



The Relationship of Physical Fitness and Science Learning Outcomes of Students

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Abstract: This research raises the issue of whether there is a relationship between physical fitness and science learning outcomes at SMP Negeri 8 Bekasi for the 2022/2023 academic year. This research aims to determine the relationship between physical fitness and the science learning outcomes of students at SMP Negeri 8 Bekasi for the 2022/2023 academic year. This research uses descriptive research methods. The population in this study was 180 class IX students of SMP Negeri 8 Bekasi for the 2022/2023 class. Then 35 people were taken using a random sampling technique (20% of the total population). Physical fitness data collection techniques using physical fitness tests and science learning outcomes by taking documentation data in the form of student report cards. Data processing is carried out using the correlation formula. The results of the research show that there is a significant relationship between physical fitness and science learning outcomes for students of IX SMP Negeri 8 Bekasi in the 2012/2013 academic year with ($r = 0.70$). Physical fitness contributes 49.7% to science learning outcomes at SMP Negeri 8 Bekasi.

Keywords: Learning outcomes; Physical fitness; Science learning

Introduction

Education seen from the law regarding the education system will be different but the meaning is still focused on one's potential. This is stated in the education system law No. 20 of 2003 that: Students are members of society who seek to develop their potential through the learning process available at certain pathways, levels and types of education. This statement shows that every community must try to develop their own potential by learning through education provided by the government according to the level of education that the community wants to achieve in their respective paths.

Educational institutions that carry out national education demands have several levels, including Kindergarten, SD/MI, SMP/MTS, and SMA/MA. To complete a level of education, students must complete subjects, namely natural science (science), at junior high school level which are included in science subjects, namely mathematics, physics and biology. The field of study of natural science is related to how to find out

about nature systematically, so that science is not only mastery of a collection of knowledge in the form of concepts and principles but is also a discovery. Science education in schools is expected to be a place for students to learn about the potential of themselves and the universe as well as further development in applying it in everyday life.

Physical fitness is one of the requirements that every individual must have as a certain level of physical condition or physical work ability that a person has. Therefore, exercise that is done correctly and regularly can improve or at least maintain fitness. If our body is in good health, of course we are able to carry out various activities and activities smoothly. According to Budi (2010), physical fitness is the ability of a person's body to carry out daily work tasks without causing significant fatigue.

This opinion explains that fitness is very necessary in life to carry out daily activities/work, the body does not experience significant fatigue so that it can continue activities just like other fit people. To get a condition of prime physical fitness, a person needs to do

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physical exercise that involves physical fitness components with the correct training methods. Factors that influence learning achievement are caused by internal factors (from within the student) and external factors (from outside the student), these conditions play a role in his daily activities. Internal factors that can influence the learning process and outcomes are the physical and spiritual state/condition of students (Casagrand & Semsar, 2017; Dubas & Toledo, 2016; Lawrence & Chong, 2010; Smith et al., 2012; Virtanen et al., 2015).

External factors are family conditions, school, environment (Syah, 2010; Geng, 2019; Halverson & Graham, 2019; Bogusevschi et al., 2020; Hsu et al., 2019). The factor that influences learning achievement is the student's physical condition, so what is meant here is the student's physical fitness. Physical fitness is an aspect, namely the physical aspect and comprehensive fitness which gives a person the ability to lead a productive life and be able to adapt to any appropriate physical load (Hairy, 2006; Hedefalk, 2015; Kavanagh, 2017; Dicheva et al., 2015; Lewis, 2015; Goren & Yemini, 2017; Zhang & Aslan, 2021; Singh & Miah, 2020; Lazowski & Hulleman, 2016). Furthermore, according to Budi (2010), if our bodies are fit and healthy, of course we are able to carry out various daily activities and activities smoothly. It is very different if we are sick, of course we cannot carry out daily activities well. When students are sick they cannot go to school, study or play.

This statement explains that physical fitness is the physical aspect that influences it, where physicality is number one in carrying out daily work, heavy or light work. If fitness is lacking then learning cannot be carried out by every student and if students cannot learn then the student's value will be lacking so student fitness is very important for the continuity of learning. The junior high school/MTS education level or what is usually called adolescence, students experience very rapid growth and development. During this period, students need sufficient movement to support physical growth, apart from that, students also need positive attention and support from their environment to control their development stages. One of the lessons that really supports the development of students is physical education, sports and health. Taking part in physical education for sports and health, students really need a fresh physique to be able to carry out every movement that will be taught.

Everyone needs a fresh body, a fresh body can help each student in carrying out daily activities such as studying, so the higher the student's level of fitness, the easier it will be for the student to carry out routine activities at school. In this case, students' activities in the teaching and learning process in school educational institutions. Poor health, slow physical development

lead to low mental levels, which will affect learning outcomes. Learning outcomes are skills mastered by students after they have participated in the learning process (Sudjana, 2009). In accordance with this, learning outcomes can be seen from a collection of grades over a predetermined time period. If the learning objectives that have been set can be achieved well, then it can be said that the teaching and learning process has been successfully implemented. Logically we can understand that with Good physical fitness can influence student learning outcomes in all subjects, including science subjects.

Based on the description above, the author is interested in researching the relationship between physical fitness and science learning outcomes in depth. The reason the author chose SMP Negeri 8 Banda Aceh as the research location was because according to the results of the author's preliminary observations, there were many students who lacked science scores. Therefore, the author wants to conduct research entitled "The Relationship between Physical Fitness and Science Learning Outcomes for Class IX Students of SMP Negeri 8 Bekasi for the 2022/2023 Academic Year".

Method

This research is included in descriptive correlational research, namely research that aims to find out whether or not there is a relationship between one variable and another variable. This is in accordance with the opinion of Arikunto (2010) who stated that this descriptive research was carried out to obtain the relationship between physical fitness and science scores. Noor (2011) further said "Descriptive research is research that attempts to solve an event/event that is happening now." Meanwhile, the approach used to answer the problem is a correlational approach, so this research is included in descriptive research with correlational techniques. Furthermore, Arikunto (2010) argues that "In correlational research, researchers select individuals who have variations in the things being investigated.

Result and Discussion

The results of a series of field research carried out on class IX students at SMP Negeri 8 Bekasi, obtained research data in the form of physical fitness tests and data taken in the form of the students' science scores. These data are tabulated into a table and the results can be seen in table 1.

Based on the results of the calculations above, it can be stated that the average physical fitness of students at SMP Negeri 8 Bekasi is 17.22. Based on the results of the calculations above, it can be stated that the average

science learning result for students at SMP Negeri 8 Bekasi for the 2012/2013 academic year is 75.25.

Table 1. Score of Physical Fitness and Science Learning Outcomes

Respondents	Physical fitness (X)	Science Learning Outcomes (Y)
Respondent 1	14.00	68.00
Respondent 2	18.00	80.00
Respondent 3	18.00	72.00
Respondent 4	16.00	68.00
Respondent 5	18.00	74.00
Respondent 6	16.00	70.00
Respondent 7	16.00	70.00
Respondent 8	16.00	70.00
Respondent 9	20.00	67.00
Respondent 10	20.00	85.00
Respondent 11	19.00	90.00
Respondent 12	18.00	85.00
Respondent 13	16.00	68.00
Respondent 14	18.00	80.00
Respondent 15	16.00	72.00
Respondent 16	16.00	67.00
Respondent 17	16.00	70.00
Respondent 18	18.00	80.00
Respondent 19	18.00	80.00
Respondent 20	18.00	80.00
Respondent 21	15.00	70.00
Respondent 22	16.00	70.00
Respondent 23	16.00	70.00
Respondent 24	17.00	72.00
Respondent 25	15.00	72.00
Respondent 26	18.00	75.00
Respondent 27	19.00	85.00
Respondent 28	16.00	70.00
Respondent 29	18.00	70.00
Respondent 30	19.00	85.00
Respondent 31	17.00	75.00
Respondent 32	17.00	77.00
Respondent 33	18.00	80.00
Respondent 34	18.00	82.00
Respondent 35	19.00	85.00
Total	603	2634

The results of the data calculations above show that the correlation coefficient value between physical fitness and science learning outcomes for class IX students at SMP Negeri 8 Bekasi for the 2012/2013 academic year is 0.705.

Table 2. Total Score of Each Variable

X	Y	X ²	Y ²	XY
603	2634	10461	199690	45609

Test rule: if $t_{count} \geq t_{table}$, then H_0 is rejected and $t_{count} \leq t_{table}$, then H_0 is accepted. Based on the calculation above, $\alpha = 0.05$ and $n = 35$, one-sided test; $dk = n - 2 = 35 - 2 = 33$, so we get $t_{table} = 2.035$. It turns out that t_{table} is

more than t_{count} or $5.705 > 2.035$, so H_0 is rejected, meaning that there is a significant relationship between physical fitness and the science learning outcomes of students IX at SMP Negeri 8 Bekasi. This is in accordance with the hypothesis used, namely: there is a significant relationship between physical fitness and the science learning outcomes of students IX at SMP Negeri 8 Bekasi for the 2012/2013 academic year.

Based on the results of research and data processing on physical fitness and science learning results showed that a correlation between physical fitness and science learning results consisting of test items had obtained a result of 0.705, so it was necessary to test the hypothesis whether it was significant or not. To test this hypothesis, the author used a t-test with the following hypothesis: "There is a significant relationship between physical fitness and science learning outcomes for students in IX SMP Negeri 8 Bekasi for the 2012/2013 academic year." To test this hypothesis, the t-test statistic is used, with a significance level of 5% and degrees of freedom ($n-2$): It turns out that this in the attachment is 5.705. Determining the error level with $\alpha = 0.05$ and $dk = 35 - 2 = 33$, then from the t distribution list we get $t_{count} > t_{table}$, namely $5.705 > 2.035$ so the hypothesis is accepted.

Based on the results of research and data processing on physical fitness with Science Learning Results for Students IX of SMP Negeri 8 Bekasi for the 2012/2013 Academic Year, results have been obtained as seen in hypothesis testing. Based on this data, the total data for class IX students at SMP Negeri 8 Bekasi was 180 people, and 35 people were selected as samples. The research data shows that there is a relationship between physical fitness and science learning outcomes for students of IX SMP Negeri 8 Bekasi. This can be seen from the results of research and data processing which shows that there is a significant influence between physical fitness and the science learning outcomes of class IX students at SMP Negeri 8 Bekasi. This is proven by the value $t_{count} = 5.705$ which at the 5% significance level has shown a significant value. Where this value exceeds the this value.

This research was conducted. It is only limited to proving the theories that have been put forward by experts, however, it is hoped that this research can be a meaningful input for the development of science. Although the results of this research can be said to be significant and lead to suitability, the author is aware of other factors that influence this research. Not only physical fitness, but also factors obtained by the teacher who teaches, the methods used and the situations and conditions when teaching and learning takes place (Albright et al., 2021; Ernawati et al., 2019; Gultom et al., 2018; Han et al., 2022; Nkaizirwa et al., 2021; Wu et al., 2020).

Conclusion

Based on data analysis, as well as discussion of research results, the following conclusions can be drawn: There is a significant relationship between physical fitness and the science learning outcomes of Students IX of SMP Negeri 8 Bekasi in the 2012/2013 academic year with ($r = 0.70$), physical fitness gives contribution of 49.7% to science learning outcomes at SMP Negeri 8 Bekasi. Based on the conclusions above, students' physical fitness has a significant relationship with learning outcomes in science subjects. There are several suggestions that are expected to be input for students and teachers at SMP Negeri 8 Bekasi in the future.

Author Contributions

A.Mukholid, design, collect data, write article.

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Conflict of Interest

There is no conflict interest in this research.

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