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Interactive Multimedia Gamification-Based Physical Fitness Activities In Nearpod Platform

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Abstract

The ever-evolving digital era, the use of multimedia technology in education is essential in learning, including in physical education. The urgency of this study is that physical education in Indonesia is currently facing an emergency situation due to the lack of efficiency in learning in schools and the lack of understanding of the importance of introducing physical education with the help of technology supported by the observation of researchers on Physical Education, Sports and Health or abbreviated as PJOK is a learning process that aims to improve cognitive, affective and psychomotor skills teachers in Karawang Regency with different teaching places resulting in the use of this website-based learning technology is very lacking. And the students faced are nativ generation students who have understood technology media since childhood. The purpose of the study is to develop a gamification-based interactive multimedia on the *Nearpod platform* to increase individual engagement and motivation in physical fitness activities. In addition, this study also aims to evaluate the effectiveness of the *platform* in improving user participation and physical fitness outcomes. This research uses the R&D (*Research & Development*) method with the ASSURE development stage. The ASSURE stage consists of six stages, namely: Analyze Learners, States Objectives, Select Methods, Media, and Material, Utilize Media and Materials, Evaluate and Revise, This research involves 4 validators, namely material, media, digitization and engineering experts and 40 grade IX students of SMP 1 Tempuran Karawang RegencyBased on the results of research and development of interactive multimedia physical fitness activities obtained validation results by media experts, materials, and digitization showed results of 81%, 83%, and 83%, respectively, which were classified as valid but required revision. This multimedia was piloted on students and received a "very decent" response with an average score of 83%, indicating its appeal and usefulness

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INTRODUCTION

Education will never be separated from the term "learning" because the learning process known as education is usually carried out by formal institutions. The term learning is synonymous with education, both of which are mutually sustainable. In addition, learning is a unit that aims to maximize student learning activities in order to expand knowledge. Around the world, the improvement of the quality of human resources is highly dependent on the field of education(Bunyamin et al., 2020).

Mohammed (2022) said that education is polished in various ways in various countries. However, in our country, Indonesia, the field of education has been regulated by law, namely laws in order to solve problems and for the advancement of education. Arms & Sofas (2017) said that one of the indicators of learning achievement in Indonesia is contained in the mandate of the preamble to the 1945 Constitution which contains educating the life of the nation, therefore the Government with various efforts to meet the goals of Education.

Maulana & Kiram (2019) said that Penjas moves through environmental health, aspects of a healthy lifestyle, by using carefully designed health and sports activities to achieve educational goals. Purwant0, et al (2020) believes that improvement will occur through activity, namely doing physical activities, a series of continuous and regular movements is the meaning of sports. Physical education encourages growth in terms of physical fitness, as has been said before. Bahari et al (2015) said one of the indicators of how well students are learning in physical education is their fitness level. Physical fitness is one of the important aspects related to human health (Suherman, 2019).

However, challenges in learning are often raised, especially in maintaining students' interest and motivation to actively participate in physical activities, especially in an era where digital technology has penetrated into various aspects of life (Santoso, 2019). In the era of the Industrial Revolution 4.0, there has been rapid progress in information and communication technology, which has an impact on the development of the type of educational instructional media used in the learning process (Sugihartini &

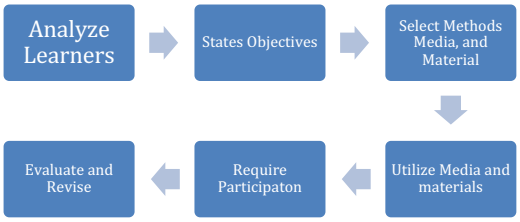
Yudiana, 2018). Meanwhile, free time is used more to watch TV or play games (Ambardini, 2019). Existence *platform* Interactive multimedia that not only provides information about physical fitness, but also presents it in an engaging and entertaining way (Biassari & Putri, 2021). Gamification is the application of game principles in the context of *Non-Game* to increase engagement, motivation, and learning. In the context of Penjas, gamification can be applied to increase students' motivation in undergoing physical fitness activities, such as gymnastics, running, or other sports(Ahmad Farhan Sagara et al., 2023).

Syafruddin (2023) said that physical education in Indonesia is currently in a precarious situation due to inefficient physical education learning in schools and lack of understanding of the need for physical education learning that is not socialized from an early age with technology. Researchers have made observations on 4 teachers of Physical Education, Sports, and Health (PJOK) in 4 different schools in the Karawang area on July 19, 2024, to find out the extent to which the use of web-based learning media is applied by these teachers. The results of observations show that an average of 39 percent of teachers in using learning media based on *website* in the Low category. Therefore, there is a need for development *platform* Interactive multimedia that uses gamification approaches to increase user engagement and motivation in physical fitness activities(Ahmad Farhan Sagara et al., 2023). *Platform Nearpod* offers features that allow users to interact directly with multimedia content, making it a great choice for interactive fitness app development (Inanta et al., 2022). However, the implementation of physical education teaching is not seen as effective as expected, physical education learning tends to still be applied traditionally (Arifin, 2017). . Application *Nearpod* suitable for use in learning that allows direct interaction (*offline*) or not directly (*Online*)(Pazah et al., 2024). Therefore, the researcher conducted the Development of Interactive Multimedia Physical Fitness Activities Based on Gamification on the Nearpod platform.

METHODS

This research uses a **Research and Development (R&D)** approach, which aims to create and develop a product in the form of interactive multimedia based on gamification. The product development process in this study is carried out by applying **the**

ASSURE development model which consists of six stages.



The population of this study is PJOK teachers in Telagasari sub-district totaling 29 respondents and 40 students of SMP 1 Tempuran for media needs analysis. Individual Scale Test as many as 6 students, small scale test as many as 12 and large scale test for 26 students in grade 9 of State Junior High School 1 Tempuran, Karawang Regency.

The data collection technique uses interviews, observations, and docmnetation. Data collection begins with an analysis of student needs, determining the purpose of the media, determining methods, materials and media, use, student participation and evaluation.

Data analysis is analyzing the results of expert validation and observation of indivud, small and large scale tests

RESULT

Based on the observation of the research, it can be concluded that the overall use of the website for the learning of the penjas is 39% if categorized as TCR in the low category in the use of website media in PJOK learning. And supported by observation data on student media use, data of 0.65 concluded that students need a new atmosphere in the learning process by using interactive learning multimedia. From the needs analysis data, the researcher made an initial product of multi-media interactive physical fitness activities based on gamification on the nearpod platform. Then the product is developed based on expert validation and input on the development of interactive multimedia.

Validator name	Input
Dr. Rolly Afrinaldi S.Pd., M.Pd. (Physical Fitness Materials Expert Lecturer)	Adjusted to TKSI
	The duration of each movement is calculated according to the theory
Dr. Fahrudin S.Pd., M.M. (Lecturer of Learning Media Expert)	Music is placed in the intro
	On each slide, an explanation is given
	Use appropriate colors
	Provide captions to loyal images
Dr. Ir Yuliarman Saragih S.T., M.T. (Interactive Multimedia Expert Lecturer)	At the time of implementation, it is easier to provide learning media links do not have to use barcodes

Based on the results of expert validation related to the suggestions on the product developed, then the researcher conducts a percentage of quantitative data that has been assessed by experts.

Expert	Assessed Aspects	Percentage
Material	Content Standards	80 %
	Penyajian	83 %
Media	Display	75 &

	Penyajian	90 %
Digitalization	Content Standards	93
	Penyajian	

Based on table 4.13, the results can be known that the value of the validation results of media experts is 81% with a valid category but must go through the revision stage according to the direction of media experts. In the validation of the material expert, the result value was 83% with a valid category but needed to be revised in accordance with the direction of the material expert. It is known that the value of the validation results of digitalization experts is 83%.

After passing the validation stage, the researcher conducted product trials on both individual, small and large scales on 9th grade junior high school students at State Junior High School 1 Tempuran, Karawang Regency.

Aspects	Perseta	Criteria
Tennis	93 %	Highly Worthy
presentation	90 %	Highly Worthy
Media Quality	83 %	Proper

Based on the table above, the percentage of individual scale test results as many as 6 students in the first Mnenengah school students got a result of 88% in the very feasible category. Next, the researcher will conduct a small-scale test.

Aspects	Perseta	Criteria
Tennis	83 %	Highly Worthy
presentation	85 %	Highly Worthy
Media Quality	82 %	Proper

Based on the table above, the percentage of small-scale test results as many as 12 students in the first Mnenengah school students got a result of 83% with the appropriate category. Next, the researcher will conduct a large-scale test.

Aspects	Perseta	Criteria
Tennis	89 %	Highly Worthy
presentation	84 %	Highly Worthy
Media Quality	78 %	Proper

Based on the table above, the percentage of large-scale test results as many as 24 students in the first Mnenengah school students got a result of 83% in the very feasible category. Next, the researcher will conduct a small-scale test.

DISCUSSION

This should clearly explain the main conclusions of the work highlighting its importance and relevance. In this study, the use of web-based learning media in PJOK learning showed disappointing

results, only 39% of respondents stated that they used the website as part of the learning process.

This figure if categorized in the *Respondent Achievement Rate* (TCR) is included in the low category of Low Use of Technology: The figure of 39% reflects the lack of adoption of web-based technology in PJOK learning, this can be caused by several factors, such as limited infrastructure, lack of digital resources, or even rejection of changes in teaching methods (Kurniawan et al., 2022). Learning Limitations

In the context of learning that is increasingly dependent on technology, where this digital era is very related to learning websites or interactive media. In line with Aspi (2022) say The ever-evolving digital era and multimedia technology have become an integral part of everyday life.

In the context of learning that is increasingly dependent on technology, the low TCR category of web-based media use shows that there is a gap between the potential of available technology and the teaching practices applied. pernyatan Syafruddin (2023) Physical education in Indonesia is currently in a precarious situation due to inefficient physical education learning in schools and a lack of understanding of the need for physical education learning that is not socialized from an early age with technology.

The students faced by teachers today are a generation that has mastered technology since childhood(Syofyan & Husni, 2023).Students in an era where they are familiar with digital technology from an early age. (*Digital Native Generation*)(Kuswanto, 2019).

CONCLUSION

Based on research on the development of interactive multimedia of physical fitness activities based on various digital media, validation results from several experts were obtained. Validation by media experts showed a score of 81% which was classified as valid but required revision, while validation by material experts and digitization experts each obtained a score of 83%, which was also classified as valid with improvement recommendations. Overall, Nearpod-based multimedia was declared feasible to be tested on students after revision according to experts' suggestions. The results of the student response test on an individual scale showed an average response of 83%, which was categorized as very feasible.

Students consider Nearpod as an interesting, interactive, and helpful learning medium in understanding physical fitness activities. With positive validation results and student responses, Nearpod-based interactive multimedia was declared effective and feasible to be used in physical fitness learning after improvements were made according to the recommendations of experts.

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