

# Development Of Digital-Based Teaching Materials For Freestyle Swimming Materials In Pjok Learning For Students Of Class Xi Students Of Public High School 1 Mengwi

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## Abstrack

*This study aims to develop digital-based teaching materials on basic freestyle swimming techniques in PJOK learning for class XI students of public higt school 1 Mengwi. The type of research used in this study is a type of development research using the ADDIE model. Development products are validated by learning content/material experts, learning design experts, learning media experts, and field practitioner experts. The product trial subjects of this study were individual trials by 3 students, small group trials by 7 students, and large group trials by 38 students. Data were collected using a questionnaire and the data analysis technique used was quantitative descriptive analysis. Based on the results of the feasibility test research, the percentage results of the learning content/material expert test was 95.6% very well qualified, the learning design expert test was 92.9% very well qualified, the learning media expert test was 92.2% very well qualified, the field practitioner expert test was 92.5% very well qualified. So that based on the feasibility test, it is very feasible to test the product. Product trials obtained results from individual trials of 85.9% qualified as good, small group trials of 89.0% qualified as good, and large group trials of 90.2% qualified as very good and suitable for use. The product developed in the form of digital-based teaching materials on basic freestyle swimming techniques in PJOK learning is very feasible to use for class XI students as a learning resource. Suggestions to teachers to make innovation as a basis for developing teaching materials that can increase students' interest in learning.*

**Keyword:** Teaching Materials; Freestyle Swimming; ADDIE

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## Introduction

Physical education, sports and health (PJOK) according to Wawan S. Suherman (Suherman, 2015) is an educational technique that combines physical activity and sports with the aim of increasing emotional intelligence, sportsmanship, understanding, motor skills, and physical fitness. Students get PJOK learners because through PJOK learning students can move their bodies to exercise and develop physical activity, skills and knowledge. In line with this statement (Hasan et al., 2021) states "Improving motor skills, knowledge and reasoning, mental and physical development, and fostering appreciation for values (mental, emotional, sportsmanship, spiritual, and social) with a healthy lifestyle that seeks to achieve a balance between the growth and development of balanced physical and mental qualities is the goal of physical education, sports and health".

In learning PJOK, especially in the practice of swimming learning in class XI students of public high school 1 Mengwi, there are still obstacles, and structured instructions according to swimming resources are needed. During teaching assistance at public high

school 1 Mengwi, challenges were found in learning swimming material, especially in the basic techniques of freestyle swimming. The main problem is the lack of a variety of learning methods that utilize media effectively. As a result, students' interest in learning this material is minimal because learning is only limited to verbal explanations, making it difficult for them to understand in detail the basic movements of freestyle swimming techniques.

According to Kustandi and Sutjipto (2011:8) Everything that can be a tool to complete the tasks involved in the teaching and learning process is presented as learning media. Tools or media used during the learning process that can be used to promote teaching-learning interactions in order to achieve certain teaching objectives are referred to as learning media, according to Rohmat (2010: 6). Tools or learning resources that can assist teachers in broadening learners' perspectives and understanding are learning media. Teachers use various learning media as resources to provide knowledge to learners. (Teni Nurrita, 2018)

Researchers conducted unstructured interviews with educators who teach PJOK subjects. The results of interviews with Mr. I Gusti Ngurah Diantara, S. Pd. and Ida Bagus Made Satya Warmayuda, S. Pd., showed that there was no use of special learning media to learn swimming material. A proper understanding of freestyle swimming material is still not owned by the majority of students in the learning process. Based on the results of the needs analysis obtained, it is necessary to have digital-based teaching materials.

According to (Kosasih, 2021) Digital teaching materials are devices of subject matter that have been methodically organized and exhibited through digital devices, such as computers, laptops, tablets, smartphones, notebooks and the like. Teaching materials are given in the form of concept applications with learning process rules. Encouraged by the results of research conducted by (Iskandar et al., 2022) which found that students' desire to learn can be increased by using digital teaching materials.

Digital media with the use of professional flip pdf software in PJOK subjects on freestyle swimming material developed through ADDIE research. The Flip pdf professional application is an interactive media that can include various types of animative media into electronic books (Khairinal et al., 2021). Amazing electronic books or e-books can be easily created by everyone by inserting animated text, images, audio, youtube videos, hyperlinks, and flash into flip books by clicking, dragging, or dropping. There are advantages to this professional flip pdf application, namely: 1) Interactive digital media provides an attractive appearance, with user action responses by presenting videos, images, links, and others making interactive flipbooks; 2) Various themes, templates, backgrounds and plugins are available to customize the e-book created; 3) E-books or electronic books are supported by text and audio.

From this, the researcher wants to research about learning media development activities entitled "Development of Digital-Based Teaching Materials for Freestyle Swimming Material in PJOK Learning for Students of Class XI Students of Public High School 1 Mengwi in 2023/2024".

## **Research Methode**

In this study, the Analyze, Design, Development, Implementation, Evaluation (ADDIE) model was used. The ADDIE development model is an efficient interactive procedure and the methodical approach forms the basis of this learning design concept. The evaluation results of each stage of the process can guide the learning progress to the next stage. The initial product of the previous phase is the final result of the previous phase. This model consists of five steps: analyze, design, develop, implement and evaluate. According to Tegeh et al. (2017: 79) "Systematic design and development as a procedural part of the systems approach has been applied in various methodological methods for learning materials that include video tutorials, audio-visual materials, and text design and development."

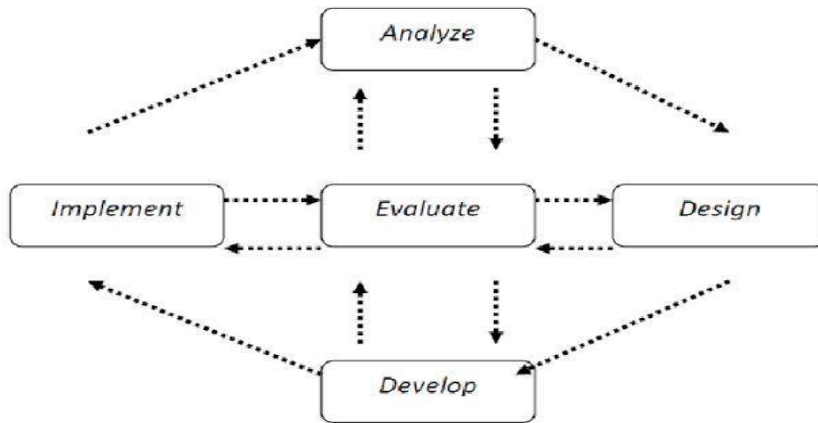


Figure 1. ADDIE Model Stages

At the analysis stage, the environment, material and school needs were analyzed. The design stage is focused on designing storyboards and designing the use of hardware and software to make the media created. Media created in the form of digital-based teaching materials that require hardware in the form of cellphones and laptops. For software required Microsoft Word, Canva, Google drive & professional PDF flip. At the development stage, namely collecting supplies to make the media produced and carried out expert tests or validity tests. The validity test was carried out by 4 experts, namely learning material experts, learning media experts, learning design experts and field practitioners. The implementation stage is carried out with product trials including individual trials, small group trials and large group trials aimed at knowing the responses and responses of the media users developed. The research subjects in this study were students of class XI students of public high school 1 Mengwi. Individual trials involved 3 people, small group trials involved 7 people and large group trials involved 36 people or 1 class XI students of public high school 1 Mengwi.

In this study, the product in the form of digital-based teaching materials on freestyle swimming material for class XI students of public high school 1 Mengwi, data was collected through formative assessment. It is separated into two parts: the first contains the findings from the initial evaluation stage, which includes the assessment of subject matter experts, learning design experts, learning media experts, and field practitioner experts. The second contains the results of the product trial examination starting from individual, small group, and large group trials.

The data collection instrument in this study used a questionnaire that functioned as a score scale. The questionnaire contains items related to digital teaching materials and is used to collect data from content/material experts, design experts, learning media experts, field practitioners, individual trials, small group trials, and large group trials.

The data collected is classified into two categories according to its nature into two, namely qualitative data and quantitative data. Qualitative data was obtained from the results of questionnaire responses from subject matter experts, design experts, learning media experts, field practitioners, individual trials, small group trials, and large group trials. Quantitative data was obtained from qualitative questionnaire data which was converted into scores/grades. The formula used to calculate the percentage of each subject is as follows:

Percentage :

$$\frac{\sum x}{SMI} \times 100\%$$

Description :  $\sum x$  = Total Sekor  
 $SMI$  = Skor Maksimal Ideal

Furthermore, to calculate the overall percentage of the subject, the formula is used:

$$\text{Percentage} = F : N$$

Description: F = Total percentage of the whole subject &

N = Many subjects

Table 1. PAP Conversion of Achievement Levels on a Scale of 5  
Source: Tegeh, and Kirna (2010: 101) in (Putu et al., 2012)

No	Level of Achievement (%)	Qualification	Description
1	90-100	Very good	No need for derivations
2	80-89	Good	No need for derivations
3	65-79	Simply	Revised
4	55-64	Less	Revised
5	0-54	Very less	Revised

## Result and Discussion

The results of data analysis of the development of digital-based teaching materials on freestyle swimming material in PJOK learning for class XI students of public high school 1 Mengwi. The results of the product or media validity test developed are based on the evaluation and assessment of each expert: content experts or learning materials, design experts, learning media experts and field practitioners. Based on the results of the evaluation and assessment of the research subjects, namely (1) the results of the individual trial, (2) the results of the small group trial, and (3) the results of the large group trial, the results of the feasibility of the product or media produced based on the evaluation and assessment results of each trial are presented in detail and sequentially in table 2 and table 3 below:

Table 2. Percentage of Validity Test Results of Digital-Based Teaching Materials

No	Expert	Feasibility Result %	Description
1	Learning Content/Material Expert	95,6	Very Valid
2	Learning Design Expert	92,9	Very Valid
3	Learning Media Expert	92,2	Very Valid
4	Field Practitioner Expert	92,5	Very Valid

Table 3. Percentage of Digital-based Teaching Materials Product Trial Results

No	Research subject	Feasibility Result %	Description
1	Individual Trial	85,9	Valid
2	Small Group Trial	89,0	Valid
3	Large Group Trial	90,2	Very Valid

This research focuses on the development of digital-based teaching materials for freestyle swimming meters in PJOK learning for class XI students of public high school 1 Mengwi in 2023/2024. After designing and developing the product, it is continued with a validity test conducted by material experts, learning media experts, design experts and expert field practitioners. The purpose of the validity test is to determine the feasibility of the product to be tested on students. If the product has been declared valid without revision, proceed with the implementation or product trial. The subjects in the product trial were

students of class XI students of public high school 1 Mengwi. Product trials were conducted from individual trials involving 3 students, small group trials involving 7 students, and large group tests involving 36 students or class XI students of public high school 1 Mengwi.

The design and development of this digital-based teaching material is carried out using the ADDIE method. Starting from analysis, namely analyzing needs such as the environment and material. Then proceed with planning or design, namely determining hardware and software and creating a storyboard. Development is making products in the form of digital-based teaching materials designed as needed with devices that have been prepared. Followed by product validity testing conducted by 4 experts including material experts, learning media experts, learning design experts and field practitioner experts.

Based on the results of the study, it shows that the content/material expert test with 95.6%, the design expert test with 92.9%, the learning media expert test with 92.2%, and the field practitioner expert test with 92.2% rated the teaching materials very well..

After the product is declared valid, it is continued with the implementation or product trial. Product trials were conducted from individual trials, small group trials and large group trials. The results showed a good qualification of 85.9% for the individual trial, a good qualification of 89.0% for the small group trial, and a very good qualification of 90.2% for the large group trial.

The evaluation stage (Evaluation) at this stage is the extent to which the product made can achieve the goals and objectives that have been set previously. The process of evaluating the feasibility of digital-based teaching materials ends with revisions based on the tests of content/material experts, design experts, and learning media experts. This revision shows that the designed digital-based teaching materials have been put into a category that is feasible to use and can be applied during the actual learning process. The results of the analysis show that the product, which is a digital-based teaching material for freestyle swimming material in PJOK learning in class XI students of public high school 1 Mengwi, has very good quality and is very feasible to use. The results of the assessment conducted by various experts including learning material/content experts, learning design experts, learning media experts, and field practitioner experts can be supported by a statement from (Iskandar et al., 2022) who found that learners' enthusiasm in what they learn in class can increase with the use of digital teaching resources. Because it can increase motivation and enthusiasm to take part in learning activities, learners are more interested in digital teaching resources. Based on the feasibility test and product trials that digital-based teaching materials for freestyle swimming material in PJOK learning are designed to support the PJOK learning process at public high school 1 Mengwi. Learners can utilize this digital-based instructional resource to facilitate their learning process as it inspires curiosity, makes the subject easy to understand, and provides hands-on practice. This allows educators to impart knowledge effectively and quickly. Research supports the statement (Farhana et al., 2021) that teaching materials can be in line with research and support the learning process and in line with research (Nurwahidah & et al, 2021) where the use of video media can increase students' desire to learn.

Digital-based teaching materials on basic freestyle swimming techniques in PJOK learning for class XI students of public high school 1 Mengwi are teaching materials that utilize technological developments and can display text, images/photos, audio, video, and practice questions/quizzes. This is also in line with the statement of Munawar, et al. (2020), which states that digital or technology-based teaching materials are currently quite diverse, including animations, images, videos, and videos that convey learning messages to students. Digital teaching materials can help even more in increasing students' interest in learning. Because they can be accessed from anywhere, digital instructional resources can encourage students to learn independently. (Khikmawati et al., 2021). In addition, in practical lessons, the materials listed and the video tutorials are available, making it easier for learners to do

what is taught. With digital teaching materials, students will better understand what educators teach through the materials and videos presented.

## Conclusion

The design of digital-based teaching materials for freestyle swimming material in PJOK learning in class XI students of public high school 1 Mengwi uses the ADDIE development model. Development begins with the stages of (a) needs analysis, (b) design, (c) development, (d) implementation, and (e) evaluation. The needs analysis was based on observations from student questionnaires and interviews with PJOK educators at public high school 1 Mengwi. During the design phase, researchers created a framework for educational materials. After that, a storyboard was created by compiling and developing this content. visualizing the workflow of the next product, design is also called planning the process of making products in accordance with the design and design that has been determined. At this stage, the activities to be carried out are as follows: 1) Prepare teaching materials and materials, 2) Production or manufacture of digital-based teaching materials, 3) testing the validity/feasibility of digital-based teaching material products.

The validity of digital-based teaching material development products obtained a very good percentage obtained from (a) learning content experts with a percentage of 95.6%, (b) learning design experts with a percentage of 92.9%, (c) learning media experts with a percentage of 92.2%, (d) field practitioners with a percentage of 92.5%. The results of product trials from individual trials obtained a good percentage of 85.9%, small group trials obtained a good percentage of 89.0%, and large group trials obtained a very good percentage with a percentage of 90.2%.

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