The Relationship of Physical Literacy and Physical Fitness in Physical Education Learning at State Junior High Schools in Bandung City

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Abstract

The writing of this article aims to analyze the relationship between physical literacy and physical fitness in physical education learning at state junior high school throughout the city of Bandung. The main problem in this study is the low motivation and participation of students in physical activities which has an impact on decreasing the level of physical fitness. This study uses a descriptive quantitative approach with a correlational method. This study involved 281 grade VIII students in three state junior high schools in Bandung City, namely State Junior High Schools 9 Bandung, State Junior High Schools 40 Bandung and State Junior High Schools 50 Bandung with age group 13-14 years old who were selected through cluster random sampling technique. Physical literacy data was collected using a questionnaire instrument (PLAYself) and physical fitness data was measured through the V-Sit and Reach, 60-second Sit Up, 30-second Squat Thrust and PACER Test. Data analysis included the Kolmogorov-Smirnov normality test, the Compare Means (Means) linearity test, and the Spearman's rho Rank correlation test. The results showed a positive and significant relationship between physical literacy and physical fitness ($rs = 0.176$, $p = 0.003$). These results indicate a positive correlation between physical literacy and students physical fitness. Although this correlation is very weak, these findings demonstrate that physical literacy remains a crucial component in supporting physical fitness improvement through physical education provided in schools. Thus, it is nesessary to have physical education learning that is oriented towards the development of comprehensive physical literacy.

How to Cite

Ferdiansyah, Y., Hendrayana, Y., & Ilsya, M. N. F. (2025). The Relationship of Physical Literacy and Physical Fitness in Physical Education Learning at State Junior High Schools in Bandung City. Journal of Physical Education, Health and Sport, 12 (2), 467-472.

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INTRODUCTION

Physical literacy is currently a major topic among physical education teachers because it is considered to be able to increase students› active participation in physical activities and foster active life habits throughout life (Shearer et al., 2018). Modern lifestyle changes that are marked by increasing the use of gadgets and decreasing physical activity make physical literacy even more important to be implemented in schools (Husnan et al., 2023). This phenomenon is reinforced by the findings that students› motivation and involvement in physical activities continue to decline and negatively impact their physical fitness (Wulan et al., 2023). Therefore, physical education teachers are now facing the problem of incorporating physical literacy into their curriculum so that students are not only moving because of the curriculum, but because they know and understand the importance of physical activity (Jeong & So, 2020).

Physical literacy is the ability of individuals to move competently, confidently and motivated in various contexts of physical activity throughout life (Whitehead, 2010). Physical literacy also includes aspects of physical competence, motivation, knowledge and understanding of the benefits of physical activity that have an impact on a person›s active involvement in physical activities (Robinson et al., 2021). In the context of education, physical literacy is seen as an important foundation in physical education learning because it affects the process of forming an active and healthy lifestyle for students (Jeong & So, 2020). Therefore, physical education has a strategic role in improving the physical, social, emotional, and cognitive development of students through structured physical activity experiences (Leo et al., 2022).

The results of observations and phenomena in schools show that there are still many students who have a low level of physical activity due to the influence of sedentary lifestyles and excessive use of technology (Husnan et al., 2023). This condition is exacerbated by the low involvement and motivation of students in participating in physical education learning, thus having an impact on the decrease in physical fitness levels (Wulan et al., 2023). Physical fitness is a physical condition that allows a person to carry out daily activities effectively without experiencing excessive fatigue (Donnelly et al., 2016). The physical fitness component is measured through indicators of cardiorespiratory endurance, muscle strength, speed, flexibility and coordination (Donnelly et al., 2016).

The relationship between physical literacy and physical fitness is mutually reinforcing, physical literacy increases students› participation in physical activity, which in turn improves their physical fitness (Husnan et al., 2023). On the other hand, a positive exercise experience and improved physical fitness can increase students› motivation, confidence and understanding of physical activity (Whitehead, 2010). Physical education learning in junior high school is essential for improving students› physical literacy, which is the foundation for improving their physical fitness, active participation in physical activity, and the sustainable adoption of a healthy lifestyle (Ilsya et al., 2024).

Previous research has shown a significant relationship between physical literacy and student physical fitness. Research (Caldwell et al., 2020) found that physical literacy is strongly related to adolescents› physical levels and health. Research (Everley, 2022) states that physical literacy-based physical education approaches improve sports participation and student fitness outcomes. In addition, the research (Wulan et al., 2023) found a significant correlation between physical literacy and adolescent health levels in Bandung. Findings (Bahar et al., 2023) It also shows that physical literacy contributes to the increase in physical activity and physical fitness of students aged 13-15 years. However, research in Indonesia has rarely examined the direct relationship between physical literacy and physical fitness in the context of physical education learning in junior high school (Pranata, 2022).

From the description above, the problem to be solved is «is there a relationship between physical literacy and student physical fitness in learning physical education at state junior high schools throughout the city of Bandung?». And the purpose of this study is to find out the relationship between physical literacy and student physical fitness in physical education learning at state junior high schools throughout the city of Bandung.

As students› lifestyles become more passive and lack of physical activity, which has an impact on declining physical fitness, research on physical literacy with physical fitness is essential to research (Husnan et al., 2023). In addition, physical education in Indonesia still focuses on technical sports skills only and has not fully integrated the physical literacy approach into physical education learning programs (Fathiyati et al., 2022). This shows that there is a difference between the ideal goal of physical education

and the learning practices implemented in schools (Wulan et al., 2023). Previous research has also tended to examine physical literacy and physical fitness separately without looking at the direct relationship in physical education learning (Pranata, 2022). Therefore, this study is unique because it analyzes the relationship between physical literacy and physical fitness simultaneously in the context of physical education learning at the junior high school level. According to (Yulianto & Hendrayana, 2022), this study is expected to provide empirical contributions that will be used as a foundation for the creation of a more comprehensive physical education learning model, with a particular emphasis on improving students physical literacy and improving their physical fitness. The novelty in this study is the simultaneous use of two instruments aimed at investigating the relationship between physical literacy and physical fitness integrally in physical education learning at junior high schools. It is hoped that this study will provide new insights into the development of evidence-based physical education learning practices because it is still rarely used in physical education reseatch in indonesia.

METHOD

The research method is a systematic step used to obtain scientific data according to the research objectives (Creswell, 2015). This study uses a descriptive quantitative approach with a correlational method, because it aims to analyze the relationship between two variables without giving treatment to the variable (Fraenkel, Jack R., Wallen, 2019). The correlational method is used to determine the level of strength and direction of the relationship between physical literacy and physical fitness of students in the context of physical education learning (Fraenkel, Jack R., Wallen, 2019).

Research instruments play an important role in obtaining accurate and measurable data. This study uses two main instruments, namely PLAYself (Physical Literacy Assessment for Youth) as a physical literacy measurement tool and the Nusantara Student Fitness Test (TKPN) to measure physical fitness. The PLAYself instrument measures aspects of students' physical competence, motivation, confidence, and understanding of physical activity (Canadian Sport for Life, 2013). Meanwhile, TKPN assesses the physical fitness component through the V-Sit and Reach, 60-Second Sit Up, 30-Second Squat Thrust and PACER Test as indicators of students' physiological condition (MINISTRY of Youth and Sports, 2022).

The subjects of the study were grade VIII students from three State Junior High Schools in Bnadung City who were selected using a cluster random sampling technique with three classes per school each, because the class was randomly taken to represent the research population (Fraenkel, Jack R., Wallen, 2019). The number of research samples was 281 students based on three schools, namely, State Junior High Schools Bandung 94 students, State Junior High Schools 40 Bandung 90 students and State Junior High Schools 50 Bandung 97 students with each school taking three classes. The research object includes the relationship between physical literacy as an independent variable and physical fitness as a bound variable in physical education learning.

The research data used are quantitative data in the form of PLAYself questionnaire scores and TKPN test result scores, which are then recapitulated into the form of a table and final score (Creswell, 2015). The data collection procedure was carried out through filling out questionnaires (in paper form) by students and the implementation of physical fitness tests guided by researchers in each school.

Data analysis is carried out through several stages which include normality tests, linearity tests, and correlation tests to determine the relationships between variables (Fraenkel, Jack R., Wallen, 2019). The statistical analysis technique in this study begins with a normality test using the Kolmogorov-Smirnov Test to find out whether the data has a normal distribution or not and can be further analyzed parametrically or nonparametrically. Then, a linearity test using Compare Means (Means) was carried out to ensure that the relationship between the variables of physical literacy and physical fitness was linear, so that it was eligible for correlation testing. Because the research data was not normally distributed, a nonparametric correlation test, namely Spearman's Rank rho, was used to determine the level of strength and direction of the relationship between physical literacy and physical fitness in students (Fraenkel, Jack R., Wallen, 2019). Correlation interpretation criteria use Guilford classifications to determine the strength of relationships (Fraenkel, Jack R., Wallen, 2019). If the significance value (p <0.05), then the Alternative Hypothesis (Ha) is accepted and the Null Hypothesis (H0) is rejected and there is a significant relationship between the variables studied and when the significance value (p >0.05), then the Alternative Hypothesis (Ha) is rejected and the Null Hypothesis (H0) is accepted and there is no significant relationship between the variables studied.

$$Final\ Score = \left(\frac{Score\ V - Sit\ and\ Reach}{5}\ x\ 10\ x\ 0,5\right) + \left(\frac{Score\ Sit\ Up}{5}\ x\ 20\ x\ 1\right) + \left(\frac{Score\ Squat\ Thrust}{5}\ x\ 20\ x\ 1\right) + \left(\frac{Score\ PACER}{5}\ x\ 50\ x\ 2,5\right)$$

Figure 1. Final Score Formula for Nusantara Student Fitness Test (MINISTRY of Youth and Sports, 2022).

RESULTS AND DISCUSSION

This research was carried out in the odd semester of the 2025/2026 school year and lasted for approximately two weeks, starting on November 10, 2025 and ending on November 21, 2025. Instrument preparation, instrument trials, data collection in schools, data processing and data analysis are all steps required to complete the research. As the subject of the study, 281 grade VIII students from three State Junior High Schools in the city of Bandung were selected through a cluster random sampling technique assuming that each school was taken in three classes. The data collected consisted of physical literacy scores measured with the PLAYself instrument, as well as physical fitness scores measured through PACER, squat thrust, Sit Up, and V-Sit and Reach tests. The results and discussion of the research will be discussed further in the prerequisite test section of the analysis.

The Kolmogorov-Smirnov normality test is used to determine whether the research data has a normal distribution or not. It is used as a basis for determining further statistical analysis techniques. According to (Fraenkel, Jack R., Wallen, 2019) The data is considered to be normally distributed if the significance value (Sig.) is greater than 0.05. On the other hand, the data is considered abnormal if the significance value is less than or equal to 0.05.

Table 1. Kolmogorov-Smirnov Normality Test Results

Variabel	Statistics K-S	Sig. (p)	Remarks
Physical Literacy	0,076	< 0.001	Abnormal
Physical Fitness	0,076	< 0.001	Abnormal

The results of the normality test using the **Table 1.** Kolmogorov-Smirnov Test showed that the physical literacy data with physical fitness were not normally distributed with a p< value of 0.001 for both variables. These results are in line with the idea that non-linear variables associated with age, motivation and physical development may be found in data collected from large populations of school students (Husnan et al., 2023). Because the data is not normally distributed, the data analysis is continued using nonparametric techniques such as Spearman's Rank rho to analyze the relationships between variables more accurately.

The Compare Means (Means) linearity test is used to determine whether or not the relationship between the free variable and the bound variable forms a linear relationship pattern. According to (Fraenkel, Jack R., Wallen, 2019) The relationship between variables is considered linear if the deviation value of the linearity is greater than 0.05. In contrast, the relationships between variables are considered non-linear if the significance value on the line is less than 0.05. The results of the linearity test are very important in correlational research to determine the suitability of the analysis model. This is especially true for distinguishing between parametric and nonparametric correlation methods (Fraenkel, Jack R., Wallen, 2019).

Table 2. Linear Means (Means) Test Results

Variable Relationships	F	Sig. (p)	Remarks
Linearity	17.744	< 0.001	Linear
Deviation from Linearity	0,428	0,998	Not Deviant

The results **Table 2** of the linearity test showed a linear relationship between variables with a p value of < 0.001, and a Deviation from Linearity value = 0.998 > 0.05, which means that the relationship between variables did not deviate from linearity. This shows that improved physical fitness is comparable to increased physical literacy. This is in line with the idea (Whitehead, 2010) which states that physical literacy increases engagement in physical activity in a sustainable manner.

The strength and direction of the relationship between two variables that are ordinal-scale or do not meet the assumption of normality are measured through nonparametric correlation tests such as Spearman's Rank rho (Fraenkel, Jack R., Wallen, 2019). The value of the Spearman coefficient (p) ranges between -1 and +1 with a positive value indicating a unidirectional relationship and a negative value indicating an inverse relationship, according to (Fraenkel, Jack R., Wallen, 2019) The relationship is considered significant if the P-value < 0.05. The value of the coefficient, which indicates whether the relationship between variables belongs to the weak, medium or strong category in educational research, determines the strength of the relationship (Fraenkel, Jack R., Wallen, 2019).

Table 3. Spearman's rho Rank Nonparametric Correlation Test Results

Variabel	rs	Sig. (p)	Remarks
Physical Literacy – Physical Fitness	0,176**	0,003	Positive and Significant Correlation

The results of the **Table 3.** Rank Spearman's rho correlation test showed that there was a positive and significant relationship between physical literacy and physical fitness with a value of rs = 0.176, p = 0.003, which means that the higher the physical literacy of students, the better their physical fitness level.

The results showed that there was a positive and significant relationship between physical literacy and physical fitness in junior high school students with a correlation value of rs = 0.176, p = 0.003, although the strength of the relationship was classified as very weak. These findings confirm that physical literacy plays a role in increasing student participation in physical activities, which has an impact on improving physical fitness (Husnan et al., 2023). This is in line with the theory of physical literacy by (Whitehead, 2010) "As appropriate to each individual's endowment, physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the lifecourse".

Furthermore, this study supports the view that (Shearer et al., 2018) that physical literacy is an important foundation in developing the quality of learning physical education because it can increase active participation and the quality of physical fitness of students. Previous research has also shown that low motivation and involvement of students in physical activity negatively impact physical fitness and long-term health (Wulan et al., 2023). In line with that, (Donnelly et al., 2016) emphasized that physical fitness is an important component to support a person's physical health and ability to carry out daily activities.

The findings of this study reinforce the importance of the role of school physical education in implementing a physical literacy-based approach that not only focuses on technical skills, but also builds student knowledge, confidence, and motivation (Yulianto & Hendrayana, 2022). Thus, the integration of physical literacy with physical fitness needs to be systematically implemented in physical education learning to produce a holistic and sustainable learning process.

CONCLUSION

Based on the results of the study on the relationship between physical literacy and physical fitness in physical education learning in junior high school students throughout the city of Bandung, it was found that there was a positive and significant relationship between the two variables. The results of the Rank Spearman's rho correlation test showed that the value of the correlation coefficient = 0.176 with a value of sig. P = 0.003, which indicates that the higher the physical literacy level of students, the better their physical fitness level. Although the strength of correlation is in the very weak category, these results provide empirical evidence that physical literacy has an important role in improving students' habits and ability to actively engage in physical activity on a sustainable basis. Thus, this study emphasizes that physical literacy and physical fitness are interrelated concept data and must be applied holistically in physical education learning to create a healthier, more active and competitive generation.

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