DEVELOPMENT OF ANDROID-BASED HEALTHY LIFESTYLE PHYSICAL EDUCATION LEARNING MEDIA TO INCREASE STUDENT UNDERSTANDING

Deni Sudrajat [1], Oman Unju Subandi [2], Yasep Setiakarnawijaya [3]

[1,2,3] Physical Education, Jakarta State University Postgraduate
Jakarta State University Complex M. Hatta Building Jl. Rawamangun Muka, East Jakarta, Indonesia 13220
Correspondiing author. Email **:** deni_1606822035@unj.ac.id

Abstract This research aims to develop interactive learning media to help students understand healthy lifestyle behaviour in physical education for D-phase students in class VII and Evaluate the Effectiveness of Learning Media to evaluate how effective interactive learning media can help students understand healthy lifestyle behaviours in Physical education phase-D Class VII.This type of research is a development Research and Development (R&D) through quantitative methods. This method was determined based on data collection techniques carried out during the product development process. Through this research using the ASSURE model and has six stages ; Analyze Learner, State Objectives, Select methods, media, and materials, Utilize media and materials, Require learner participation, Evaluate and Revise.. The findings of this study were piloted with seventh grade junior high school students in Serang and Pandeglang districts. Based on random sampling technique, four junior high schools were obtained. The subjects in the small-scale test were 31 students and the large-scale test was 60 students and the research sample was 36 students.The results of this research are in the form of an android application as an interactive multimedia for healthy lifestyles. The mean result is 0.5617 which means it is included in the medium group. Based on the results of the analysis, it can be concluded that the learning media for physical education sports and health material on healthy lifestyles based on android for junior high school class VII is effective for increasing students understanding of sports and health subject matter, with an average pre-test score of 47.77 and an average post-test score of 77.00. Based on results in the conclusion that this Android-based interactive learning media for physical education is good or feasible enough for students.
Keywords: Physical Education; Android; Interactive Learning Media; Healthy lifestyle

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INTRODUCTION

Education is a basic effort intended to create an environment and learning methods that enable learners to actively develop the knowledge power of religious spirituality, self-control, personality, intelligence, morals, life science, general knowledge and skills needed to participate in a society based on law. According to Ki Hadjar Dewantara on (Ainia 2020), Education is a cultural process to encourage students to have a free and independent spirit. This means that this education is a provision that must be taken into account not at the present time but in the future, because every era has different needs. Therefore, as educators, they are expected to always make interactive learning innovations to support the future provision of their students. Among the subjects given to students, one of the education taught is Physical Education, which is an integral element subject unit in the education curriculum in various countries including Indonesia.

Physical education is an activity that aims to improve physical and mental well-being for students in an effort to set a good lifestyle. Based on the objectives of physical education learning, sports and health are directed to foster physical growth and development of better physical and spiritual growth and development and better psychological development and form a healthy and fit lifestyle throughout life (Rian 2023). In this digital age, the influence of technology on education, including Physical Education, has become increasingly significant. The widespread availability of handheld devices and internet access provides students with learning opportunities that are not limited to conventional classrooms.

Learning media is anything that can transmit information from a source to a receiver (Sekar Kalih et al. 2023). Interactive learning applications are essential to respond and address student health issues in a modern educational environment that is increasingly dominated by digital technology. The changes in the education sector triggered initially by the Covid-19 pandemic have prompted educational institutions around the world to adjust to a remote learning model. The learning environment is seriously organised to enhance the growth and development of all aspects, physical, psychomotor, cognitive, and affective of each student (Samsudin 2019) In this situation, the existence of engaging and effective

learning materials becomes very important. A survey commissioned by the Ministry of Education found that around 60% of teachers feel it is important to improve the quality of educational materials to make them more interactive and engaging, in order to maintain students' desire to learn (Yolanda 2023).

According to research published by (Smith 2023) that interactive technology can increase student engagement and understanding, especially in subjects that require deep conceptual understanding, such as healthy lifestyles. Android can improve in terms of its users' knowledge of health or physical fitness (Setiakarnawijaya et al. 2021).

Educators stated that an interactive Android-based application could be an efficient approach to reinforce students' understanding and interest in healthy lifestyle concepts. Based on the data, recent observations, views, and conclusions from the focus group discussions (FGDs), the objective of this research is to design an interactive learning media, operating on the Android system, specifically for the discussion of healthy lifestyles. This supports the research conducted by (Liu

et al. 2022) which states that students can become confused and have a wrong understanding of health due to the insufficient and often incorrect amount of health information. In the context of this research, so that students do not get misconceptions about the knowledge that is so much on the internet in the form of developing an android-based application that will offer interactive lessons about the correct healthy lifestyle behaviour.

This goal is in line with learning and motivation theories, particularly Bandura's social learning theory in (Cherry 2023) which emphasises the importance of positive behaviour modelling and reinforcement in learning. This study will use a research and development research design to develop interactive media on how well this application improves students' understanding of healthy lifestyle behaviours.

In addition, this research aims to find new knowledge whose truth can be accounted for as well as solving research problems, so in this study, the writing of the formulation of the research objectives to be achieved is first to develop interactive learning media to be able to help students understand healthy

lifestyle behaviour in physical education of D-phase students in Class VII. Secondly to evaluate the effectiveness of learning media to evaluate how effective interactive learning media can help students understand healthy lifestyle behaviours in Class VII D-phase physical education.

The theory proposed by S'Bloom Anderson and Krathwohl in (Mohamed, Ali, and Nasir 2021) This way emphasises the importance of gaining a deep and comprehensive understanding of the various subject matters rather than just memorisation.
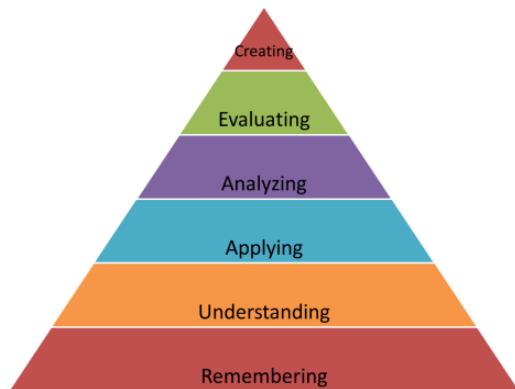

Figure 1. Teori S'Bloom

Understanding is the basic thing that must be improved before the emergence of awareness or practice as for the material of a healthy lifestyle. Making media should have a reference level of cognitive abilities ranging from C1-C6. This must be adjusted to the needs and readiness of learning institutions, but the most important thing is that learning media should be in C1-C3 or low order thinking skills because the best learning and media are those that are easily understood by students and make learning fun and student-centred.

METHOD

This type of research is a development research (Research and Development) through quantitative methods. This method was determined based on data collection techniques carried out during the product development process. Through this research using the ASSURE model and has six stages.
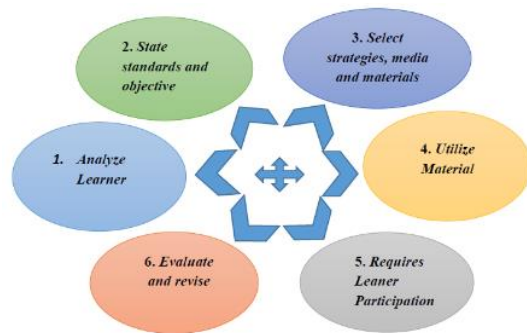

Figure 2. *Teori ASSURE*

The findings of this study were tested on students of phase D or grade VII junior high schools in Serang and Pandeglang districts, Banten province, which were randomly sampled. Based on the random sampling technique, four junior high schools were obtained.

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Table 1. Stage ASSURE

No.	Stage Name	Activities
1	*Analyze Learner.*	- Preliminary study - Identification of objectives
2	*State standards and objective.*	- Data collection - Product design
3	*Select strategies, media and materials.*	- Material expert validation - Media expert validation
4	*Utilize Material.*	- Small-scale test - Large-scale test
5	*Requires Learner Participation.*	- Test effectiveness
6	*Evaluate and revise.*	- Product evaluation and revision

The research sample came from students from class VII of State Secondary School 3 Cinangka Serang Regency randomly selected for this study as many as 36 students. This research data collection technique uses a questionnaire. This research is almost similar to semi-experimental research with pretest, treatment and posttest.

Figure 3. Teori ASSURE

RESULT AND DISCUSSION

In the results of the development of interactive learning media to answer the research hypothesis, the development of interactive learning media for PJOK on healthy lifestyle material based on android is carried out by following the stages of the ASSURE model. These stages include:

Analyze Learner, The first stage of this research was a needs objective analysis. This was done by examining the initial data and literature on physical education learning materials on android-based healthy lifestyle materials and the dependent variable. Furthermore, the results of discussions with the physical education teacher showed that students still do not follow a healthy lifestyle, some still snack carelessly, eat fast food, have long and dirty nails and yawn with fatigue during the learning process. To support learning in the classroom, the teacher said that creative and innovative learning media is needed. Therefore, it is very important to develop android-based learning media based on healthy lifestyle

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material, based on research findings and discussions.

Second stage, state Standars and Objective, (Determining Learning Objectives). At this stage, the design of research instruments and learning media is carried out. The instruments include material expert validation sheets, media expert validation sheets and teacher assessment sheets.

The three stages, Select Strategy, Media and Materials (Choosing Strategy, Media, Material) The steps that have been carried out in the development of android-based learning tools and media. Furthermore, researchers carry out a validation and assessment process to validate media and material experts. The results of the evaluation of the material expert's assessment of the android-based healthy lifestyle learning media, which shows 94.67%, are in the excellent or very feasible category and the results of the evaluation of the media expert's assessment which shows a value of 90.67% in the good or feasible category.

The Fourth, Utilize Material (Utilising strategies, media, and materials) This stage of using strategies, media, and materials is divided into several steps, namely; small-scale test evaluation results and large-scale tests. In the small-scale test which had a sample of 31 students and a teacher, the teacher's assessment of the android-based product was 92% in the very good / very feasible category and the results of student assessment showed that there were no students who rated it as 'very poor' as many as 0% (0 students), there were no students who rated it 'poor' as many as 0% (0 students), besides that there were also no 'sufficient' scores as many as 0% (0 students), there were students who rated it as 'good' as many as 6. 45% (2 students) and there were students who rated it as 'very good' as many as 93.55% (29 students). Students' conclusions from the product evaluation are considered good/appropriate.

At the large-scale test evaluation stage, there were no differences with the previous small-scale trial valuation, only different subjects and locations. The large-scale test was conducted with two teachers and 60 students. The teacher's assessment of the product was 93.78% in the very good / very feasible category and student assessment The results showed that there were no students who rated it as 'very poor' 0.00% (0 students), no students rated it as 'sufficient' 0.00% (0 students), there

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were students who rated it as 'good' 13.34% (8 students), there were students who rated it as 'very good' 86.66% (52 students).

The five stages are, Requires Learner Participation (Students' contribution to learning) At this stage the researchers conducted an effectiveness test. In this study, the effectiveness of the instrument was tested, which was previously carried out with the results of the validity and reliability of the instrument for understanding healthy eating patterns.

Table 2. Validity & Reability Results

Multiple Choice Question Items	Criteria
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25	Valid

Research with effectiveness test samples involved 36 students. The pre-test was given before the learning media was delivered, after which students were given one interactive learning media product to study after which a post-test was given. The results of data on understanding of healthy lifestyle

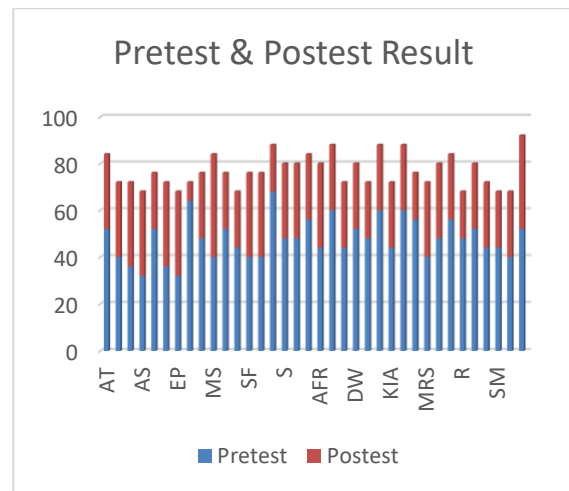material are presented in the following table:

Figure 4. Pretest & Postest Graph

The next step is then analysed using the N-gain score test based on the data in the table above to determine whether between the pretest and posttest there is an increase in understanding of healthy lifestyle material.

N-Gain Score Formula:

$$N - \text{Gain Score} = \frac{\text{Postest Score} - \text{Pretest Score}}{\text{Ideal Score} - \text{Pretest Score}}$$

Description: Ideal Score is the maximum score of the data obtained.

The N-Gain score category group in this study uses the N-gain score. The following table shows the division of N-gain score categories.

Table 3. N-Gain Score

Nilai N-Gain	Kategori
g > 0,7	Tinggi
$0,3 \leq g \leq 0,7$	Sedang
g < 0,3	Rendah

Source: Meltzer & David, 2002 in (Kurniawan and Hidayah 2020)

Based on the value of the gain score above in this study, the value is obtained with:

Table 4. N-Gain Score Result

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NGAIN	36	.22	.83	.5617	.11235
Valid N (listwise)	36				

The mean result is 0.5617 which means it is included in the medium group. Based on the results of the analysis, it can be concluded that the learning media for physical education sports and health material on healthy lifestyles based on android for junior high school class VII is effective for increasing students' understanding of sports and health subject matter, with an average pre-test score of 47.77 and an average post-test score of 77.00.

The Sixth, Evaluate and Revise (Evaluation and Revision of Learning Media) revision and evaluation is the last step in this Assure method. At this stage, improvements and expert recommendations are made to the product revision. This first revision is based on input and suggestions from material and media experts on the data used for this first revision is data from input and suggestions received by researchers when validating product design.

The results of the analysis show that the interactive learning media products for physical education, sports and health based on android that have been developed get a category worthy enough to be used and can be obtained through google drive. The fact that students' learning outcomes are better in understanding procedure text shows that this learning application is really quite effective for students' learning activities. This is in accordance with the opinion of (Tobing et al. 2022) which states that technology-based learning activities increase the flexibility of students' learning process because students can access learning materials and communicate with teachers whenever they need. In addition, according to Kemp & Dayton (1985) in (Firmadani 2020) found several benefits of technology-based learning media, namely:

1. The delivery of teaching materials can be harmonised.
2. Learning implementation becomes clearer and more interesting.
3. The implementation of learning becomes more interactive.
4. Efficiency in time and energy.
5. Student learning outcomes are better.
6. The media allows learning to be done anywhere and anytime.
7. The media can foster positive student attitudes towards the material and the learning process.
8. The media can change the role of the teacher in a better and more productive direction.

The final goal of this development research is the creation of an android-based product that will be used to teach phase - D / SMP class VII students about sports and healthy lifestyles.

CONCLUSION

This interactive learning multimedia based on Android PJOK was developed by applying the ASSURE model development process which has six steps. Analyze Learner, State Objectives, Select methods, media, and materials, Utilize media and materials, Require learner participation, Evaluate and Revise. This application is for the D-phase or junior high school which is focused on class VII which functions as a learning media for PJOK. Based on the assessment of material experts and media experts at the Select methods, media, and materials step which results in the conclusion that this Android-based interactive learning media for PJOK is good or feasible enough for students.

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