

Physical fitness, learning motivation and intellectual intelligence: How does it relate to physical education learning outcomes?

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Abstract

The accomplishments of students during the teaching and learning processes in physical education classes are known as learning outcomes. The study design is correlational research, with the goal of determining how motivational factors and intellectual intelligence relate to learning outcomes in physical education. 56 pupils from class VII MTsN 1 Indragiri Hilir provided the sample. The data collection technique used in this study is by test, namely measuring and documentation. Tests and measurements are seen from the results of physical fitness, learning motivation, and intellectual intelligence, while the learning results of physical education are seen from the even semester report card scores for the 2023/2024 school year. The study's findings demonstrated a significant correlation (r) of 0.996 between the variables physical fitness (X1), learning motivation (X2), and intellectual intelligence (X3) on the variables of learning outcomes of physical education and health sports (Y). Learning Motivation (X2) had the highest correlation of any of the variables to the variable. The study's findings support the notion that improving learning outcomes in physical education courses requires a combination of three crucial factors: intellectual competence, learning drive, and physical fitness.

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Introduction

The results attained by an individual in their mastery of the information and abilities denoted by numerical or letter values are known as learning outcomes. The skills and talents that students possess following their educational experience are known as learning outcomes (Syah, 2014). Supardi et al. (2015) defines learning outcomes as the real phases of accomplishment manifested in behaviors, such as habits, attitudes, and awards, which involve cognitive, emotional, and psychomotor components. Behavior patterns, values, comprehensions, attitudes, appreciation, and abilities are examples of learning outcomes (Widayanti, 2014). All psychological domains that undergo change as a result of students' experiences and learning processes are, in theory, covered by the disclosure of ideal learning outcomes. It is, nevertheless, exceedingly challenging to demonstrate how the entire domain has changed in

behavior, particularly the student sense world. This is true because not all modifications to learning objectives are tangible. Thus, the best course of action for teachers in this situation is to only include brief examples of behavioral shifts that are thought to be significant and that are anticipated to represent the changes that take place as a result of student learning outcomes, including those that involve the dimensions of creation.

With the goal of understanding the impacts of the classroom with the application of physical education on health-related fitness levels, physical education has been widely given to promote a healthy lifestyle in the educational setting (Liu et al., 2017). Thus, the goal of physical education instruction is to keep kids physically fit while simultaneously attempting to mold their personalities and character, encourage teamwork and sportsmanship, and develop their motor skills (Foster et al., 2019). In addition to being a topic, physical education

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is meant to assist students become more physically healthy. According to Irianto & Nurhayati (2013) physical fitness refers to an individual's capacity to engage in regular physical activities or workouts without suffering excessive exhaustion and achieving the desired results.

Students who are motivated to study are far more important in the learning process than those who are physically fit, as the latter will prevent them from engaging in learning activities. This is corroborated by Rismawati & Kadarisma (2019) research, which claims that motivated pupils would learn more diligently, tenaciously, and with complete focus. According to research by Budiyan et al. (2021), students with strong learning motivation will positively impact good learning outcomes, whereas students with low motivation will negatively impact low learning outcomes. These findings support this perspective. As to Sari (2020), motivation plays a crucial role in propelling students' excitement to complete Penjas learning activities joyfully and without stress, ultimately leading to the successful attainment of Penjas learning objectives. It is reasonable to assume that great learning results will follow strong motivation to learn physical education, and vice versa. Teachers play a critical part in the learning process by helping students develop their mathematical comprehension and drive to study. To motivate students to follow the teaching and learning process, teachers must be able to create an enjoyable learning environment.

Intellectual intelligence is one of the other aspects that is associated to this in an attempt to get good learning results. The degree of intelligence is utilized as a possible foundational resource for students, which will facilitate their learning and ultimately lead to improved learning outcomes in physical education. Students that possess a high level of intellectual intelligence will find it simpler to get the best possible learning outcomes. The claims made by Erika et al. (2021) support this. According to his studies, learning results and intellect are positively correlated, with high intelligence children demonstrating exceptional learning outcomes. In this case, the students' intellectual intelligence level is unknown; thus, information on their intellectual intelligence level will be gathered in order to determine how it relates to learning outcomes for physical education.

This study aims to analyze the relationship between physical fitness, learning motivation, and intellectual intelligence on physical education learning outcomes By

analyzing the interaction between the three variables, it is hoped that this study can provide deeper insights into the importance of physical fitness development and learning motivation as a key component in improving academic achievement in the field of physical education. The findings of this study are expected to provide recommendations for physical education teachers to design more effective learning strategies, so as to be able to improve the quality of student learning outcomes as a whole.

Method

Types of Research and Participants

Correlational research is the kind that is employed, it seeks to identify potential causal links between variables without changing the variables themselves (Sugiyono, 2019). At MTsN 1 Indragiri Hilir School, Jl M. Shaleh Thalaha, Khairiah Mandah District, Mandah District, Inhil Indonesia Regency, this study was carried out. A sample of 56 pupils in grade VII MTsN 1 Indragiri Hilir was used for the research.

Explanation and Approval

Before the study began, all participants were given detailed information regarding the objectives, procedures, and benefits of the experiment in the study. The consent letter is written in a language that is easily understood by the participant and their legal guardian. The research methods, including research design, sample collection, and data collection procedures, have been approved by MTsN 1 Indragiri Hilir.

Research Instruments

The instrument used to measure physical fitness used the Indonesian Physical Fitness Test with a validity of 0.96 for men, 0.71 for women, and reliability of 0.72 for men, 0.67 for women. The instrument used to measure the motivation to learn physical education using a questionnaire has a validity of >0.17 and a reliability of 0.94. The instrument used to measure intellectual intelligence using the results of existing IQ tests that have been conducted by the school with a validity of 0.64 and a reliability of 0.84. The instrument used to determine student learning outcomes is using the student report book for the second semester (even) of the 2023/2024 school year.

Data Analysis

A linear regression model used for data analysis can be considered a good model if it passes the necessary tests and, in the case of normally distributed residual data, the product moment correlation test is used for the study's correlation test.

Results

The results of the descriptive analysis on the independent variables, namely Physical Fitness (PF), Learning Motivation (LM), Intellectual Intelligence (II) and the dependent variable of physical education Learning Outcomes (LO) can be seen in the table below.

Table 1
Descriptive statistical analysis.

Variables	Mean	SD	Min.	Max.
Physical Fitness (PF)	20.59	2.334	15	23
Learning Motivation (LM)	121.80	13.132	90	135
Intellectual Intelligence (II)	40.21	3.999	30	45
Learning Outcomes (LO)	81.23	8.788	60	90

A set of statistical techniques called the normality test is used to assess whether or not a data distribution is normal. The analysis's findings all variables have significance results (Sig) greater than 0.05, indicating a regularly distributed set of data. The results of the normalcy test are shown in Table 2.

Table 2
Normality test.

Variables	p
Physical Fitness (PF)	0.136
Learning Motivation (LM)	0.210
Intellectual Intelligence (II)	0.195
Learning Outcomes (LO)	0.147

Correlation test is used to determine how closely the two variables are related to each other to test the hypothesis after the normality test analysis concludes that the data as a whole is normally distributed. The Physical Fitness variable is known to have a significant relationship with the Learning Outcome variable, as evidenced by the Sig. (2-tailed) value of 0.000 <0.05. The

Learning Motivation variable) shows a significant relationship with the Learning Outcome variable, as indicated by the Sig. (2-tailed) value of 0.000 <0.05. In addition, the Intellectual Intelligence variable shows a significant relationship with the Learning Outcome variable, as indicated by the Sig. (2-tailed) value of 0.42 <0.05. In addition, correlation level data is also presented which can be seen in Table 3.

Table 3
Correlation test.

Variables	p	r	Correlation
Physical Fitness (PF)	0.000	0.992	Very Strong
Learning Motivation (LM)	0.000	0.996	Very Strong
Intellectual Intelligence (II)	0.042	0.608	Strong

The variables of Physical Fitness, Learning Motivation, and Intellectual Intelligence have a significance value (Sig) of 0.000 <0.05. This result can be concluded that the hypothesis is accepted because the regression analysis shows a significance of <0.05. This shows that the variables of Physical Fitness, Learning Motivation, and Intellectual Intelligence are significantly related to the Learning Outcome variable. The results of the regression analysis are in Table 4.

Table 4
Regression test (F)

Model	Sum of Squares	df	Mean Square	F	p
Regression	4235.712	3	111.904	23.712	.000 ^b
Residual	12.270	52	.236		
Total	4247.982	55			

Discussion

The results of this research show that there is a significant relationship between physical fitness, learning motivation and intellectual intelligence with physical education learning outcomes. With the learning results of the research obtained, it can be implied that to improve the learning outcomes of physical education can be done by improving physical fitness, learning motivation and intellectual intelligence to a better level. Physical fitness is not only beneficial for physical health, but also has a significant impact on physical education learning outcomes. Students who have good physical fitness tend to have better learning outcomes.

The results of this research are in line with Utomo & Komarudin (2022) that there is a positive and significant relationship between physical fitness, learning motivation, intellectual intelligence, and learning habits with the physical education learning outcomes of students in sports specialization classes in high schools in the Special Region of Yogyakarta. This relationship can be interpreted as the better the physical fitness, learning motivation, intellectual intelligence, and learning habits that students have, the higher the chance of students obtaining optimal physical education learning outcomes.

Effective physical education will affect the psychomotor aspect of students, namely the motor skills needed to carry out physical activities. Good physical fitness will improve this motor ability, so that students can be more effective in performing the physical tasks given in physical education subjects. In the research of Iqbal et al. (2024) explained that students who have good physical fitness tend to be more enthusiastic and motivated in participating in PJOK learning, this is because they feel more prepared and able to do the physical activities given. This is also in line with the opinion of Norris, et al. (2020) that lessons involving physical activity into the primary and preschool curriculum have been proven to improve physical fitness and student learning outcomes. This supports policies that encourage the integration of physical activity in teaching in schools.

Good fitness tends to be able to actively participate in physical activities and sports. This not only improves physical abilities but can also increase students' confidence and motivation to learn. Learning motivation is a key driver for students to strive to achieve their academic goals. Motivated students will be more active in the learning process, more disciplined in practice, and more committed to achieving good results. Motivation has a strong correlation to support efforts to improve learning outcomes in physical education (PE). This helps educators understand how to motivate students more effectively, so that they can design teaching strategies that not only encourage active participation but also improve learning outcomes in the field of physical education (Chen & Solmon, 2024).

In an effort to improve learning outcomes, intellectual intelligence also plays an important role in understanding the concepts taught in physical education. Student learning outcomes are also influenced by intellectual intelligence, where higher cognitive abilities tend to

support better material comprehension and more optimal academic achievement (Waruno, et al., 2021). Students with high intellectual intelligence can more quickly understand sports and health theories and apply them in practice. Therefore, efforts to improve intellectual intelligence from an early age are very important so that every student can reach their maximum potential.

Conclusions

The study's findings support the notion that improving learning outcomes in physical education courses requires a combination of three crucial factors: intellectual competence, learning drive, and physical fitness. If these three elements are optimized, the overall PJOK learning outcomes will be improved, enabling students to perform at their best in both the classroom.

Authors' Contribution

Study Design: IWWE, YP; Data Collection: IWWE, YP; Statistical Analysis: YP; Manuscript Preparation: IWWE, YP.

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Conflict of interest

The authors reported no conflicts of interest.

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