

# Development of the Butterfly Style Swim Handbook for Age Group Athletes-III

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**Abstract**— Butterfly style handbooks are still considered limited. the lack of information and understanding in the butterfly-style swimming exercise also influences the athlete's success in achieving the quality of coordinated motion. The purpose of this study is to help provide guidance and reference aimed at coaches, athletes and the general public regarding age III swimmer-style swimming exercises. This study uses a research and development (R&D) approach which is carried out in seven stages using quantitative data. The results of the review and analysis of several experts and trials will bring up revisions. So that the butterfly swimming guide book product will be even more perfect, and can be applied as well as possible.

**Keywords:** *development, guidebook, swimming, butterfly style*

## I. INTRODUCTION

Sport is a physical activity that can help optimize body development through movements that are based on muscle movement. The characteristics of sport are directly related to the characteristics of human behavior and to various activities in society. The premise that has been developed states that the core of sporting activities is playing, with this condition humans also demonstrate their skills in doing a movement. One of the goals of exercise is to increase physical fitness. Nowadays the awareness of people to do sports is getting higher, one of them is swimming. Swimming is very important for every individual because he can save himself when in the water.

Swimming according to [1] is a healthy sport, because almost all the muscles of the body move so that all muscles develop rapidly and swimmer strength increases. Swimming as we know is one of the sports that are always contested because of inter-national competitions such as Olympic, Asian games, Pan American Games, also in the arena of sports competitions held in Indonesia, the National Swimming championship or

even in sports matches held in Sumatra North like Porda, regional competition and so forth.

Given the problem of swimming achievement in North Sumatra being a very big problem in the development of sports, North Sumatra swimming athletes who performed at the National event were very few and almost all of these athletes only performed in the breaststroke and were free. For example, athletes who have performed well at the national level, Indra Gunawan, on the profile of Indra Gunawan in Sport Aquatic magazine, said that they have been accustomed from the beginning of training to teaching breaststroke. interest in swimming to start swimming training at the beginning is breaststroke. And the next focus is breaststroke. Whereas in swimming there are 4 styles and numbers that are contested in national and international events.

Swimming in the butterfly style according to [2] also demands greater strength from swimmers. The swimming speed of the butterfly style is obtained by swinging both hands together. In the butterfly style there must be a matching movement between arm movements and leg movements. This correspondence is especially in relation to the posture of the arms up and down vertically, snaking like a dolphin swimming. At one turn the arm turns round the leg twice, hard and weak. At the beginning of the pull the first leg kick is made (hard) when the arm push is done the second leg kick (weak).

The description of butterfly movement above is a complex and coordinated movement that is quite difficult to do. In the sense of interest children who practice swimming must be adopted with the easiest thing to do. Therefore trainers in North Sumatra must understand more in training basic techniques in swimming, As in the swimming training manual by Felix C Sutanto (Junior Development Program Learning To Swim) explains that the most basic level to start learning swimming is style free. Because freestyle is a natural movement of the anatomy of the human body, and this is very influential in strengthening the basics in swimming so that children are better able to continue to more difficult techniques. As the most

basic material that is understanding the initial stages of swimming with the mastery of freestyle first, then what needs to be known in terms of providing training models to facilitate the advanced techniques of swimming with the butterfly style swimming pool, so that children do not feel bored in making style improvements butterfly swimming.

In reality, the coach at the North Smatera club is almost the average training for the sport that is introduced to children in the beginning of breaststroke swimming. When observing the training of swimming coaches in North Sumatra in October 2019, almost all trainers said that they started learning swimming using breaststroke. freestyle should be the first style that is trained to make it easier to learn the other styles.

Furthermore, in terms of the available information, there is still a lack of guidance in swimming training and a special butterfly-style training model, in the North Sumataera regions, making it difficult for KU III athletes to improve their coordination of the advanced butterfly style. This is the main reason that athletes in certain age groups are usually not able to continue the movement of the butterfly force, because the butterfly force is still the most difficult in coordinating its movements.

In this study, KU III is the focus of the study because to train swimming techniques in children aged at KU III is quite efficient. And the need for trainers to understand the butterfly style training model according to the ability of children at KU III age. Because based on observations of KU III swimming athletes in North Sumatra who do not yet have a good level of butterfly-style swimming motion.

Based on an analysis of the needs given to trainers and athletes on August 8, 2019. The results of the 10 trainers in the North Sumatra club 8 of them do not have a specific guidebook for training in the butterfly swimming style, and 2 trainers say that they have understanding information in upgrading is outside the province of North Sumatra. Furthermore, in 20 athletes, it was found that for more answers it was difficult to do a butterfly-style swimming, and at the next point athletes felt bored in practicing a butterfly-style drill.

Many factors affect the success of an athlete in his efforts to achieve maximum achievement. To improve an athlete's performance requires good and regular practice. "Exercise is a process of perfecting the ability to exercise containing theoretical and practical material, using methods and rules of implementation with a scientific approach, using the principles of planned and organized education, so that the training objectives can be achieved on time" [3]. Therefore the need for trainers who understand the stages in training, and understand the drill model to improve techniques, especially swimming in the butterfly style. Based on the above problems, the researcher wants to help increase the source of knowledge and information regarding the stages and models in the butterfly-style swimming training at KU III.

## II. RESEARCH METHODS

The research method used is the research and development (R & D) method, with the chosen development design referring to the development proposed by Borg and Gall. Components in the system approach models (design development models) but researchers only up to eight steps.

In this study subjects were determined to be small or large group trial studies. For small group trials, 1 is conducted on 2 coaches and 10 athletes from clubs in the rest, then for small groups 2 is carried out on 2 coaches and 10 athletes at the swimming club in the city of Binje and large group trials are carried out on 5 coaches and athletes in swimming club in Medan.

The development of the butterfly swimming training guide book on KU III athletes is carried out through several stages. [4] proposed a series of stages that must be taken in this approach covering 10 general steps, such as the following model:

1) Research and information collecting (research and information collection): study of literature relating to the problem being studied, and preparation to formulate a research framework. Observations obtained from the trainer, lack of understanding of the basic swimming exercises, the errors that often occur when doing butterfly-style swimming, lack of specific information from the butterfly-style training stages, then from observations in the field that athletes find it difficult to practice butterfly-style training butterfly Many factors affect the success of an athlete in his efforts to achieve maximum achievement. To improve an athlete's performance requires good and regular practice. "Exercise is a process of perfecting the ability to exercise containing theoretical and practical material, using methods and rules of implementation with a scientific approach, using planned and organized education principles, so that the training objectives can be achieved on time.

2) Planning (planning): formulate skills and expertise related to the problem, determine the objectives to be achieved at each stage, and if possible / necessary to carry out a feasibility study on a limited basis.

3) Develop the preliminary form of product (develop the initial form of the product); developing the initial form of the product to be produced, preparing supporting components, preparing guidelines and manuals, and evaluating the feasibility of supporting tools. Steps in this case include: (1) Determine the design of the product to be developed (hypothetical design) in more detail than before, (2) determine the research facilities and infrastructure needed during the research process in detail than before (3) determine the stages the implementation of design tests in the field is more detailed than before (4) determining the job description of the parties involved in this research

4) Preliminary field testing: conduct initial field trials on a limited scale. by involving subjects as much as 2 coaches and 10 athletes in the Pematangsiantar city club In this step data collection and analysis can be done by interview, observation or questionnaire. This step is a limited product test which includes: (1) conducting initial field tests of product designs, (2) being limited, both the substance of the design and the parties involved, and (3) initial field tests are carried out repeatedly so that obtained a decent design, both substance and methodology.

5) Main product revision: make improvements to the initial product produced based on the results of the initial trial. This improvement is very likely to be done more than once, according to the results shown in a limited trial, so that a main product (model) draft is obtained that is ready for wider testing.

6) Main field testing (main trials): the main trials involving all athletes, here conducted trials on the coaches of the Binjai city club and the Medan City club as many as 20 trainers and athletes. (1) conducting initial field tests on product designs, (2) are limited, both the substance of the design and the parties involved, and (3) the initial field tests are carried out repeatedly in order to obtain a decent design, both substance and methodology.

7) Operational product revision (revision of operational products): make improvements / improvements to the results of a wider trial, so that the product developed is an operational design model that is ready to be validated. Broader Field Test Revision: this step is the second improvement after a wider field test than the first field test.

8) Operational field testing (revised operational products): validation test of the operational model that has been produced. Final Revision of Feasibility Test Results. This step will further improve the product being developed which includes (1) testing the effectiveness and adaptability of the butterfly-style swimming exercise. (2) the effectiveness and adaptability test of the butterfly-style swimming exercise involving potential product users, and (3) the results of the field test are obtained design models that are ready to be applied, both in terms of substance and methodology. This revision is done again to check before the final results. Researchers bring all the files in the form of other test results to experts. Later experts will see what needs to be fixed.

9) Final product revision (final product revision): make final improvements to the model developed to produce the final product (final). This step will further enhance the product being developed. Here the researchers' steps are: 1) make improvements and make the training module as attractive as possible, 2) make improvements in terms of rules, 3) make improvements in terms of appearance, 3) make improvements in terms of language that is easily understood and 4) make improvements according to the direction .

### III. DISCUSSION

Product trials are conducted to collect data that are used as a basis for determining the feasibility of products developed by researchers. The stages in testing this product include: 1) determining the design of the trial, 2) determining the subject of the trial, 3) determining the type of data, 4) determining the data collection instruments, and 5) data analysis techniques.

The purpose of the trial design is to obtain the data needed to improve the product completely. The trial design is carried out through two stages, namely the first stage evaluation and the second stage evaluation. Both of these stages aim to obtain information about the significance of the product being developed.

#### A. First Stage Evaluation

The purpose of this first stage of evaluation is to determine the suitability of the book to the content of the material to be produced and developed. The first stage of evaluation consists of:

1) *Expert review and analysis*, which includes swimming experts / trainers, and media experts. For swimming experts / trainers the function is to provide information and assessments regarding the suitability of the butterfly nail style swimming

training material, so that suggestions from both experts will be collected later. For media experts the role is to provide input on the ethics and aesthetics of the media.

#### 2) Phase I trial (small group)

At this stage the subjects used were 2 trainers and 10 athletes. Used as subjects at this stage were 2 swimming athletes of the Binjai Dolphins and the Siantar Swimming Club. The purpose of this phase I trial is to get input by identifying and perfecting the stages of the product that were developed after being reviewed by several experts. These trial steps include:

- Explanation of product concepts to subjects (coaches and athletes)
- Carry out a form of training stages
- Fill in the Questionnaire for the product design and training model suitability

#### 3) Revision of the first product

The results of the review and analysis of several experts will bring up revisions to the product development. So that the revised results of the experts will be product II in the form of a production ready script which will be tested in the field. Also to revise the instruments that have been tested, so the results can be used to assess the manual at the field trial stage.

#### B. Second Stage Evaluation

This second phase of evaluation will be carried out a phase II trial by 5 trainers and 10 athletes from Tirta Prima Medan. So that the guide product in the form of a butterfly-style swimming exercise will be even more perfect, and can be applied as well as possible.

To obtain data or information in research need to do data collection activities. In the process of collecting data needed a tool or instrument to collect data. Data collection was carried out in the study using two techniques namely a preliminary study instrument and an instrument development model and field trials. The instrument of preliminary studies conducted in obtaining information carried out several methods which include:

1. *Interview*: An interview is conducted to obtain in-depth information about the obstacles and weaknesses associated with the butterfly force stage during the training process.

2. *Observation*: Observation is a method of collecting data through observation and recording. The advantage of using the observation method is that a lot of information can only be investigated by making observations.

3. *Questionnaire*: is a data collection tool that contains a number of questions or statements that must be answered by research subjects. While the basic technical development instruments are grouped into two, the first is product validation, the second is field trials using a questionnaire method.

On product validation it is given to material and media experts to get input and recommendations. The validation sheet is used to obtain a feasibility assessment of the KU III butterfly style training manual. On the validation questionnaire the material and media experts use the Likert scale, namely the psychometric scale which is commonly used

in the questionnaire according to [5] with four choices, namely:

1. Very Less
2. Enough
3. Good
4. Very Good

The assessment instrument by media experts is in the form of a questionnaire. The following aspects are assessed by media experts:

TABLE 1 ASPECTS OF MEDIA EXPERT RATING

No	Assessment Aspects	Number of Items
1	Design and Display Aspects	11
2	Layout and Writing Aspects	4
	Amount	15

Design and appearance aspects consist of 11 items. Design and appearance aspects can be seen in the following table:

TABLE 2 EVALUATION OF DESIGN AND DISPLAY ASPECTS

No	Assessment Aspects
1	Accuracy in choosing cover colors
2	Matching colors of writing on the cover
3	Winning cover selection
4	Suitability of paper cover type of book
5	The suitability of the type of paper in the book
6	Suitability of the page
7	Appropriate Book Size
8	Appropriate size of the exercise model image
9	Clarity of the exercise model image
10	Suitability of image relevance with material
11	Color match

The layout and writing aspects consist of 4 items. The layout and writing aspects can be seen in table 10 below:

TABLE 3. ASSESSMENT OF LAYOUT AND WRITING ASPECTS

No	Assessment Aspects
1	Font accuracy
2	Accuracy in font size
3	The accuracy of the location of the text
4	Appropriate type and size of letters

The instrument of evaluation by material experts is in the form of a questionnaire.

TABLE 4. ASPECTS OF EXPERT MATERIAL EVALUATION

No	Assessment Aspects	Number of Items
1	Material Aspects	7
2	Layout and Writing Aspects	3
	Amount	10

TABLE 5 MATERIAL ASPECT ASSESSMENT

No	Assessment Aspects
1	The suitability of the material with the title
2	Suitability of the image with the material
3	Material suitability
4	Material wrinkles
5	The accuracy of the title with the material
6	Meaningful use of material
7	Image wrinkles

The layout and writing aspects consist of 3 items

TABLE 6 ASSESSMENT OF LAYOUT AND WRITING ASPECTS

No	Assessment Aspects
1	The accuracy of language selection
2	Layout accuracy
3	Conformity of writing

For small group and field trials conducted to test the feasibility of the product to be disseminated. The small group and field trials also use a Likert scale questionnaire method with five choices, namely:

- 1: Very Poor, 2: Less, 3: Enough, 4: Ok, 5: Very good

The aspects assessed for small group trials and field trials are as follows:

TABLE 7 ASPECTS OF SMALL GROUP TRIALS AND FIELD TRIALS

No	Rated aspect
Display	
1	Suitability of the cover
2	Image accuracy
3	Suitability of design
4	Harmony of writing colors
5	Appropriate type and font color
6	Accuracy in size of the butterfly age group III training model
7	Size of the book model of the butterfly group age III exercise style
Theory	
8	Appropriate selection of butterfly style training models Age group III
9	Accuracy in choosing terms
10	The material is presented simply and clearly
11	The benefit of the swimming model of the butterfly swimming style Age group III
12	The Exercise Model is easy to understand
13	Appropriate table model of swimming training style butterfly butterfly Age group III
14	Model aging Age Group III butterfly style swimming exercises
15	The accuracy of the Butterfly Age Group III Swimming Pool training model
16	The butterfly swimming training model guide makes it easy for swimmers to learn independently
Legibility	
17	Corresponding punctuation
18	Language suitability
19	The suitability of the description of the KU III butterfly style training model
20	Appropriate Language Selection

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