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Contribution of Motor Ability to Physical Fitness of Elementary School Students

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Abstract

Physical fitness is one of the most important things for elementary school students. Students who are fit will easily carry out activities without experiencing fatigue. Many factors affect fitness, one of which is the motor ability of students. This type of research is quantitative research using a correlational research design. The research sample is elementary school students totaling 34 students. The instrument used is the Indonesian Physical Fitness Test to measure students' physical fitness, and Motor Ability with a motor ability test. The data obtained were then analyzed by correlation analysis and simple regression. The results of data analysis showed that Motor ability contributed to the physical fitness of elementary school students by 64.32%, So, it can be concluded that the motor ability contributed to the physical fitness of elementary school students

Keywords: *Motor ability, Physical Fitness, Elementary School Student*

INTRODUCTION

Education basically has an important role in educating the nation's life, where the target is to enhance the quality of Indonesian people, both socially, spiritually and intellectually as well as professional abilities as found in the Law of the Republic of Indonesia No. 20 of 2003 which is attached in article 3 concerning the National Education system.

Where the functions and objectives of national education are as follows: "National education functions to develop the ability and character and civilization of a dignified nation in the context of educating the nation's life, aiming at developing.

The potential of students so that they become human beings who believe and are devoted to God Almighty, have noble character, are healthy, faithful, capable, creative, independent and become responsible democratic citizens". (Undang-Undang Republik Indonesia Nomor 20 Tahun 2003 Tentang Sistem Pendidikan Nasional, n.d.).

Based on the quote mentioned, it is clear to us that education play an important role in creating the character of a person who eventually becomes intelligent, who believes and is devoted to God Almighty, has noble character, is physically and mentally healthy, can be done in various ways, both in the neighborhood and at school.

Freshness is one's ability to live harmoniously and energetically. A fresh human is a human who has a healthy and intelligent view of life and its future. He has self-respect and likes to socialize with other human beings and live happily with them.

Physical fitness is an ability that focuses on physiological functions, namely the ability of the heart, blood vessels, lungs and muscles to function at optimal efficiency. For this reason, in improving children's physical fitness, of course parents must select the forms of games that children do and can stimulate the components of physical fitness such as heart, lung, muscle strength, body composition, and flexibility (Gusril, 2020).

According confronts that physical fitness is an aspect, namely the physical aspect of overall fitness (total fitness), which gives a person the ability to live a productive life and be able to adapt to each load proper physical stress (Sepriadi, 2020a);(Sepriadi, 2017a).

Based on the quote stated, it means that physical fitness is a mirror of the ability of function systems in the body that can attain an increase in the quality of life in every physical activity.

Physical fitness is needed by every student to gain dexterity, ability and high learning ability. One way to maintain or improve physical fitness is to do exercise regularly and daily physical activities that are beneficial for health. In this regard, it is necessary to reactivate physical education and health in schools.

Thus, physical education and health subjects need to be implemented in every school in accordance with the Education curriculum to build physical, health, and spiritual fitness of students.

Physical fitness can be improved through exercise. Exercises aim for form physical fitness in terms of health, as well as skills, as well as develop the independence of crew members in face everyday life (Hanel et al., 2020). In addition, current technological advances also affect physical fitness, one of which is the use of smartphone.

It can be seen that the use of smartphone is increasing (Madden et al., 2013). More users smartphones, the more individuals which is given convenience without involving motion activities because they have been spoiled by the convenience available from service applications online and game features that can cause a lack of physical activity.

This can have a negative effect. Individuals who do not exercise regularly have a greater risk of developing hypokinetic diseases, such as coronary heart disease, hypertension, cancer, obesity, cardiovascular system disorders and bone disorders (Listiandi et al., 2020); (Sepriani et al., 2018).

In addition, physical fitness and physical condition greatly affect students' mastery of sports. This is in accordance with (Ihsan, N., Sujana, A., & Permana, 2020) who explained physical condition is an important thing for a learner since it is a basic foundation to master techniques, tactics, strategies and psychological conditions.

The development of physical fitness and health in schools needs to take into account aspects of school conditions, geographical environment, and the economic status of students' parents since the condition of a school level is not necessarily the same as other schools.

There are schools that can provide adequate supporting facilities and infrastructure, but there are also schools that cannot provide supporting facilities for physical fitness and health education. In addition, geographical conditions also affect the level of physical fitness.

Students who attend schools located in lowland areas is likely will have a different level of physical fitness with students who attend schools in hilly areas. Students who go to school on foot will also have a different level of physical fitness from students who ride vehicles every day.

Likewise with the economic level of the students' parents, students whose parents have a better economic level are likely to get better nutrition than students whose parents have a low level of economic freshness.

Elementary school is one of the levels of education that carries out Physical and Health Education learning activities, which also runs the physical education curriculum on a regular basis.

However, based on the author's observations, when students carry out Physical Education Teaching and Learning activities, many children are lazy to do physical activities, lack of movement, and are more likely to sit. In addition, children get tired quickly and quickly experience fatigue, which is marked by frequent yawning during Physical Education learning.

Many factors influence students in learning Physical and Health Education including students' intrinsic motivation, students' economic status, environmental conditions,

students' physical activity, students' motor skills, nutritional status, location of the school environment.

Physical and Health Education learning process in schools, learning strategies, materials being taught, abilities of the Physical and Health Education teachers, facilities and infrastructure, parental support and the level of descent (genetic).

As stated by Mikdar in (Sepriadi, 2020b) physical fitness is the ability of a person's body to perform daily tasks and work without causing significant fatigue, so the body still has energy reserves to cope with the additional workload.

To upgrade physical fitness, it can be done by playing such jumping rope. Jumping rope games physically will make children stronger and more agile. Not to mention the emotional, intellectual, and social benefits that will be developed in the student. Furthermore, physical fitness is a healthy and fresh body.

Therefore physical fitness as a concept that has a fairly broad scope, one of which is the body's ability to adapt to the physical load given to the body when doing excessive activities without feeling tired.

From these quotations and explanations, it is increasingly clear that physical fitness is a physical condition of the body in maintaining or adjusting the functions of physiological tools in order to adapt to the environment, so that daily activities do not experience obstacles, because the body already has good conditions at dealing with these obstacles so that a person is able to resist external influences and does not reduce the efficiency of the body's condition.

Therefore, physical fitness is something that is influenced by physical activity and sports training that a person does, the better the level of physical fitness. Doing physical activity and exercise will increase the body's ability to consume oxygen optimally, it will automatically affect physical fitness.

Therefore, physical fitness is aspects of physical ability that can support students' success in carrying out various activities in daily life without causing significant fatigue. The activity can be in the form of daily work and for sudden needs or the work is done in spare time, because the higher the level of physical fitness which a person has, the more likely he is to be able to adapt to a job and the greater he is to be able to enjoy life.

According to Kiram in (Sepriadi, 2017b) the motor concept is: "A concrete appearance means movement as something that can be observed, while motoric is a process that cannot be observed and is the cause of motion". Kirkendall in (Gusril, 2004) states that: "Motor skills are the qualities of a person's ability that can facilitate movement skills."

Motor Ability comes from English language namely Motor Ability. Motion (motor) is an activity that is very important for human because with motion (motor) humans can achieve something that becomes their hope.

According to motor ability is a person's capacity related to the implementation and demonstration of a skill that is relatively inherent after childhood (Agus, Apri & Sepriadi, 2018); (Sepriadi, S., & Eldawaty, 2019).

So, motor ability is a person's ability to display broader movement skills and it is clarified that motor ability is a general ability related to the appearance of various movement or tasks skills.

Based on some of these quotes, it can be concluded that motor skills are the performance abilities of a person which are influenced by factors of strength, speed, endurance and coordination.

Thus, it makes easier to perform movement skills. Motor movements involve the activity of the muscles of the hands, feet, and the whole body of the child. This movement relies on maturity and coordination.

Various rough motor movements achieved by children are certainly very useful

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for later life. For example, children are accustomed to being skilled at running or climbing if they get older they will enjoy exercising. There are three types of movements that can be done in motor skills, namely locomotor movements, non-locomotor movements, and manipulative movements.

Motor development is one of the most important factors in the development of the individual as a whole. Some of the effects of motor development on the constellation of individual development are described:

(1) Through motor skills, children can entertain themselves and get a feeling of pleasure. Like children feel happy by having the ability to play with dolls, throw and catch balls or play with toy tools. (2) Through motor skills, children can move from a helpless condition in the first months of life, to an independent condition.

Children can move from one place to another and can do things for themselves. This condition will support the development of self-confidence. (3) Through motor development, children can adapt themselves to the school environment. At preschool age or the age of the early elementary school grades, children can be trained to write, draw, paint, and line up.

(4) Through normal motor development, it is possible for children to play or hang out with their peers, while abnormal ones will hinder children from being able to get along with their peers and even they will be isolated or become fringeful (marginalized) children, and (5) Ability development Motor skills are very important for the development of a child's *self-concept* or personality (Hurlock, 2005);(Hurlock, 2000).

Based on the explanation above, it can be concluded that the motor will affect the level of physical fitness of school students, especially elementary school age.

Nutritional status is a classification or measure of a person's nutritional state caused by consumption, absorption, and use of food nutrients.

The nutritional needs of each child will be different, this relates to physiological factors in children and the environment in which they are located, as well as related to age, weight, gender, climate and activities carried out by children.

METHOD

This research is an observational study using a correlation approach which aims to investigate how far the relationship between the variables obtained is related to other variables based on the magnitude of the correlation coefficient (Arikunto, 2010).

The purpose of correlational research is to detect the extent to which variations in a factor are related to variations in one or more other factors based on the correlation coefficient (Sugiyono, 2016). This study seeks to reveal the relationship between variables according to the actual situation.

The analysis is continued by calculating the contribution of the independent variable (predictor) to the dependent variable (criteria), through the index of determination, namely r x 100%.

This research was conducted in elementary schools with a sample of 34 male students in grades 4 and 5. This is because there are differences in abilities between male and female students and the sample is only male students with a total of 34 people.

To measure the physical fitness of students, the test used was the Indonesian Physical Fitness Test (TKJI) aged 10-12 years. The motor ability test used is the Barrow Motor Ability Test with the form of the tests being done is (1) Standing Broad Jump, (2) Soft Ball Throw (3) Zig-zag Run, (4) Wall Pass, (5) Medicine Ball-Put , (6) Run 60 yards.

The data analysis technique used is a simple correlation analysis technique. The hypotheses were analyzed by correlation and simple regression. Before analyzing the data above, the requirements test was carried out, namely:

(1) The normality test to determine whether the data came from a normally distributed population, was carried out by testing the normality of the estimated data with the Lilliefors test. (2) Homogeneousty test using the regression error variance homogeneity test with Bartlet's test.

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(3) The regression linearity test of X over Y uses a simple regression technique. (4) Simple correlation analysis, this analysis is used to determine the contribution of motor ability variables to physical fitness (Y).

RESULT AND DISCUSSION

Result

In this section, a description of the measurement data for all research subjects will be presented. The data of this study consisted of: students' physical fitness as the dependent variable (Y) and motor skills (X) as the independent variable. For a more detailed description of the state of each data in the group, the description can be seen as follows:

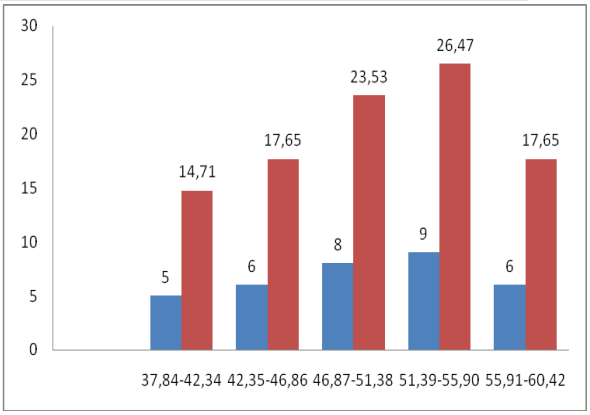
1. Student's Motor Ability (X)

From the results of the sample measurements in this group, the highest score was 60.38, the lowest value was 37.84, the average was 50.00, then the standard deviation was 6.12. The frequency distribution can be described in table 1.

Table 1. Frequency Distribution of Students' Motor Ability (X)

No	Interval Class	Absolute Frequency	Relative Frequency
1	37,84-42,34	5	14,71
2	42,35-46,86	6	17,65
3	46,87-51,38	8	23,53
4	51,39-55,90	9	26,47
5	55,91-60,42	6	17,65
TOTAL		34	100

Table 1 above shows that there are 5 people (14.71 %) in the 37.84-42.34 group, 6 people (17.65%) in the 42.35-46.86 group, 8 people (23.53%) in the 46.87-51.38 group, 9 people (26.47%) in the group 51.39-55.90, and 6 people (17.65%) in the group 55.91-60.42. For more details can be seen in the picture 1.



Picture 1: Histogram data of Student's Motor Ability

2. Student Physical Fitness (Y)

From the results of the sample measurements in this group, the highest score was 22, the lowest score was 12. The average was 15.94, then the standard deviation was 2.53. The frequency distribution of students' physical fitness results can be described in table 2.

Table 2. Frequency Distribution of Student Physical Fitness Data (Y)

No	Interval Class	Absolute Frequency	Relative Frequency
1	22-25	2	5,88
2	18-21	9	26,47
3	14-17	18	52,94
4	10-13	5	14,71
5	5-9	0	0,00
Total		34	100

Table 2 shows that there are 2 people (5.88%) in the Very Good Category, 9 people (26.47%) in the Good Category, 18 people (52.94%) in the Medium Category, and 5 people (14.71%) in the Poor Category. For more details can be seen in the picture 2.

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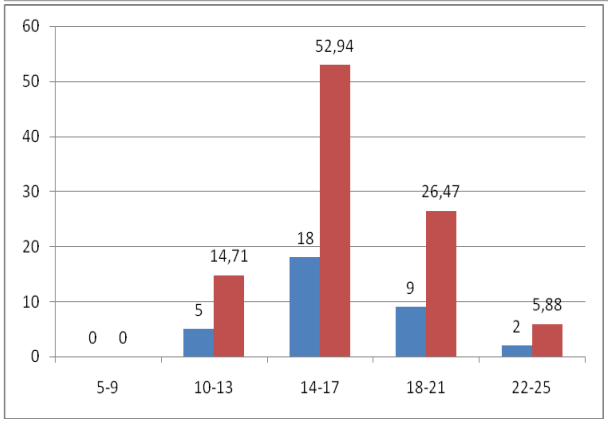

Picture 2: Histogram data of Student's Physical Fitness

Testing Requirements Analysis

Normality Test

The normality test was carried out by using the normality test for the estimated error data with the Liliefors test with a real level (α) = 0.05, the test criteria were that Ho was rejected if Lo obtained from the observation data exceeded Lt and on the other hand Ho was accepted if Lt was greater than Lo. The following formula is used:

Ho = rejected if Lo > Lt (Ltable)

Ha = accepted if Lo < Lt (Ltable)

The summary of the results of the calculation of the normality test can be seen in Table 3.

Table 3. Summary of Normality Test Results of Estimated Error Data with Liliiefors Test

Regression Equation	N	$L_{observation}$	L_{table}	Summary
Y over X	34	0.1317	0,1519	Normal

Variance Homogeneousty Test

The homogeneousty test of population variance was carried out in correlation research using regression analysis techniques. The homogeneousty test of variance used was the Bartlett test with a significance level of 0.05. The summary of the results of the Homogeneousty of Variance test with the Bartlett test can be seen in Table 4.

Table 4. Summary of Regression Error Homogeneousty Test Results with Bartlett Test

Regression Equation	N	$L_{observation}$	L_{table}	Summary
Y over X	34	0.1317	0,1519	Homogen

Based on the results of the calculation of the homogeneousty of variance above, it was found that the value of χ 2 obs < χ 2 table at a significance level of 0.05. Thus, it can be concluded that all the regression error data for the Y variable on X have a homogeneous variance.

Linearity Test of Regression Line X against Y

Linearity test is a test conducted to see whether the data on motor ability variables tend to form a linear line on the physical fitness variables of elementary school students. The Ho tested in this case is motor ability data (X), which has a linear relationship with the physical fitness of elementary school students (Y).

The test criteria is to accept Ho if the calculated F value obtained from the calculation < F table. The summary of the linearity test can be seen in Table 5.

Table 5. Summary of Motor Ability Variable Linearity Test (X) on Students' Physical Fitness (Y)

Variable	F_{count}	$F_{table=0.05}$	Summary
Y over X	1.77	2.49	Normal

The results of the analysis show that motor skills (X) make a significant contribution to the physical fitness of elementary school students. The value of the regression equation can be described as follows $\hat{Y}$ = 0.65+0.33x with Fobs 57.68 > Ftable 4.15.

Furthermore, based on regression linearity analysis, Fobs 0.34 < Ftable 19.46. This states that the data is in a linear condition. Thus the proposed hypothesis (Ha) can be accepted. For more details can be seen in Table 6 and 7.

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Table 6. Significant Test of Correlation X to Y

Variable	Correlation Coefficient	Coefficient of Determination	t_{count}	t_{table}	Summary
X to Y	0.802	64.32%	7.59	1.69	Significant

Table 7. List of Linear Regression ANAVA $\hat{Y}$ = -3,05 + 0,38x

Source of Variation	Dk	JK	KT	Fh	Ftα=0,05	Summary
Total	34	8852,00	-	-		
Coefficient(a)	1	8640,12	-			
Regresssion (b/a)	1	136.28	136.28	57.68	4,15	Significant Regression
Remains	32	75.61	2.36			
Tuna Match	30	63.11	2.10	0,34	19,46	Linear Regression

Discussion

This research is designed to study the relationship and how big the contribution of motor skills to the Physical Fitness of Elementary School Students. Motor skills are the foundation of success in performing skills in sports.

The motor level of a person is varied depend on the amount of motor experience that is mastered. Motor skills are seen as the basis for future success in carrying out tasks in the field of sports and others.

Someone who has high motor skills is suspected to be more successful in completing specific motor skills tasks." A person's motor abilities are varied according to that person's abilities, and have capacities that are influenced by biological factors.

Physical fitness is a physical condition of the body in maintaining or adjusting the function of physiological tools in order to adapt to the environment, so that the daily activities do not experience obstacles, because the body already has good conditions in dealing with these obstacles.

Thus, a person is able to resist external effects and does not reduce the efficiency of the body's condition. Some children who have a lot of good movement experience will have good motor skills.

Children who also have little or poor movement experience, then these children will not have good motor skills, and most of them will not have good physical fitness either.

The measurement of motor ability is measured by movement skills so that the correlation results are relatively larger and contribute to physical fitness in amount of 64.32%.

Based on the analysis that has been done, it is proven that motor skills contribute 64.32% to students' physical fitness at a significance level (α) of 0.05. It means that this factor has a significant relationship with students' physical fitness.

Motor skills can be seen from the experience of motion and the flexibility of movement carried out by the child. Motor skills are the qualities of a person's ability that can facilitate movement skills (Kirkendall. D. R.. Gruber. J. J.. & Johnson. R. E., 1987); (Kiram, 2016)

CONCLUSIONS

Thus, from this quote, we can know that this motor skill will make it easier for children to perform movement skills. Meanwhile, movement skills are strongly influenced by a person's physical fitness.

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Based on the evidence from the results of data analysis in this study, motor skills are one of the factors that contribute to the physical fitness of elementary school students. This is because motor skills will affect the child's movement skills where aspects of children's movement skills are strongly influenced by their physical fitness.

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