The Correlation between Butterfly Swimming Technique with Motor Ability and Motor Educability

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Abstract. The purpose of this research is to find out the correlation between butterfly swimming technique with motor ability and motor educability. The research uses a descriptive method. Data was analysed and the result shows that (1) t = 2.9084 and t table = 2.31. Where t count > t table, Ho: rejected, there was a positive and significant correlation between motor ability and butterfly swimming technique. (2) t = 2.9574 and t table value = 2.31. Where t count > t table Ho: rejected, there was a positive and significant correlation between motor educability and butterfly swimming technique. (3). Test the significant and obtained f f table count and the real level of 0.05 with df = (k), (n - k - 1) (2/7) gained in value by 4.74. The criteria for the hypothesis is : Accept the hypothesis (Ho) if F count F table with df = (k), (n - k - 1) at a significance level of = 0.05, in the case of another hypothesis (Ho) is rejected. From the data processing obtained 5.1531 4.74 so it can be concluded that the hypothesis (Ho) is rejected, there was a positive and significant correlation between motor ability and motor educability on butterfly swimming technique. Based on the results, the research is expected would contribute to sport coach competency. Hence, they can strengthen the athlete's potential without ignoring a basic movement skill. It can be concluded that movement skill and motor educability has an important role to study a difficult fundamental skill movement, for instance the ability of butterfly swimming technique.

1. Introduction

Indoor sports dimension of education is one sport that is contained in the physical education curriculum, from elementary school to high school. Therefore, swimming became one of the components of the assessment in the subjects of physical education and sport. Although the timing of the exercise is done outside of school hours, the appreciation of the students to perform water activity is quite large. There are even elite schools that are opening special classes outside school hours swimming (extracurricular) and require its students to participate in these activities. This activity will positively impact the development of the sport at school.

This sport is quite nice and favored by the majority of children and adults. The benefits of this sport when viewed in the context of recreational sports is very diverse, such as eliminating boredom in daily routine, maintaining health and fitness, direct socialization with other people and there are many more benefits to be gained in the pool when viewed from the dimension of sport recreation.

Context of sporting achievement, this sport requires the athlete to be able to print the time at full speed to the finish line. Solid exercise routine and discipline became one of the aspects to obtain optimal performance. Achievement of an achievement made through a comprehensive training process.

The aim for achievement, are required to have a degree of fitness and should have skills in sports better than the average non-athlete [1]. Therefore, the acquisition of skills to be one of support for someone in the sport to show the techniques that they do. Technique in the sport swimming has been linked to the degree of mastery of the four styles that are often contested. As for some of them is the style of freestyle, breaststroke, backstroke and butterfly.

Motor skills needed effective and efficient continuous training process. Starting from the easiest exercise to stage a complex exercise, all phases of the committed athlete to achieve maximum results in the form of a best performance. The skill level is high only possible with repetitive exercises involving all acquired learning experience [2].

The degree of mastery of the skills the sport will be very different from one another. For example, just in the sports pool, the ability of a person will vary depending on when in the water. There are several possibilities that will happen, in which a person will be floating, sinking, and so forth. The ability of people floating and stationary in the water is determined by the location of the center of gravity of the floating point [3]. Based on the terms that are closely related to gravity and floating point, argues that: When the density of athletes = 1, he was in the water in equilibrium. When its density> 1, meaning that gravity is greater than the buoyant force, the more weight it will encourage athletes continue to fall to the bottom of the water. The athletes will sink. When the density of <1, meaning that gravity is smaller than the buoyant force (or the buoyant force greater than gravity), the excessive buoyancy will push athletes to the top until the water comes to the surface. The athletes will be floating or floating. Differences in density on the swimmers, caused by differences in posture and musculoskeletal differences in composition of the fat [4].

Mastery level swimming technique is closely related to the skills and coordination, but in the achievement everyone has a degree of mastery of the different. Factors that influence is very diverse, ranging from age, gender, development, growth and others. The principle of individual differences according to that: As for some of the factors that influence the onset of difference and diversity in ability and personality aspects include the nature or hereditary factors (heredity), interaction with the environment and development factors as well as the maturity of the individual concerned. Functionally can be described in the following formula in figure 1 [5]:

$$P = f(H.E.T)$$

Figure 1. Factors that affect the ability and personality

Information:
P = Personality f = function, H = Heredity E = Environment T = Time (time, meaning a period of growth, development and maturation).

Because this is why each individual is unique, which is typical of the quality of a person's behavior so that it can differentiate between one another. Overall aspects will realize the quality of the actions or behavior of the individual concerned. The style of the butterfly is often referred to as the most difficult swimming style because the second hand moves to recover above the water surface simultaneously [6]. This is why it takes time relatively long in its training compared to other styles.

The process of any exercise cannot be done in haste, because this style requires the swimmer performs the stroke arm movement in unison between the right and left hand as well as the coordination between the legs and breathing. Another component that is needed is a high flexibility to produce rhythm movement butterfly style that looks beautiful when displayed.

In the implementation of the motion of the butterfly takes good coordination between the rhythm of the movement of hands and feet and breathing. The movement of the butterfly is comprised of one stroke hands, two legs and one swing breathing, but should provide enough time between the movements to make the next move [7].

To perform motion tasks that require the level of coordination and control techniques are high, one must have good physical abilities anyway. Physical ability is closely related to the motor abilities someone innate intelligence or somebody to learn new moves. So a person's ability to show movement at the time of the motion tasks will be different between one another. In addition to the range of movement will greatly affect a person's skill in mastering the techniques of a sport.

The ability of motion is four abilities that are more directly related to the skills of the sport, namely: coordination, kinesthetic, balance and speed of movement [8].

Components is one aspect of supporting the sports activities, if a person has a high level of mobility that it will be sooner degree of mastery in every sport they do. Athletes who have been able to master the technique of swimming well, then the coach will give combination movement or technique that is new to the athlete concerned. Because in the sports pool often displays variations of movement and exercise techniques vary, with the aim of improving or movement in every training session.

Intelligence person to be able to understand and perform a movement quickly, will help to make the automation stage to be reached well. Mastery of movement or skill is closely related to the motor educability, where a person is able to learn new movements effectively and efficiently. This is often used by sports teachers in carrying out tests of motor educability with the aim to classify their students make it easier to give instructions during learning activities (KBM).

The motor is the ability of a person to learn a new movement (new bike skill) [9]. This means that the motor educability will greatly influence a person to be able to describe how the degree of ability itself in mastering the new movement, which is instructed by teacher or coach that can be achieved effectively and efficiently.

Relation to the swimming technique backstroke which is considered difficult by most swimmers, with this will show that the higher the level of motor educability someone the faster and easier it is in the degree of mastery of movement. So appear problems, namely swimming butterfly style that has a level of coordination and control techniques are high. As well as relatively longer when the training process, is expected to determine the level of motor educability first. Then it will be easier for coaches to group athletes in planning a training program in accordance with the ability of movement that the athlete-athlete.

Mastery of techniques butterfly swimming style is closely associated with the mastery of movement skills. Therefore required a high degree of data showing poor motor skills or abilities and the motor educability someone. This was done to facilitate the grouping of swimmers when the implementation of the training and programming toward specialization swimmers. To the writer interested to study “The Correlation between Butterfly Swimming Technique with Motor Ability and Motor Educability”. But it is worth verifiable through a comprehensive research using statistical methods. From the description above, this study was conducted to determine:

- Is there a significant correlation of motor abilities by using the butterfly swimming technique?
- Is there a significant correlation with the technique of motor educability swimming the butterfly swimming technique?
- Is there a significant correlation of motor abilities and the motor educability together with the butterfly swimming technique?

2. Methods

This study uses descriptive correlational with a population of athletes who are members of regional training (Pelatda) PORDA sports Cimahi pool totaling 13 people. By using purposive sampling data retrieval (Figure 2).

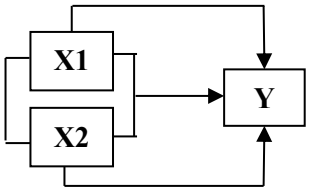

Figure 2. Model for analysis data sampling

Explanation:
X1 : Motor Ability
X2 : Motor Educability
X1X2 : Motor Ability and Motor Educability Together
Y : Butterfly Technique

3. Results

3.1. Calculating Correlation Coefficient

Table 1. Count Results Correlation (Correlation Coefficient)

Variable	Correlation Coefficient (r) or (rho)
X1 with Y	0.7167
X2 with Y	0.7225
X1 with X2	0.7394

Based on the correlation calculation in table 1, there is a relationship of motor abilities with swimming technique butterfly style of 0.7167. Correlation of motor educability with swimming technique backstroke at 0.7225. As well as the correlations of motor abilities and techniques of motor educability with swimming the butterfly stroke is equal to 0.7394. Furthermore, the correlation coefficient will be used in the significance test of correlation.

3.2. Significance Correlation

Table 2. Count Results Correlation Significance

Correlation	T count	T table	Ho	Conclusion
Rxy	2,9084	2,31	Rejected	Significant
Rxy	2.9574	2,31	Rejected	Significant

Based on the calculation results of significance test of correlation coefficient (table 2) between the variables of motor abilities by swimming technique backstroke obtained t count equal to 2.9084 while t table with df = 10 on the real level α = 0.05 obtained a value of 2.31 seen in the table of distribution

t, the conclusion t> t table. Then Ho is rejected, it means there is a significant relationship between the motor abilities with swimming technique butterfly. In other words it can be said that there is a positive relationship between the motor abilities with the technique of swimming the butterfly stroke, so it can be concluded that the higher the level of motor ability will be the better person in the swimming technique butterfly.

Next is the calculation results of significance test the correlation coefficient between the variables of motor educability with swimming technique backstroke obtained t count equal to 2.9574 while t table with df = 10 on the real level α = 0.05 obtained a value of 2.31, the conclusion t count> t table. Then Ho is rejected, it means there is a significant relationship between the motor educability technique butterflies swimming style. In other words it can be said that there is a positive relationship between the motor educability with the technique of swimming the butterfly stroke, so it can be concluded that the higher the level of motor educability the faster a person in control of technique swimming butterfly stroke.

3.3. Calculation of multiple and Significance Correlation Correlation Coefficient Doubles Swimming Technique Butterfly Viewed from Motor Ability and Motor Educability

It is known that the correlation coefficient is:

rX1Y : 0.7167
rX2Y : 0.7225
rX1X2 : 0.7394

Table 3. Count Results Significance Correlation between Dual Motor Ability and Motor Educability with Swimming Technique Butterfly

Double Correlation (R)	F count	F table (α 0,05,dk=2/7)	Ho	Conclusion
0.7717	5.1531	4.74	Rejected	Significant

Based on the table 3, it can be concluded that the multiple correlation coefficient R of 5.1531 obtained. And once that is done and the significance test is obtained F count and F table the real level 0.05 with dk = (k), (n-k-1) (2/7) gained in value by 4.74. The criteria for the hypothesis is: Accept the hypothesis (Ho) if Fhitung ≤ Ftable with dk = (k), (n-k-1) at a significance level of = 0.05, in the case of another hypothesis (Ho) is rejected. From the data processing obtained 5, 1531 ≥ 4.74 thus be concluded that the hypothesis (Ho) is rejected, it means there is a significant relationship between the variables of motor abilities (X1) and the motor educability (X2) together with variable bow style butterfly swimming technique (Y). In other words it can be said that the higher the level of motor ability and the motor educability someone it will be better and the sooner butterfly swimming technique.

4. Discussion

The following can be seen from the reference value interpretation table r [10]. From the data processing of motor abilities (X1) with the technique of swimming the butterfly stroke (Y) is known r of 0.7167 and medium category. In this case the motor abilities provide positive support to the technique of swimming the butterfly stroke. So that it can be interpreted that the athletes who have good levels of motor abilities, the easier it will be said in the technical mastery swimming butterfly style that tends to have a high degree of coordination (table 4)

Table 4. Interpretation of r

The value r	Interpretation
r = 0.90-0.99	Perfect (high)
r = 0.80-0.89	Enough
r = 0.70-0.79	Moderate
r = 0.60-0.69	Less
r = under 0.59	Less so

It can be concluded that the hypothesis that the author submitted in accordance with the results of the research, the hypothesis is accepted. Therefore in order to learn the techniques of swimming the butterfly stroke with a high degree of coordination, will be more easily learned if the motion abilities (motor abilities) is also good. This is consistent with the theory the better the ability and talent in a particular skill, then the easier it will be to master the skills in question [11].

Similarly, the data processing of motor educability (X2) with the technique of swimming the butterfly stroke (Y) is known r of 0.7225 and medium category. This means that the motor educability contribute positively to the technical mastery swimming butterfly stroke. It implies that the athletes who have a high level of motor educability, the easier and faster the swimming technique in studying the butterfly style that tends to have a high degree of coordination.

It can be concluded that the hypothesis that the author submitted in accordance with the results of the research, the hypothesis is accepted. Therefore in order to learn the techniques of swimming the butterfly stroke with a high degree of coordination to be more easily and quickly learn if the level of motor educability athletes have either category. This is consistent with the theory. The higher the level of potential educability, meaning the degree of mastery of the new movement more easily [12].

As for the results of processing and analysis of data obtained from the three variables of motor abilities, the motor educability and technical butterfly style pool by using the technique of multiple correlation coefficient was 0.7717 and the medium category. It can be concluded that between the motor and the motor educability ability to contribute positively to the mastery of technique swimming butterfly stroke. Few gave an overview, the results of this study can be concluded that to learn a technique that is quite difficult movement also needed a movement abilities (motor abilities) as well as the motor educability good. So that when the process is on-going exercise to be more effective and efficient in the implementation of the tasks given motion.

5. Conclusion

Based on the results of data processing and analysis, the conclusions of this study are as follows:

- There is a positive and significant relationship of motor abilities by swimming technique backstroke, so the better the level of motor abilities a person the easier and faster the process

of training or implementation given the task of motion during exercise, especially in learning swimming techniques butterfly style.

- There is a positive and significant relationship with the technique of motor educability swimming butterfly stroke. It can be concluded that the higher the level of motor educability someone then it will be more easily to master the technique of swimming the butterfly stroke.
- There is a positive and significant relationship together the motor ability and the motor educability with technique swimming butterfly stroke. This means that the motor ability and the motor educability jointly contribute positively and exhibited significantly to butterfly swimming technique.

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