Aquatic activity learning model the fun games-based on breast stroke swimming in bachelor students

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Article Info

ABSTRACT

The Studi Purpose. Students have difficulty in doing swimming movements because they do not know the good sequence of movements. The purpose of this research is to help students learn to swim in an easy and fun way so they can do breaststroke swimming. Material and Methods. Effectivenes model fun games with 51 students as research subjects from the Faculty of Sports Science, UNP. The data collection instrument used expert validation questionnaires, documentation, and breaststroke swimming tests. The data analysis technique used independent sample t test analysis and aiken rater score. Results. The research findings show that fun games effectively improve students' breaststroke swimming ability. In the t-test obtained experimental group there is a difference. Conclusions. that there is a significant difference between the experimental class and the control class where using an aquatic learning model based on breaststroke swimming fun games has a greater influence on students' breaststroke swimming ability compared to those who do not use. Swimming learning is easier if done with fun games this is very good if the coach applies it.

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Introduction

Sports are increasingly developing along with the progress of the current period, increasingly innovative and increasingly sophisticated and modern technology. With the many demands of needs and busyness as well as today's lifestyle, the models and media needed in sports, especially swimming, have also developed (de Zeeuw et al., 2017; Mashud, 2018). Sports education provides opportunities for humans to develop all their potential so that they are able to face every challenge due to advances in the field of science and technology. The development of an increasingly rapid era demands quality human resources, because Indonesia's competitiveness with various countries is largely determined by the development of human resources itself(Darsana & Sudjana, 2022). Swimming is a sport that is carried out in water and all levels of society can do this sport and there are no age or gender characteristics. All activities carried out in the water are fun and enjoyable activities for those who do it (Csikszentmihalyi, 2014).

The curriculum of the Department of Sports Education, the swimming course is one of the practical courses that must be taken by students of the Department of Sports Education. The learning system used in the learning process is a Semester Credit System (SCS) with a total load of 144 credits. One indicator of the success of students from the Department of Sports Education (FSS) of UNP in participating in swimming courses is that students are able to do swimming movements well, in terms of the biomechanics of swimming

movements (Ishikawa, 2009) and swimming skills and swimming at a distance of 200 meters(Huot-Marchand et al., 2005). The current development of 100 students is that almost 50% have not mastered breaststroke swimming, the students who are accepted are not all swimming athletes.

The basic technique of breaststroke swimming is the easiest basic technique to learn from the other three basic swimming techniques, such as freestyle swimming, butterfly swimming, and backstroke swimming. According to (Gani et al., 2021)breaststroke swimming is one of the basic swimming techniques that starts from the first arm swing after sliding and the body must remain face down and both shoulders are in line with the water surface, swimming skills and swimming at a distance of 200 meters (McCabe et al., 2011; Psycharakis & Sanders, 2010). the same without alternating movements. Students of the Faculty of Sports Science, especially the Department of Sports Education, are students who are formed and printed as educators in the field of sports in an educational institution that guides them to be able to do according to their field of expertise. For this reason, students are required to be able to do and practice breaststroke swimming in order to prepare for after graduating from the University later.

The component of learning success is an integral part for the implementation of a good teaching and learning process. Process of educative interaction between students and their environment, interacting with lecturers who teach reading learning materials, the existence of facilities and infrastructure as well as learning media and a UNP portive social environment are the essence of learning, especially at the tertiary level(Suryasa et al., 2020). for that learning items are needed by making several forms of learning variation components of breaststroke swimming. What is very important in a learning process is the contribution between the strategy and the learning model used. Fun games-based learning model is a game-based learning model that makes students feel happy. This fun games-based learning model is also quite easy and does not require a long time. Learning using the fun games method is one model that can be used to improve various components of physical fitness, especially in basic swimming lessons(Aldemir et al., 2018; Molin, 2017). Fun games-based learning method is described as a physical activity that can generate pleasure for those who do it(Crocco et al., 2016; Gani et al., 2022). Explains that the practice of playing methods has the aim of creating a learning situation that is fun, active, positive, energetic, passionate and full of enthusiasm from the students(Nosko et al., 2019).

Playing according to (Garris et al., 2017)to be able to get a sense of pleasure then do play activities voluntarily and seriously, from physical activities like this the goal of learning will be achieved. In learning aquatic subjects, there are still students from the Department of Sports Education, FSS of UNP, who cannot swim breaststroke. Therefore, the researchers developed the Fun Games-Based Aquatic Learning Model to help students learn to swim easily and fun in order to be able to do breaststroke swimming, practical group is happy play (Ihsan et al., 2022). So here the researcher wants to design a fun games-based learning model to make it easier for students to learn and understand the breaststroke swimming movement by using a fun games-based learning model whose goal is that students can learn breaststroke swimming with a fun learning model, with a learning model designed by this researcher, it is hoped that students who cannot swim can swim by using a fun games-based learning model (Chee, 2015).

According Amaliyah et al., (2022)The learning model is an image used by educators for the implementation of teaching and learning activities, which includes the activities of educators and students by paying attention to the surrounding environment and also existing infrastructure. The model is basically a design that is used to represent something. Model is a representation of a realistic abstraction that is a picture of something, how it should be and or how it is. The point here is that the model is a description of something, the procedure for using it and how to use it. The model is designed to clarify the elements of a problem or scope and explain the relationship between these parts. Based on the several understandings put forward, it can be concluded that the model is a description of something that can clarify existing procedures, strategies, methods and components. The model is a design that is used to describe or explain a process of activities in order to fulfill the expected goals. Start to activity a warming up ready to swim (Okilanda et al., 2021).

Comparative research that discusses learning by strengthening the use of appropriate and effective swimming aid exercises, eliminating psychological fear to regulate the atmosphere in the classroom, stimulating students' enthusiasm and interest. In direct comparison to fun games in swimming which are effective for eliminating fear and students mastering themselves in swimming pools (Zhao, 2021). Fun games can also be done in warm-up (ice breaker), so what is meant by warming up in the learning process is solving a frozen mental or physical situation of students with the psychological term anxiety. Finally, this game can build a dynamic, enthusiastic and enthusiastic learning atmosphere. The hallmark of the game is to create a fun and serious but relaxed learning atmosphere. Games are used to create a learning atmosphere from passive to active, from stiff to moving, and from bored to cheerful.

The essence of the game is a physical activity that is done voluntarily and fun. Playing is a physical activity that is carried out voluntarily and seriously to get a sense of pleasure from the activity(Lin et al., 2006). In aquatic learning, all activities are carried out in water with the aim of training and obtaining motor, cognitive, affective and social improvements. Aquatic activities are all forms of activity in the water that can be carried out in rivers, at sea, in laskes or in swimming pools.

An indicator of the success of aquatic learning at the University level, especially in the Department of Sports Education, is that students are required to be able to practice basic breaststroke swimming with a distance of 200 meters and freestyle with a distance of 100 meters without stopping when doing breaststroke swimming or freestyle swimming. In addition, an indicator of the success of aquatic learning at the University level is mastering the basic materials and techniques of basic swimming material that has been given by the lecturer. The basic technical indicators assessed are head position, body position, hand movement, leg movement, movement coordination, and breathing. The research aims to prove the effectiveness of the fun game learning model in lectures by producing successful mastery of breaststroke swimming.

Method

The effectiveness model used in this study two group experiment and control. There are ten steps in Operational Field Testing (Sugiyono, 2013). This research will be conducted at the FSS of UNP Swimming Pool located on the main campus of UNP Air Tawar from November 2021 to February 2022. Researchers set the sample in this study using Purposive Sampling with a sample of 51 students criteria who cannot swim in swimming class. The data analysis technique used in this study is to use an independent sample mean difference analysis (t-test). Instrument test used in swimming the 100 meter breaststroke. Experiments conducted with 24 practice items. The learning items have been validated by experts. Data analysis using the t test was carried out to analyze the data in the form of observations of the effectiveness of the aquatic learning model based on breaststroke swimming fun games for students majoring in sports education, FSS of UNP. The next data analysis technique is to validate the draft learning model that has been designed by the researcher. Validation was carried out by 3 experts/experts consisting of 3 experts/swimming experts (Dr. Argantos), 1 expert/media expert (Prof. Anton) and 1 expert/linguist (Prof. Harris). At this validation stage, the experts will be given a questionnaire and also a draft learning model that will be validated by the experts.

Results and Discussions

The validation stage is the most important stage in research, where at this stage the draft learning model that has been designed by the researcher is validated first by swimming experts. Of the 40 learning models designed by the researcher, in the first stage of validation, 29 learning items were obtained and a small group test was conducted. In the first validation, several learning models were not valid to be developed in the aquatic learning model based on the breaststroke swimming fun games because they did not match the movement objectives to be achieved in this study. After the small group trial was carried out, the large group trial was continued. Prior to the large group test, the learning model used in the small group was re-validated before the large group test was conducted. 29 learning items used in small groups were re-validated and 24 learning items were obtained that were ready to be used in the large group test.

Revisions and evaluations obtained in each validation are suggestions in the form of additional learning syntax, additional forms of learning that compose on breaststroke swimming lessons such as breath, hands and feet, adapting to reports on breaststroke swimming learning in the Department of Sports Education related to materials, methods/strategies learning and duration of learning. The validator suggested that the learning model be developed in accordance with the purpose of the movement to be carried out by the students. The preparation of the game starts from the introduction of motion, breathing, floating, gliding, hand movements, foot movements, coordination and balance. After the learning model has been structured according to the learning syntax, it is continued with small group and large group trials conducted in the UNP Freshwater swimming pool. The validator has stated that the learning model designed is valid and can be

tested. The table below shows the data from expert validation on the design of developing an aquatic learning model based on breaststroke swimming fun games.

Table 1. Results of the Validity of the Aquatic Learning Model Based on Fun Games Breaststroke Swimming

Validator			S1	S2	S3	Σ	Valid	Kriteria
1	2	3						
85	82	93	59	56	67	182	0,778	Valid

Based on the results of the description in table 1, it shows that the results of the expert's assessment of the aquatic learning model based on breaststroke swimming fun games is 0.778 which is in the valid criteria. Thus, it can be said that the aquatic learning model based on the fun games of breaststroke swimming is valid and can be used in learning. The effectiveness of the learning model can be seen from the results of the student's breaststroke swimming ability test. In this study, students' breaststroke swimming ability was assessed through an instrument in the form of a blank breaststroke swimming technique criteria test.

Table 2. Frequency Distribution of the Experimental Group's Breaststroke Swimming Ability

Interval Class	Frequency	Percentage	Interpretation
<58	4	7,84	Very Poor
59-67	5	9,80	Poor
68-77	24	47,06	Sufficient
78-87	17	33,33	Good
>88	1	1,96	Very Good
	51	100	

The results obtained in the large group trial stage consisting of 3 experts/experts obtained the results of the breaststroke swimming ability of students in the experimental class 7.84% in the <58 interval class with the category of less than once, 9.80% in the interval class 59-67 with the poor category, 47.06% in the interval class 68-77 in the moderate interval class, 33.33% in the 78-87 interval class in the good category and 1.96% in the >88 interval class with the very good category. For more details, the experimental group's breaststroke swimming ability can be seen in the following histogram. The following are the results of the breaststroke swimming test for the control group as a comparison of the effectiveness of the aquatic learning model based on breaststroke swimming fun games**.**

Table 3. Frequency Distribution of Breaststroke Swimming Ability Control Group

Interval Class	Frequency	Percentage	Interpretation
<71	2	3,92	Very Poor
72-76	12	23,53	Poor
77-81	20	39,22	Sufficient
82-86	14	27,45	Good
>87	3	5,88	Very Good
	51	100	

The experimental class data is then compared with the control group data. The results obtained were 3.92% in the interval class <71 with a very poor category, 23.53% in the interval class 72-76 with a less category, 39.22% in the interval class with a sufficient category, 27.45% in the interval class. 82-86 with good category and 5.88% in interval class >87 with very good category. For more details, the ability to swim in the breaststroke in the control group can be seen in the following histogram. The mean difference test (t test) is used to test the difference in the mean of two samples taken from a normally distributed population, as well as the data obtained on an interval or ratio scale. In the mean test (t test) using an independent sample t test with the help of Microsoft Excel 2010. The t test criteria are as follows:

Table 4. Mean Difference Test Results (T Test)

T Test	Mean	Varians	Th	Tt
Experimental Group	72,824	87,348	232,087	2,009
Control Group	79,569	24,690		

From the data above, it shows that in the experimental class a variance of 87,348 was obtained and in the control class a variance of 24,690 was obtained. Then obtained T_h 232,087 while T_t 2,009 by using degrees of freedom (n1-1), (n2-1) and a significance level of 0.05 in the T distribution table. Next, the calculation of t_{alpha} is performed.

Table 5. Test Results for Large Groups

T_h	T_α	Remark
232,087	2,009	There is a difference

The results show that the value found with the formula th 232,087 in the table above is greater than the value obtained from talpha 2,009. So, the null hypothesis is rejected, so it can be concluded that there is a

significant difference between the experimental group and the control group. Based on the results of the research described above, the experimental test was carried out by learning aquatic activities based on breaststroke swimming fun games which were then compared to the control group. Ideally the implementation of swimming is an activity carried out in the water in the form of games, competitions, recreation, competitions and self-safety in the water. In fact, improvements in swimming activities carried out by students should be achieved in skills that cannot become able. According to (Syahrastani, 2022) says "Basic swimming techniques which include freestyle, breaststroke, backstroke and butterfly stroke". This means that the basic swimming techniques consist of freestyle, breaststroke, backstroke and butterfly stroke. Swimming requires good and prime physical condition. The physical condition in question is leg muscle power, because power is a combination of two elements, namely maximum strength and speed. So it can be concluded that in swimming there are 4 styles namely freestyle, breaststroke, backstroke and butterfly stroke. One of the breaststrokes that is carried out in aquatic learning is a mandatory guideline that must be mastered by students.

Aquatic learning, especially breaststroke swimming, is a mandatory lesson in the learning curriculum of the Department of Sports Education. Where all students are required to pass in aquatic learning, not only breaststroke swimming, but also freestyle swimming. Efforts to improve breaststroke swimming ability are by providing interesting and innovative models, methods/learning strategies for students. Attractive and innovative models, methods/strategies certainly need to be adapted to students in the learning process. The aquatic learning item based on breaststroke swimming fun games is one of the interesting and innovative learning models designed to increase motivation and passion in the learning process and improve students' breaststroke swimming skills. How to improve students' swimming skills can be done through fun learning such as the aquatic learning model based on breaststroke swimming fun games that are currently designed. in line with the statement (Ishak, 2017) swimming ability can be influenced through a play approach, authoritarian and democratic teaching style in students. The aquatic learning model based on breaststroke swimming fun games was developed using a fun game approach so that students do not feel bored quickly because they use an authoritarian learning style that simultaneously uses a democratic learning style. By combining the 3 learning styles used by lecturers, the learning process in lectures will achieve the learning objectives. The aquatic learning model based on breaststroke swimming fun games is designed by considering existing resources and designed into a fun game using interesting and easy-to-do methods/strategies and learning media.

In line with previous research conducted with research models that present learning through video media and lecturers directly, it shows that there are differences in the influence of the movement model presentation media by lecturers on improving breaststroke swimming skills, in contrast to students who use recorded media presentations, different also with students who use combined presentation media (presentation media of movement models by the teacher and recordings)(Dhani et al., 2022). Learning with tutorials accompanied by hands-on practice with lecturers is the best way especially served with fun games. This study aims to improve students' breaststroke swimming skills such as breathing, gliding, floating, balance, hand movements, leg movements and also coordination in students based on fun games. Through the learning items developed, students are required to explore, find and utilize easily found objects so that learning objectives become easier and more enjoyable so that the water-based fun games breaststroke swimming learning model will greatly support the success of UNP. the learning process in swimming courses because it involves the realm of swimming. cognitive, affective and psychomotor domains of students. Rusman in (Lauh et al., 2020) in the learning process activities determines the learning model to be used must consider several things, such as learning objectives, learning materials, students and other non-technical considerations.

The results found in this study are that the water activity learning model based on breaststroke swimming fun games can not only be done by students, but can also be used for elementary school (SD) to high school (SMA) students and can even be used. as practice material in clubs or swimming lessons. These learning items can be used as a distraction during training or learning. Because this learning model is specifically designed to reduce anxiety, boredom and also boredom when learning or practice takes place.

Conclusions

Learning breaststroke swimming is a top priority for mastering swimming techniques in lectures. Studying 24 fun games-based breaststroke swimming learning items has been carried out in research, it was found that in each student study group there were still those who had a fear of water, this was because there were absolutely no students who had never learned to swim. The experimental group that used 24 aquatic learning items based on breaststroke swimming fun games were students who had a low level of swimming ability, after carrying out learning with fun games had a greater effect on improving students' swimming abilities compared to the control group which did not use one aquatic based learning item. breaststroke swimming fun games. The

development of breaststroke swimming learning tools based on swimming fun games can be used not only for students, but can be used for all ages. Because it qualifies as an exercise that is applied to get rid of fear of water and enjoy doing activities in water. Aquatic learning items based on breaststroke swimming fun games are valid and effective learning items used by swimming lecturers because they provide fun and make each student braver so that they can be recommended to all breaststroke swimming learners.

References

Aldemir, T., Celik, B., & Kaplan, G. (2018). A qualitative investigation of student perceptions of game elements in a gamified course. Computers in Human Behavior, 78, 235–254.

Amaliyah, A., Rahman, F., & Maryam, S. (2022). Enhancement School Competitiveness Through A Literacy Culture Based on Local Wisdom. Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 6(3), 2325–2333.

Chee, Y. S. (2015). Games-to-Teach or Games-to-Learn: Addressing the learning needs of twenty-first century education through performance. In New Media and Learning in the 21st Century (pp. 37–65). Springer.

Crocco, F., Offenholley, K., & Hernandez, C. (2016). A proof-of-concept study of game-based learning in higher education. Simulation & Gaming, 47(4), 403–422.

Csikszentmihalyi, M. (2014). Play and intrinsic rewards. In Flow and the foundations of positive psychology (pp. 135–153). Springer.

Darsana, I. M., & Sudjana, I. M. (2022). A Literature Study of Indonesian Tourism Human Resources Development in the Era of Society 5.0. Al-Ishlah: Jurnal Pendidikan, 14(3), 2691–2700.

de Zeeuw, M., Smolianov, P., Dion, S., & Schoen, C. (2017). Comparing the practices of Dutch swimming against a global model for integrated development of mass and high performance sport. Managing Sport and Leisure, 22(2), 91–112.

Dhani, D. P., Zubaida, I., Triprayoga, R., & Wahyudi, A. N. (2022). Penggunaan media pembelajaran model gerakan terhadap hasil belajar renang gaya dada. Jurnal Pendidikan Modern, 7(3), 128–134.

Gani, R. A., Achmad, I. Z., Julianti, R. R., Setiawan, E., Németh, Z., Muzakki, A., Yanti, N., & Habibie, H. (2022). Does the Athletes' Leg Muscle Power Increase After the Tabata Aquatic Program? Teorìâ Ta Metodika Fìzičnogo Vihovannâ, 22(1), 56–61.

Gani, R. A., Jumareng, H., Kuswahyudi, K., Subandi, O. U., & Setiawan, E. (2021). Implementation Of Modification Game Methods To Improve Breaststroke Swimming Skills. Halaman Olahraga Nusantara (Jurnal Ilmu Keolahragaan), 4(2), 255–270.

Garris, R., Ahlers, R., & Driskell, J. E. (2017). Games, motivation, and learning: A research and practice model. In Simulation in Aviation Training (pp. 475–501). Routledge.

Huot-Marchand, F., Nesi, X., Sidney, M., Alberty, M., & Pelayo, P. (2005). Swimming: Variations of stroking parameters associated with 200 m competitive performance improvement in top-standard front crawl swimmers. Sports Biomechanics, 4(1), 89–100.

Ihsan, N., Okilanda, A., Donie, D., Putra, D. D., Wanto, S., & Arisman, A. (2022). Practical Group Defense Exercise Design in Football Game for 13-Year-Old Students. Teorìâ Ta Metodika Fìzičnogo Vihovannâ, 22(2), 194–201.

Ishak, M. (2017). Gaya Mengajar Otoriter dan Demokratis terhadap Hasil Belajar Renang Gaya Bebas. Jurnal Pendidikan Jasmani Dan Olahraga, 2(1), 94–103.

Ishikawa, T. (2009). Suspension biomechanics of swimming microbes. Journal of The Royal Society Interface, 6(39), 815–834.

Lin, J. J., Mamykina, L., Lindtner, S., Delajoux, G., & Strub, H. B. (2006). Fish'n'Steps: Encouraging physical activity with an interactive computer game. International Conference on Ubiquitous Computing, 261–278.

Mashud, M. (2018). Swimming Lesson Based on Interactive Multimedia. International Journal of Sports Science, 8(3).

McCabe, C. B., Psycharakis, S., & Sanders, R. (2011). Kinematic differences between front crawl sprint and distance swimmers at sprint pace. Journal of Sports Sciences, 29(2), 115–123.

Molin, G. (2017). The role of the teacher in game-based learning: A review and outlook. Serious Games and Edutainment Applications, 649–674.

Nosko, M., Arkhypov, O., Khudolii, O., Filatova, Z., & Yevtushok, M. (2019). Pedagogical Conditions for Swimming Skills Development in Students of Pedagogical Educational Institutions.

Okilanda, A., Dlis, F., Humaid, H., Putra, D. D., & Arisman, M. (2021). Defense warm-up exercise material for 13-age athlete using video technology in covid-19 era. International Journal of Human Movement and Sports Sciences, 629–634.

Psycharakis, S. G., & Sanders, R. H. (2010). Body roll in swimming: A review. Journal of Sports Sciences, 28(3), 229–236.

Sugiyono, D. (2013). Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D.

Suryasa, W., Zambrano, R., Mendoza, J., Moya, M., & Rodríguez, M. (2020). Mobile devices on teaching-learning process for high school level. International Journal of Psychosocial Rehabilitation, 20(4), 330–340.

Syahrastani, S. (2022). Differences in the three swimming style learning outcomes from gender.

Zhao, Y. (2021). Discussion on the Application of Swimming Assisted Training in College Swimming Teaching. Journal of Human Movement Science, 2(4), 44–47.