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Development of Freestyle Swimming Aids Through Noodle Foam Modification in Junior High School

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Abstract

The Implementation of development activities with learning water activities in schools using facilities and the infrastructure for water activities do not yet exist and have not been designed in the form of the development of assistive devices. Therefore, learning goals cannot be achieved optimally, students tend to feel bored and unmotivated in participating in learning water fitness activities. The purpose of this study is to produce effectiveness and acceptance of noodle foam modification aids for learning water activities in schools. This research is a research and development (R&D) The results of product validation in research were obtained on average 95.8% (very good), with several revisions such as the addition of foam and the replacement of a larger hook to make it stronger. The product was tested on a small scale with an average result of 94.3% (very good). The product is revised by experts and declared to be usable. The product was tested on a large scale with an average result of 96% (very good). Freestyle swimming aids can be used as a learning model for water activities in schools. Suggestions for PE teachers are expected to be able to use this tool for learning water activities in order to help students to be more active and understand and participate in learning physical education.

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INTRODUCTION

The scope of sports (UU RI NO. 3 Tahun 2005 Tentang Sistem Keolahragaan Nasional, 2005) includes: Sports education: Development of the Physical Education and Sports curriculum, Improvement of teacher quality, Physical Education and Improvement of sports infrastructure. One of the benefits of exercise presented by Daniel Landers (Pane, 2015) Professor of Sports Education from Arizona State University, is increasing endurance and the function of hormones in the body. All of these things are interrelated and blend into one in the form of a great passion for sports (Aditia, 2015) .

Physical education is part of education to develop aspects of physical fitness, movement skills, and moral actions (Hasan, S., Winarno, ME, & Tomi, 2015)). According to Kemdikbud, (2014:1), it contains the meaning of education uses physical activity to produce an overall improvement in the physical, mental and emotional quality of students. According to Ega Trisna Rahayu Tahun 2013 dan Lauh (2014) regarding the function of physical education includes aspects, one of which is the neuromuscular aspect to improve harmony between nerve and muscle function, develop locomotor, non-locomotor and manipulative skills. The results of observations and interviews in the field show that teachers is lack enthusiasm for creativity, innovation, monotony in the learning process. Students are lazy to follow their learning. The implementation of learning process in schools must be fun, creative way and managed in learning design so that students have the willingness to move and participate in the learning process.

This research focuses on junior high school students who are in the adolescence period. Adolescence between men and women is increasingly clear in the differences in body size and shape with very rapid growth (Tisna, 2015) . This affects the characteristics of students. The characteristics of junior high school age according to other sources are as follows: Arifin, MBUB, & Fahyuni, (2018), namely the occurrence of discontinuity in height and weight proportions, the emergence of secondary sexual characteristics, a tendency to ambivalence . This has an influence on research. Researchers used freestyle swimming lessons. Based on the scope of physical education, students have an appreciation for playing and exercising behavior which is manifested in values. One of them is water activities. According to Prayoga (2016) that water activities include: water games, water safety, water movement skills, and swimming, as well as other activities.

In reality, many students have problems in implementing it, such as not being able to float, less than optimal arm and leg movements because they feel afraid and unmotivated. In its implementation, students can practice one of the swimming styles with good coordination with indicators of footwork and swinging or pulling of the swimming arms. Suhar (2016) says that freestyle is a style that is not tied to certain basic techniques. (Wiyana et al., 2013) revealed that learning media can be used as an intermediary between teachers and students in understanding learning material with effective and efficient. The fact is that in schools, freestyle swimming learning has not been implemented properly. This can be seen from the lack of facilities and infrastructure for learning freestyle swimming and the absence of modifications to the tools that support freestyle swimming learning. Researcher used Stick water noodles which are used in freestyle swimming lessons, which have not been widely used in freestyle swimming lessons, so it is necessary to modify the equipment by using materials from stick water noodles.

The use of aids as a medium for swimming is supported by several previous studies, namely research from (Wicaksono Galuh H et al., 2021) in research entitled Development of Flying Swimming Aids for Beginner Swimming Learning . Research results : material expert 95% or adequate; b) media expert at 88.46% or adequate; c) Respondents were 89.6% or adequate. The conclusion is that the flying swimming aid is declared suitable for swimming learning. Research from (Utami, 2018) entitled The Effectiveness of Training Methods Using Buoyancy Aids and Without Buoyancy Aids on 50 Meter Freestyle Swimming Speed. Research shows that The training method using buoyancy aids is more effective than without using buoyancy aids at a freestyle swimming speed of 50 meters. Research from (Prastiwi et al., 2017) entitled Development of a Tempo Trainer Tool to Help Efficiency in Freestyle Foot Movements. The results of the trial showed that the 44/minute cycle was effective. This tool is used to measure the speed of the left and right feet of freestyle swimmers.

From the above problem, the problem formulation is How is the product design of noodle foam modification development as a freestyle swimming aid in swimming learning in Junior High School, How is the feasibility of noodle foam modification as a freestyle swimming aid through swimming learning in Junior High School and How effective is noodle foam modifi-

cation as a freestyle swimming aid through swimming learning in Junior High School.

The aim of this research is to develop a noodle foam modification product as a freestyle swimming aid, to analyze the feasibility of noodle foam modification as a freestyle swimming aid and to analyze the level of effectiveness of noodle foam modification as a freestyle swimming aid in swimming lessons at secondary schools.

METHODS

Research using the Development (R&D) methodto produce a product in the form of a modified noodle foam swimming aid for learning water activities. According to Sugiyono (in Haryati, S., 2012: 13) emphasizes that research and development is a research method used to produce products and test product effectiveness. The product design uses foam material which has advantages and is attractive as a learning medium for freestyle swimming in water activities. The research instrument used a questionnaire to determine the suitability of freestyle swimming aids through noodle foam modification which was developed as a swimming aid with further development by researchers tailored to research needs. The instrument in the form of a questionnaire was validated by a sports lecturer.

The test subjects were eighth grade junior high school students. The small-scale trial was carried out of 25 students.at ZIIS Cilongok Middle School . Meanwhile, large-scale trials were carried out of 60 students at State Junior High School 1 Ajibarang and State Junior High School 2 Ajibarang. The data used in this research are qualitative data and quantitative data. Data was obtained from the results of assessments by swimming experts and learning experts, responses by Physical Education teachers as learning practitioners, as well as responses obtained from the results of trials with class VIII junior high school students.

Researcher is conducted interviews with sports teachers, and carried out observations by finding learning development models using tools to support the learning process for physical fitness activities. The procedure used in developing this noodle foam modification tool includes ten steps, namely: 1) Potential and Problems 2) Data Collection 3) Product Design 4) Design Validation 5) Design Revision 6) Product Trial 7) Product Revision 8) Test Try Usage 9) Product Revision 10) Mass Production. Descriptive analysis with one variable, namely the quality of freestyle swimming aids through predetermined noodle foam modification. The steps for analyzing data on the feasibility of freestyle swimming aids using noodle foam modification are as follows:

$$p=(\sum x)/n\times 100\%$$

Information :
p : the implementation percetage
$\sum x$: total score
n : the number of items of observed activity

To convert the implementation percentage obtained into a qualitative value based on the classification in the following table

Table 1. Classification Product

Percentage Range	Classification
85<p	Very good
70<p≤85	Good
50≤p≤70	Slightly good
p≤50	Not good

The freestyle swimming aids using noodle foam modification are said to be good if the result including the minimum good classification.

RESULTS AND DISCUSSION

From data results validation expert This obtained from questionnaire Which has given by researchers to expert validation. The following are the results of the questionnaire from validation expert.

Results of Trial Data Analysis I

Researchers conducted trials small scale in class VIII using 25 students at ZIIS Cilongok Middle School. The data to be entered The trial in this study used questionnaire data from students who provided it results on aspect cognitive. Whereas data results observation / observation produces affective and psychomotor aspects that are observed before and after research was carried out.

Table 2. The First Trial Data Analysis Results

Aspect	Average Results
Cognitive	95.2%
Affective	93.2%
Psychomotor	95.3%

Table 3. The Questionnaire Validation Expert Results

Validation Expert	Average Results
First Expert	96.6 %
Second Expert	95 %
Average	95.8%

From the results of the questionnaire given to the expert, the results were that The Noodle Foam Modification aids are the development of aids made from joined foam so that it can make learning to swim freestyle easier and can be used in junior high schools

Table 4. Product Revisions

Expert Revision	Revised section	Note
First Expert	Added more foam and the hook tool must replaced with a larger one	Overweight students still sink slightly
Second Expert	The hook part is enlarged to hook the foam firmly	When it used is often comes off

Researchers conducted trials large scale in class VIII at State Junior High School 1 Ajibarang and State Junior High School 2 Ajibarang, totaling 60 students. The data using questionnaire which give results on aspect cognitive. Whereas data results observations / observations produce affective and psychomotor aspects that are observed at the time before and after the research is carried out.

Table 5. Second Trial Data Analysis Results

Aspect	Average Results
Cognitive	96.3%
Affective	97%
Psychomotor	96.4%

Front View

Rear View

The Noodle Foam Modification aids are the development of aids made from joined foam so that it can make learning to swim freestyle easier and can be used in junior high schools, also assist teachers in delivering freestyle swimming material. The materials used in making Noodle Foam Modification tools is including foam, cloth, webbing rope and buckle. The reason researcher chosing foam as the main ingredient was because the foam floats very easily on water and comfortable to use. The fabric used is made of flexible material so that it adjusts to the size of the foam, while the webbing strap and buckle act as a hook between the fabric and the tool user. Each foam is 30 cm long and requires 4 foam. To combine each foam is needed fabric, webbing strap and buckle.

Noodle Foam Modification is a product that will later become a development tool for physical education learning in schools. This tool can later be used for floating in water and for leg training in freestyle swimming lessons . The target of developing this tool is junior high school students and made from foam which is cut into several parts then webbing and buckle straps which function to connect the cut foam.

CONCLUSION

This research produces freestyle swimming aids through noodle foam modification. The results of expert evaluation analysis of the quality of the noodle foam modification tool stated that can be used for learning freestyle swimming. The results of student questionnaires regarding the effectiveness and acceptability of the noodle foam modification tool can used for learning freestyle swimming. The final result of research on the development of assistive devices through noodle foam modification can be concluded that this tool can be used in learning freestyle swimming.

The suggestions in this research are innovations in developing freestyle swimming aids in schools. Become a reference material, innovation and consideration in the learning process, the students understand better and the teachers can help students to providing tools or learning media using noofle foam modification.

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