



## Development of Swimming Learning Models Through Adobe Flash Application Media in High Schools

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### Abstract

This study aims to produce a product in the form of a CS 6 Flash-Based Swimming Learning Model so that students can more easily understand swimming material and also make it easier for teachers to teach swimming. This study uses the Research and Development method. The steps in this research were: field needs analysis, compiling products, validating media and material experts, small-scale trials, second stage validation, large-scale trials, and the final product. The subjects of this study were students of class XI SMA Islam Az-Zahrah Palembang. Data was collected using a questionnaire for both experts and subjects. The results of this study are in the form of swimming learning models for teachers. Material experts state that this product is included in the good category (84.6%). Application experts stated that this product was included in the good/proper category with a percentage of 90.62% while for the small group and field assessment were 87.5% and 90.90%, respectively. It can be concluded that the development of this application can be used as a reference for teachers in the process of learning swimming material and the findings in this study are the results of applying swimming material to high school students from class XI.

**Keywords:** Adobe flash; learning media; student; swimming learning model

### 1. Introduction

Learning is a component of education with regard to objectives and interaction reference materials, both explicit and implicit (hidden). One definition is the process of acquiring various abilities, skills, and attitudes. Learning is a stage of change in all individual behavior that is relatively sedentary as a result of experience and interaction with the environment that involves cognitive processes (Hanafy, 2014; Pane & Darwis Dasopang, 2017). There are learning outcomes that can be observed if the student was previously unable to write, after learning he can write, then it is said that he has learned, and the results can be seen, namely being able to write.

Learning is a change in behavior in him. These changes in behavior involve changes in knowledge and skills, as well as those involving values and attitudes (Suyati & Rozikin, 2018). Learning will be more effective if the learner does it in a pleasant atmosphere and can experience the learning object directly. Learning as a process of changing behavior thanks to experience and practice. Learning is a mental or psychological activity that takes place in active interaction with the environment in order to produce changes in knowledge, skills and attitude values (Dziubaniuk et al., 2023). PJOK learning is part of the whole educational process, where the aim is to improve human performance through activities in

the form of physical activity in maintaining the body (Gholy et al., 2022)

Swimming is one of the most popular sports activities for the community to maintain and improve health. Swimming sports can be done from small children, adults, even to the elderly (Angguntia, 2013). In ancient countries, swimming was used to train and prepare young people for national defense. Likewise, after the birth of schools in ancient times in the countries of Egypt, China, Greece, Rome and many other countries, swimming was always included in school lessons (Mardinus & Maidarman, 2019). Therefore, since ancient times swimming has been known and continues to grow until now. That is with the existence of swimming championships both at the national, regional and international levels.

In practicing swimming in the first stage follow the natural laws of floatation and body movement. Swimming does not determine a hand or foot pattern that must be done as long as it can float and move anywhere. In the next stage, new swimmers make combinations of movements and group these combinations into swimming styles. The next stage is a combination of movements arranged systematically and it becomes a swimming style as it is now widely seen (Rizkiyansyah & Mulyana, 2019). In the arena of competition both national, regional and international there are four styles that are always contested, these styles are Crawl Stroke (Freestyle), BackStroke (Backstroke), Breast stroke (Cheststroke) and Butterfly Stroke (Butterfly) (Ahmad et al., 2020; Shava et al., 2017). Islamic Senior High School Az-Zahrah Palembang has used the 2013 curriculum. Therefore, researchers conducted an analysis of core competencies and basic competencies, analysis of student needs, characteristics, and facilities to support the learning process in PJOK subjects.

Based on interviews, students hope that there will be learning media to increase interest in learning swimming, so the researchers tried to develop swimming learning media through an application (adobe flash) at SMA Islam Az-Zahrah Palembang where the advantage of Adobe Flash is that it can combine animation, sound and images simultaneously. without having to install it on a laptop or computer (Dwi Nugroho, 2021) Based on the observations and interviews above, I raised this title to improve interest and talent in swimming at SMA Islam Az-Zahrah Palembang. achieved, the characteristics of the learner (student), suitability between teacher and student, cost, learning process, and other supporting things. One of the selection of the right learning media to be used in meetings is in the form of learning media that is packaged in the form of compact discs (CD), flashdisks, mobile phones and can also be inserted into interactive learning google drives (Muhammad et al., 2022; Technol et al. , 2023).

The use of interactive learning media is expected to be able to increase motivation, enthusiasm for student learning and can be used as an independent learning resource to overcome the limitations of space and time. The importance of using computers in the teaching and learning process is with the aim of improving the quality of teaching and learning (Haking & Soepriyanto, 2019; Taufiq & Amalia, 2017). Media is a means of communication. Derived from the Latin medium (“between”), this term refers to anything that carries information between a source and a receiver. The six basic categories of media are text, audio, visual, video, manipulative (objects), and people (Hafiz, 2021; Sean B. Holden, 2021).

The hope of using this multimedia is that students are able to learn effectively, interactively and independently so as to be able to improve academic and non-academic achievements. The use of Adobe Flash-based swimming learning multimedia enables a more conducive learning atmosphere, because students learn according to their abilities and speed in understanding the knowledge and information presented (Hafiz, 2021; Muhammad et al., 2022). In other words, flash application-based learning multimedia for swimming subjects can create an effective learning climate for slow students but can also spur faster learning effectiveness (Danang Prama Dhani et al., 2022; Mashud & Widiastuti, 2018). This Adobe Flash application can be programmed to be able to provide feedback

on student learning outcomes and provide confirmation of student learning outcomes. With the multimedia capabilities of Adobe Flash-based learning, this swimming subject can record learning outcomes, and can be programmed to provide examples of the correct technique for doing swimming.

This ability results in learning multimedia based on the adobeflash application for swimming subjects that can be presented as a means of independent learning media for students (Mashud & Widiastuti, 2018). Therefore, the researcher concluded that an interactive teaching and learning atmosphere would improve the communication of various things (students, students, students-computers). A combination of various media that make full use of the senses of sight and hearing is able to attract students' interest to continue learning (Haking & Soepriyanto, 2019; Suyati & Rozikin, 2018), interactive multimedia greatly determines the success of learning because it can make it easier for students to understand the material presented and also know the movements movement (Teguh et al., 2023)

Multimedia is also an alternative choice in conveying information in a more memorable way, so that the learning objectives can be achieved effectively and efficiently. For this reason, researchers are very interested in making learning multimedia products through research and development models in learning (Dewi, 2021; Hidayah et al., 2017). Through this research and development, it is hoped that it will be able to produce a product in the form of learning multimedia based on Adobe Flash for swimming subjects for Islamic High School Az-Zahrah Palembang students to improve learning outcomes. It is hoped that this learning media product can help students understand swimming subject matter and improve student achievement. In addition, this learning multimedia is expected to make it easier for teachers to convey material and motivate teachers to continue to follow and take advantage of modern technological developments.

## 2. Methods

This study used the research and development (R&D) method, which is a research method used to produce product designs for butterfly and backstroke swimming products, to test the effectiveness and validity of the designs that have been made so that the products are tested and can be used by the public. Development research is divided into 3 parts which will be able to produce a new product in the form of a training method, namely; 1) pre-development stage; 2) Development stage; 3) Dissemination. Data collection techniques are a mixture of quantitative and qualitative, namely using tests and measurements of observation, interviews and questionnaires.

The development procedure uses a descriptive model and consists of 6 steps (Sugiyono, 2013), namely 1) This research was developed based on the development of descriptive research to then conduct a survey of sports teachers at Az-Zahrah Islamic High School 2). the second step is compiling the initial product design of the application to be used for learning, by asking for recommendations from the validity of experts in the sport of swimming, the validity of these experts includes: (a). Swimming trainer and sports expert. (b). Computer application software experts 3) product validation to experts involved in research, including: (a). Coaches and swimming sports experts (b). Computer application developer. The results of the validation are then reviewed to improve the model design before being tested. 4) conduct product development trials using group trials involving the dolphin swimming trainer in the respondent's swimming sport branch first. Group trials are useful for analyzing possible constraints and trying to reduce these constraints when implementing the next model. The first product revision was carried out based on the results of the stage 1 trial. 5) carried out an experimental research design that aimed to test swimming learning application development products developed for activity, effectiveness of assessment, attractiveness for implementation of assessments. Then conduct a larger-scale field trial involving trainer respondents from the sport of swimming. The second product revision was carried out after the product trial stage 2. 6) the swimming learning model through Flash application media, at this stage data collection was carried out with instruments, namely

in the form of knowledge about swimming sports and student styles when swimming in swimming pools. which are then reported and analyzed as a whole

Data analysis techniques use statistical analysis calculations in line with the products being developed. so that the tools developed are more practical, economical, efficient.

### 3. Results

After conducting several analyzes of several problems, validation was then carried out. The first stage validation was carried out by swimming physical test experts and application experts. The percentage obtained is:

**Table 1. Results of the first phase validation**

Code Member	%
<b>First phase</b>	
Exp 1	69.2
Exp 2	65.62

Based on the results of first phase, the percentage of Exp 1 / Material Expert obtained is 69.2% and the percentage obtained of Exp 2 / Media Expert is 65.62%, and worth testing with revisions.

**Table 2. Small scale trial results**

n	S	Mark max	%
8 students	63	72	87.5%

The results of a small-scale trial regarding "Development of a Swimming Learning Model Through Application Media (FLASH CS 6) at Az-Zahrah Islamic High School" Shows a percentage of 87.5% but this media has a few problems with how it works so it must be revised and validated before being used for trials large scale.

**Table 1. Results of the second phase validation**

Code Member	%
<b>Second phase</b>	
Exp 1	84.6 %
Exp 2	90.62 %

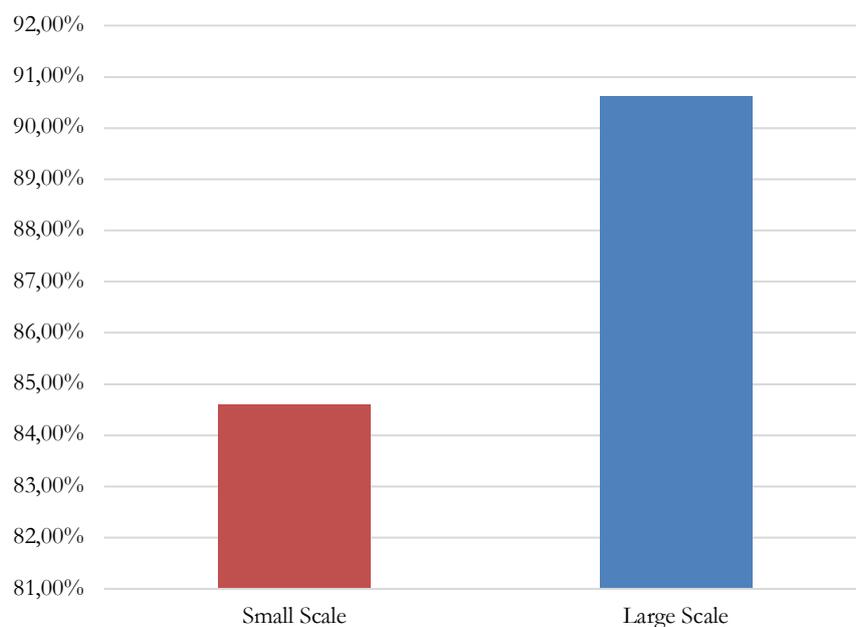
Based on the results above Exp 1 / Material Expert the percentage obtained is 84.6% and Exp 2 / Media Expert the percentage obtained is 90.62%. and feasible to be tested on a large scale

**Table 4. Results of large-scale trials**

n	S	Mark max	%
33 students	270	297	90.9

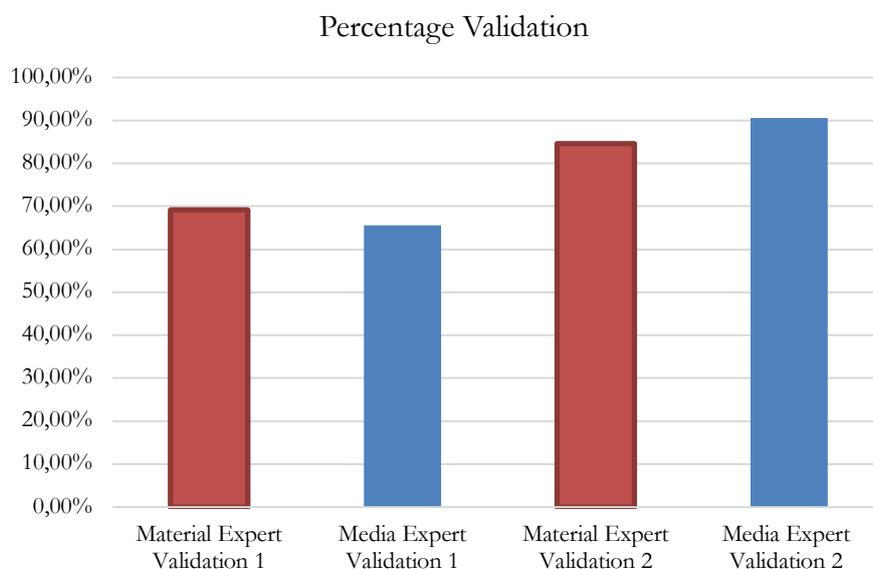
The results of a large-scale trial regarding "Development of a Swimming Learning Model Through Application Media (FLASH CS 6) at Az-Zahrah Islamic High School" show that the trial results were

90.90% and during the process of collecting swimming learning model data, students were orderly and able to walk smoothly without encountering any hiccups.



**Figure 1. Increase in Small and Large Scale Values**

From Figure 1 it can be seen that the results increased from a small scale of 87.50% and a large scale of 90.90%, so it can be concluded that there was an increase of 3.4% so that in this study it was said to be successful



**Figure 2. Product Validation Results**

From Figure 2, there is a significant increase between the first product validation and the revised product validation, where the increase for material experts is 15.4% and the increase for media experts is 25% and it can be concluded that the product is ready to be used on a larger scale big again.

#### 4. Discussion

The research entitled "Development of Swimming Learning Models Through Media Applications (Flash CS 6) at Az-Zahrah Islamic High School" was conducted to increase students' interest in learning physical education about swimming. The results of the questionnaire/questionnaire test given to material experts showed a percentage of 84.6%. This shows that this application belongs to the good category and is feasible to be tested. The results of the questionnaire test conducted on media experts showed a research feasibility level of 90.62%.

Development of a Swimming Learning Model Through Application Media (FLASH CS 6) at Az-Zahrah Islamic High School is suitable for use as a teaching aid for swimming material for the future. After an assessment process was carried out by validators who are experts in their fields, this research was tested on a small scale and large scale, this is because the validator has agreed that this application is feasible to use, with the results of small-scale trials carried out using Az-Zahrah Islamic High School students with a total of 8 people with a percentage of 87.5% and a large-scale trial was carried out using all Az-Zahrah Palembang Islamic High School students with a total of 33 people as testers 17 boys and 16 girls, with a percentage of 90.90%.

Analysis of the advantages and disadvantages was carried out after validating the material and swimming and involving media experts and after conducting trials on Az-Zahrah Islamic High School students, it can be concluded that the application for developing swimming learning models has advantages and disadvantages, including: some material in one learning model and easy to use, this application is easy to move and makes it easier for us to take it anywhere, providing efficiency and effectiveness for teachers to teach swimming material. Disadvantages: this application utilizes electricity by using a computer or laptop to operate it, so if the electricity is not sufficient then this application cannot be accessed and also if the laptop or computer is exposed to a virus then the application will error.

Prior to the research "Development of a Swimming Learning Model Through Application Media (FLASH CS 6) at Az-Zahrah Islamic High School" there was no media instrument in the form of an application model that was applied to the teaching process on swimming material. and the results of the research on Development of Swimming Learning Models Through Application Media (FLASH CS 6) at Az-Zahrah Islamic High School explained that: 1) Teachers easily take scores with the application of swimming learning models, because in the swimming learning model there are questions that can be used teacher to take student scores in swimming material, student scores can also be archived in softfile or printed form, so that it can make it easier for teachers to enter student scores at any time. 2) This application can be used easily, not difficult and can always be taken anywhere.

In line with research from (Gumantan et al., 2021) that the use of the application greatly shortens the time in training athletes and more accurate results then In line with research from (Danang Prama Dhani et al., 2022; Hartati et al., 2016) that after using learning media there is a significant difference in learning outcomes, which means there is a difference in the influence of the media presented by the movement model of the teacher, recording and combination on swimming learning outcomes, and is also in line with research from (Mashud & Widiastuti, 2018) Based on the results of development research, starting the product planning stage, the analysis of the swimming expert test, the learning expert test, the motion expert test and the media expert test, as a whole provide an assessment of the feasibility of this product to be applied as a swimming learning medium for students of the physical education study program. Implementation trials on a small and large scale, the product development was declared feasible and could be used in learning swimming courses. Where the effectiveness of the

product is able to make students better understand and understand how history, rules and swimming styles are taught through this application.

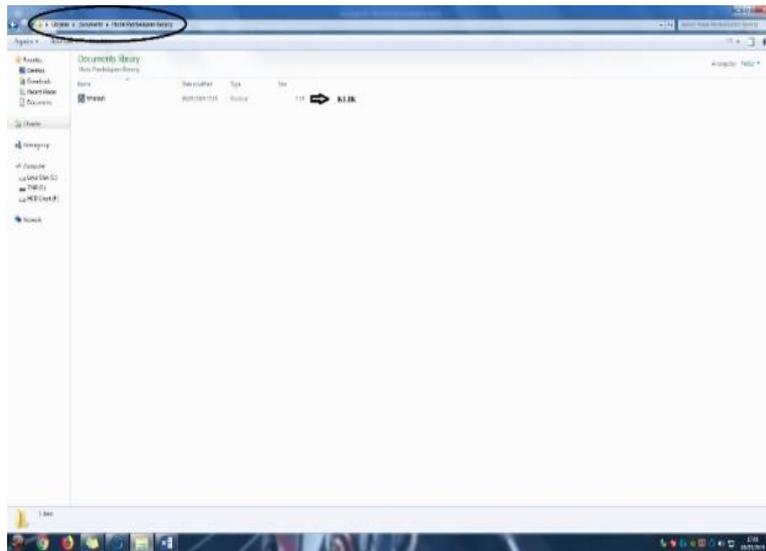


Figure 3. Display when opening the application

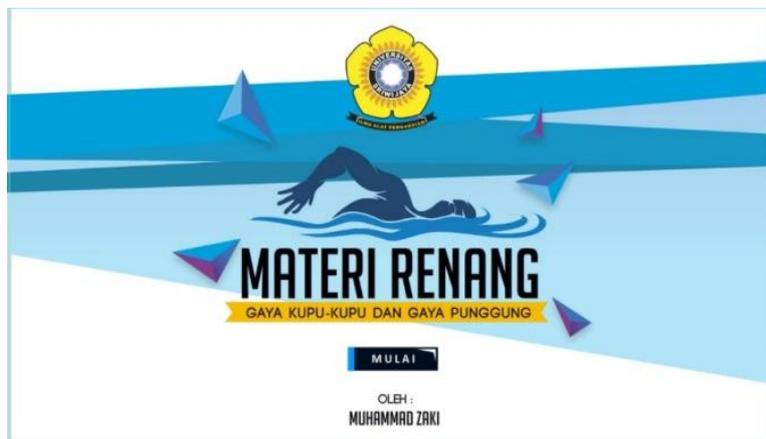


Figure 4. Initial Display



Figure 5. Display of the Swimming Materials Menu

Figure 3 shows the application before opened, while Figure 4 shows the initial picture when it's opened, and Figure 5 shows the display menu of swimming materials where we can find out the history of swimming, swimming rules, swimming warm-up and then how swimming butterfly and backstroke. When it is opened, a video of swimming butterfly and backstroke will appear, after that we can also see how to cool down after we do swimming, even for practice questions regarding swimming are also in there.

## 5. Conclusions and Recommendations

The results of the study "Development of Swimming Learning Models Through Media Applications (FLASH CS 6) at Islamic Senior High School Az-Zahrah Palembang" are categorized as suitable for use as teaching materials for swimming materials, this application can be used as teaching materials for swimming materials and materials for taking grades in Physical Education lessons for swimming material. For students, they can take advantage of the swimming learning model to see how broad the students' insights are in swimming and can learn to use the swimming learning model in which there are questions about swimming, this application can also increase students' interest in swimming.

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