 76.2%, and the assessment of the final results of students (*post-test*) in the control class was 80.0 with the results of the "Good" criteria of 80.0%. Then the average effect of students' final scores in the experimental style (pre-test) was 77.6 with the results of the "Good" criterion as much as 77.6%, and the assessment of students' final results (*post-test*) in the experimental class was 83.6 with the results of the "Very Good" criteria as much as 83.6%.

Based on the study's results, it can be concluded that interactive learning media products based on *adobe flash professional* have been produced. The product assessment results show that gurus and students are highly interested because they have a good level of effectiveness.

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