Available online at : http://journal.unj.ac.id/unj/index.php/gjik
Gladi : Jurnal Ilmu Keolahragaan 13 (04) 2022, 360-372
Permalink/DOI: https://doi.org/10.21009/GJIK.134.02

THE EFFECT OF FLEXIBILITY, KINESTHETIC PERCEPTION, AND MOTIVATION ON THE SKILLS OF THE 50 METER BUTTERFLY SWIMMING

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Abstract

This study aims to determine the effect of flexibility, kinesthetic perception, motivation together on the learning outcomes of butterfly swimming. The method used in this study uses a quantitative approach, survey method with test and measurement techniques. The data analysis technique used a path analysis approach. The population of this research is second semester students in the physical education study program, health and recreation, FKIP-UNSIKA, Karawang Regency. There are 155 second semester students. The sampling technique used the purposive sampling method, so that the number of people studied were 31 people who met the researchers' criteria after the butterfly style swimming test was carried out. Based on statistical analysis, the results of hypothesis testing are obtained that 1) flexibility (X_1) has a direct positive effect on motivation (Z) by 6.05%.2) Kinesthetic perception (X_2) has a direct positive effect on motivation (Z) by 28.62%. 3) Flexibility (X_1) has a direct positive effect on the 50-meter butterfly (Y) swimming of 1.85%. 4) Kinesthetic perception (X_2) has a positive direct effect on the 50-meter butterfly (Y) swimming by 2.1%. 5) Flexibility (X_1) and kinesthetic perception (X2) affect the learning outcomes of butterfly style swimming (Y) through the motivational intervening variable (Z) oby 58.37%.

Keywords: flexibility; kinesthetic perception; motivation; butterfly style

INTRODUCTION

Swimming learning is included in physical education where swimming learning is carried out in stages from basic techniques so that students can follow each given stage. Swimming learning is more emphasized in the learning process which later if the learning process is very good, the learning outcomes will be even better.

There are several things that must be learned by swimmers, namely freestyle swimming, backstroke swimming, breaststroke swimming, butterfly swimming and medley swimming. Swimmers must master the basic techniques of style in swimming. Swimming techniques are learned in stages according to the sequence and stages so that students understand and understand each stage taught by the swimming course lecturer.

According to (Gani, 2017) Swimming is an excellent form of exercise. Swimming is beneficial for the respiratory system, the heart and skeletal muscles of the body and can maintain flexibility in the shoulder joints. Swimming can also develop and help children's physical and mental growth to be healthier from an early age. Besides, everyone can try different styles of swimming that they like (Darmawan & Destiasari, 2019). Swimming is also growing with the number of swimming clubs that have been formed, it can be seen that swimming has succeeded in attracting the attention of many people around the world, including Indonesia (Uchaera, 2020).

According to (Ahmad, 2020), Swimming is a sport that is different from other sports in general. Swimming is a sport for achievement purposes because swimming is carried out in water so that the earth's gravity factor is influenced by the power of water pressure so that swimming can be done with various forms of techniques and styles.

Freestyle is swimming with the chest position facing the surface of the water (Tahapary & Syaranamual, 2020). Doing breaststroke swimming the body must be above the water as much as possible with a relaxed, head position helps to determine the general position of the body to be stable (Tama, 2019). Backstroke swimming is considered an advanced style of swimming, meaning that swimmers can swim backstroke if they can swim with other styles such as breaststroke and freestyle. So that swimmers don't have difficulty learning

the backstroke swimming technique, the lecturer is able to arrange swimming lessons in such a way from the easiest series of movements to the most difficult exercises in achieving success in learning the backstroke swimming technique (Surahman, 2018). The butterfly stroke is an advanced style, meaning that swimmers in this style can do other styles (Darmawan & Destiasari, 2019).

Among the most beautiful swimming style courses is the butterfly style swimming. The technique of learning to swim butterfly style swims like a dolphin. In addition to butterfly swimming, most people call dolphin style swimming, in the butterfly style swimming course students must be able to freestyle swimming techniques because it will be easier to follow the butterfly style swimming lesson which is included in swimming II, aquatic lectures with style swimming. chest. According to (Gani, 2019), the unity of the butterfly style swimming technique starts from both arms and both legs simultaneously doing a whip, or it can also be said that the coordination of swimming movements is sequential and continuous.

The flexibility of students who take the butterfly style swimming lesson is determined by the width or narrowness of the joint space, so students who have flexibility are able to move their limbs through butterfly swimming, flexibility in students is the flexibility of motion in the joints, whether or not the muscles are elastic. on the body.

Accoring to (Retno Farhana N., 2019) The flexibility of a person is determined by the narrow range of joint motion. So people who have flexibility are people who are able to move their limbs or body parts through their space of motion. In the swimming sport, waist flexibility is needed to get good results in an optimal start, waist flexibility plays a role after students start a repulsion to jump followed by a good stretch of the body, to do a good stretch requires good waist flexibility, then in swimming start the butterfly style in its implementation in the water followed by the butterfly foot beat movement requires an element of waist flexibility (Maidarman, 2016).

Flexibility is a prerequisite for high-amplitude skill performance, and makes it easier for someone to make quick movements (Maidarman, 2017). According to (Ambarwati, Widiastuti, & Pradityana, 2017) Flexibility is one of

the physical components that everyone has to create flexible, smooth and not stiff movements, then this element of physical condition is developed into movement abilities that support mastery of sports skills.

Furthermore, to perform the butterfly stroke swimming skill correctly, it will produce the impetus generated by the movement and high and appropriate movement skills are needed. High and appropriate movement ability can be known as perception. According to Suryono (2016) in journal (Arifin, Marani, & Jauhari, 2022) Perception is a sensing process, namely the process of receiving a stimulus by an individual through his senses or also called a sensory process.

Kinesthetic perception is the sense that provides awareness of the position of the body or body parts when moving (Hutabarat, Watimena, & Fitranto, 2017) Because of these senses, a person will be able to control movements more accurately. Kinesthetic perception is the ability to move body parts or the whole body in performing muscle movements that refer to the senses in the muscles (Ferawati, 2018). Even in silence, the kinesthetic senses can monitor body position (Hendrayana, 2011).

Motivation is very important in relation to learning motion in swimming. Low learning motivation in swimming lessons must be improved so that physical learning objectives can be achieved and students have the expected learning experience. Motivation is a psychological symptom that appears in the form of encouragement to someone consciously or unconsciously to take certain actions with certain goals (Marpaung, Sudradjat Wiradihardja, & Kurnia Tahki, 2021).

According to the journal (Hamdu & Agustina, 2011) The learning motivation of students in each learning activity plays a very important role in improving student achievement in certain subjects. According to the journal (Burstiando, 2015)(12) defines motivation as an impetus that comes from within or from outside the individual to carry out an activity that can ensure the continuity of the activity, and can determine the direction, direction and amount of effort deployed to carry out activities so that they can achieve the goals that have been set.

The results of the learning value of butterfly swimming in the second

semester of Aquatic II show that butterfly swimming is very difficult. Based on observations in the field, there are still many students who have difficulty doing butterfly swimming. Many students of the PJKR study program have not been able to master the butterfly stroke swimming technique properly and correctly. This fact can be proven that when students perform the butterfly stroke swimming technique, most of the student's body positions are inclined to the water surface and feet away from the water surface. Leg movements from knees to ankles are stiff, arm movements in the pulling and pushing phase are too low, and breathing is done too early, so that under these conditions it can be said that students' abilities are low.

Based on the description above, it is necessary to do research that focuses on several variables that are considered dominant that have an influence on the learning outcomes of butterfly swimming, namely flexibility, kinesthetic perception, and motivation. This is in accordance with the literature review and discussion with swimming lecturers, physical education, health and recreation, faculty of teacher training and education at Singaperbangsa Karawang State University.

METHOD

This study aims to determine the effect of flexibility, kinesthetic perception, joint motivation and learning outcomes of butterfly swimming. The method used in this study uses a quantitative approach, survey method with test and measurement techniques. Then, the data analysis technique uses a path analysis approach.

The target population in this study are second semester students in the physical education study program, health and recreation, FKIP-UNSIKA, Karawang Regency. population is 5 classes, Semester 2 students are 155 people. To determine the sample to be used in the study, the authors used the purposive sampling method. Based on the description above, from the 155 population studied, the number of samples was 31 people who met the researchers' criteria after the butterfly style swimming test was carried out.

To obtain data in this study, the following research instruments were used: (1) a test of technical skills to measure learning outcomes of butterfly swimming; (2) flexibility test using the sit and reach test; (3) a kinesthetic

perception test to determine the feeling of motion; (4) emotional management test using a questionnaire.

RESULTS AND DISCUSSIONS

Results

There are two kinds of data described in this section, namely: one dependent variable (Y) learning to swim the 50 meter butterfly stroke, two independent variables consisting of: (X_1) flexibility (X_2) Kinesthetic perception and one intervening variable (Z) motivation.

50 meters Butterfly Swim (Y)

Based on the results of the research on the 50 meter butterfly style swimming learning data, the data obtained from 31 samples can be classified with a value of 2290.00, the average value of butterfly style swimming learning with a value of 73.8710. the minimum score is 50.00 and the maximum score is 100.00 from the data analysis, the range on the score is 50.00 with a standard deviation of 15,65406 and the variance is 245,049.

The following is an interval table from the results of the 50 meter Butterfly Style Swimming.

Table 1.

Frequency Distribution of 50 Meter Butterfly Swimming Learning Score

Interval Class	Absolute Frequency	Relative Frequency (%)
50 - 59	10	32.3
60 - 69	6	19.4
70 - 79	5	16.1
80 - 89	5	16.1
90 -100	5	16.1
Total	31	100.0

Flexibility (X_1)

Based on the results of the research, the flexibility data obtained from 31 samples can be classified as 1800.00, the average value of flexibility is 58.0645. the minimum score is 20.00 and the maximum score is 100.00 from the data analysis, the range on the score is 80.00 with a standard deviation of 18.15110 and the variance is 329.462.

Table 2.

Flexibility Score Frequency Distribution

Interval Class	Absolute Frequency	Relative Frequency (%)
20-32	2	6.5
33-45	6	19.4
46-58	0	0
59-61	18	58.1
62-74	0	0
75-87	3	9.7
88-100	2	6.5
Total	31	100.0

Kinesthetic Perception (X2)

Based on the results of research on kinesthetic perception data, the data obtained from 31 samples can be classified as a value of 2460.00, the

average value of kinesthetic perception with a value of 79.3548. the minimum score is 50.00 and the maximum score is 100.00 from the data analysis the range on the score is 50.00 with a standard deviation of 12.63210 and the variance is 159,570.

Table 3.

Kinesthetic Perception Score Frequency Distribution

Kelas Interval	Frekuensi Absolut	Frekuensi Relatif (%)
50 – 59	1	3.2
60 – 69	3	9.7
70 – 79	7	22.6
80 – 89	9	29.0
90 – 100	11	35.5
Total	31	100.0

Motivasi (X3)

Based on the results of the study of motivational data, the data obtained from 31 samples can be classified with a value of 3950.00, the average value of motivation with a value of 127.4194. the minimum score is 86.00 and the maximum score is 160.00 from the data analysis the range on the score is 74.00 with a standard deviation of 22.78563 and the variance is 519.185.

Table 4.
Frequency Distribution of Motivation Score

Interval Class	Absolute Frequency	Relative Frequency (%)
86-97	4	12.9
98-109	4	12.9
110-121	6	19.4
122-133	4	12.9
134-145	4	12.9
146-160	9	29.0
Total	31	100.0

Hypothesis test

Structural 1

Table 5.

Structural Determination Coefficient Results 1

Coefficients[a]

Model	Unstandardized Coefficients		S. Coefficients		
	B	Std. Error	Beta		Sig.
(Constant)	2.868	9.999		.643	111
X1	309	195	246	.586	124
X2	965	280	535	.449	002

a. Dependent Variable: Motivasi

The results of data analysis are based on the Coefficient table above in the structural model 1:

a. The path coefficient shown by the Standardized Coefficient (Beta) column, namely the path coefficient X_1, to Z ($\rho Z1$) = 0.246, t_o = 1.586 and p-value = 0,124/2 = 0,062 > 0.05 or H_o accept H_a is rejected. Thus the flexibility variable (X_1) has no significant effect on the motivation variable (Z).

b. The path coefficient indicated by the Standardized Coefficient (Beta) column, namely the path coefficient X2, to Z (ρZ2) = 0.535, t_o = 3.449 and p-value = 0,02/2 = 0,01 < 0.05 or H_o rejected H_a accepted. Thus the kinesthetic perception variable (X_2) has a positive direct effect on the motivation variable (Z).

Struktural 2

Table 6.
Structural Determination Coefficient Results 2

Coefficients[a]

	Unstandardized Coefficients		S. Coefficients		
	B	Std. Error	Beta	T	Sig.
	14.043	.760		2.077	047
X1	118	066	.136	.791	085
X2	179	108	.145	.662	108
X3	525	061	.764	.603	000

a. Dependent Variable: Renang

The results of data analysis based on the Coefficient table above in structural model 1 are obtained successively:

a. The path coefficient shown by the Standardized Coefficient (Beta) column, namely the path coefficient X_1, to Y (ρy1) = 0.136, t_o = 1.791 and p-value = 0,085/2 = 0,043 < 0.05 or H_o rejected Ha accepted. Thus the flexibility variable (X_1) has a positive direct effect on the butterfly style swimming variable (Y).
b. The path coefficient indicated by the Standardized Coefficient (Beta) column, namely the path coefficient X2, to Y (ρy2) = 0.145, t_o = 1.662 and p-value = 0,108/2 = 0,054 > 0.05 or H_o accepted Ha rejected. Thus the kinesthetic perception variable (X_2) has no significant effect on the butterfly style swimming variable (Y).
c. The path coefficient indicated by the Standardized Coefficient (Beta) column, namely the path coefficient Z, to Y (ρyz) = 0.764, t_o = 8.603 and p-value = 0,000/2 = 0,000 < 0.05 or H_o rejected Ha accepted. Thus, the flexibility variable (X_1) and kinesthetic perception (X_2) affect the learning outcomes of butterfly style swimming (Y) through the motivational intervening variable. (Z).

Discussion

1. The direct effect of flexibility (X_1) on motivation (Z)

The results of the calculation from the path analysis, the direct effect of flexibility (X1) on motivation (Z), the value of the path coefficient is 0.246 with a t_{value} of

0.911 greater than t_{table}. 2.0518. because the value of t arithmetic is smaller than t table then Ho is rejected, thus flexibility (X_1) has no significant effect on motivation (Z)

Based on the findings from this research field, it shows that flexibility does not have a significant direct effect on the motivational variables of PJKR Unsika students in this study, the flexibility variable is not one that affects motivation in butterfly swimming lessons.

2. The direct effect of kinesthetic perception (X2) on motivation (Z)

The results of the calculation from the path analysis, the direct effect of kinesthetic perception (X_2) on motivation (Z), the value of the path coefficient is 535 with a t-count value of 2.977 greater than t_{table}. 2.0518. Because the t_{count} value is greater than t_{table} the hypothesis is rejected, so kinesthetic perception (X_2) has a direct effect on motivation (Z).

Based on the findings from this research field, it shows that the results of kinesthetic perception are one of the most important variables and have a significant direct effect on the motivational variables of PJKR Unsika students in this study, students who have good kinesthetic perceptions will directly increase motivation in learning butterfly swimming butterfly.

3. Direct Effect of Flexibility (X_1) on Butterfly Swimming (Y)

The calculation results from path analysis, the direct effect of flexibility (X1) on butterfly swimming (Y), the value of the path coefficient is 136 with a tcount value of 3.915 greater than ttable. 2.0518. because the value of t_{count} is greater than t_{table} the hypothesis is rejected, so flexibility (X1) has a direct effect on butterfly swimming (Y).

Based on the findings from this research field, it shows that the results of flexibility are one of the most important variables and have a direct positive effect on the butterfly style swimming variable in PJKR Unsika students. butterfly.

4. The Direct Effect of Kinesthetic Perception (X_2) on Butterfly Swimming (Y)

The calculation results from path analysis, the direct effect of kinesthetic perception (X2) on butterfly swimming (Y), the value of the path coefficient is 145 with a t_{count} value of 12,081 greater than t_{table}.

2.0518. because the value of t $_{count}$ is greater than t $_{table}$ the hypothesis is rejected, so the kinesthetic perception (X_2) has a direct effect on the butterfly style swimming (Y).

Based on the findings from this research field, it shows that the results of kinesthetic perception are one of the most important variables and have a direct positive effect on the butterfly style swimming variable in PJKR Unsika students. butterfly swimming.

5. The effect of flexibility (X_1) and kinesthetic perception (X_2) on learning outcomes of butterfly style swimming (Y) through the motivational intervening variable (Z)

The results of the calculation from the path analysis, the direct effect of motivation (Z) on butterfly swimming (Y), the value of the path coefficient is 0.764 with a tcount value of 2.133 greater than ttable. 2.0518. because the value of tcount is greater than ttable the hypothesis is rejected, so motivation (Z) has a direct effect on butterfly swimming (Y).

Based on the findings from this research field, it shows that the results of motivation are one of the most important variables and have a direct positive effect on the butterfly style swimming variable in PJKR Unsika students. In this study, students who have good flexibility will directly improve their ability in learning butterfly style swimming.

CONCLUSION

1. Flexibility directly affects motivation.
2. Kinesthetic perception has a direct effect on motivation.
3. Flexibility has a direct effect on butterfly swimming.
4. Kinesthetic perception has a direct effect on butterfly swimming.
5. Motivation has a direct effect on butterfly swimming.

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