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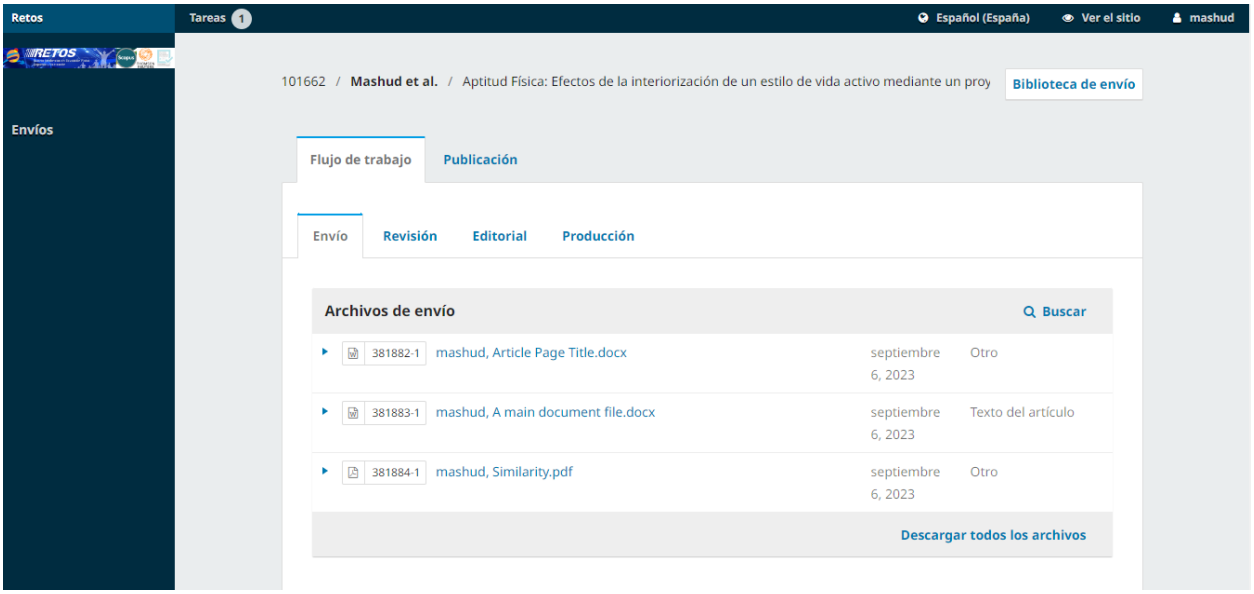

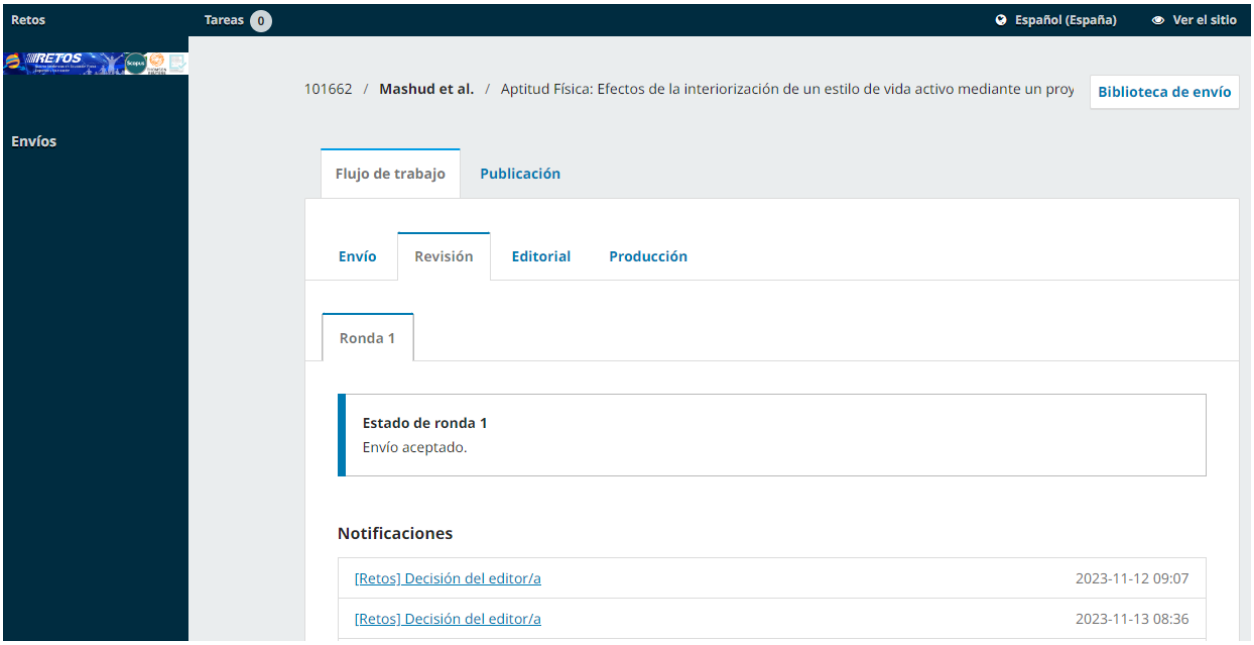

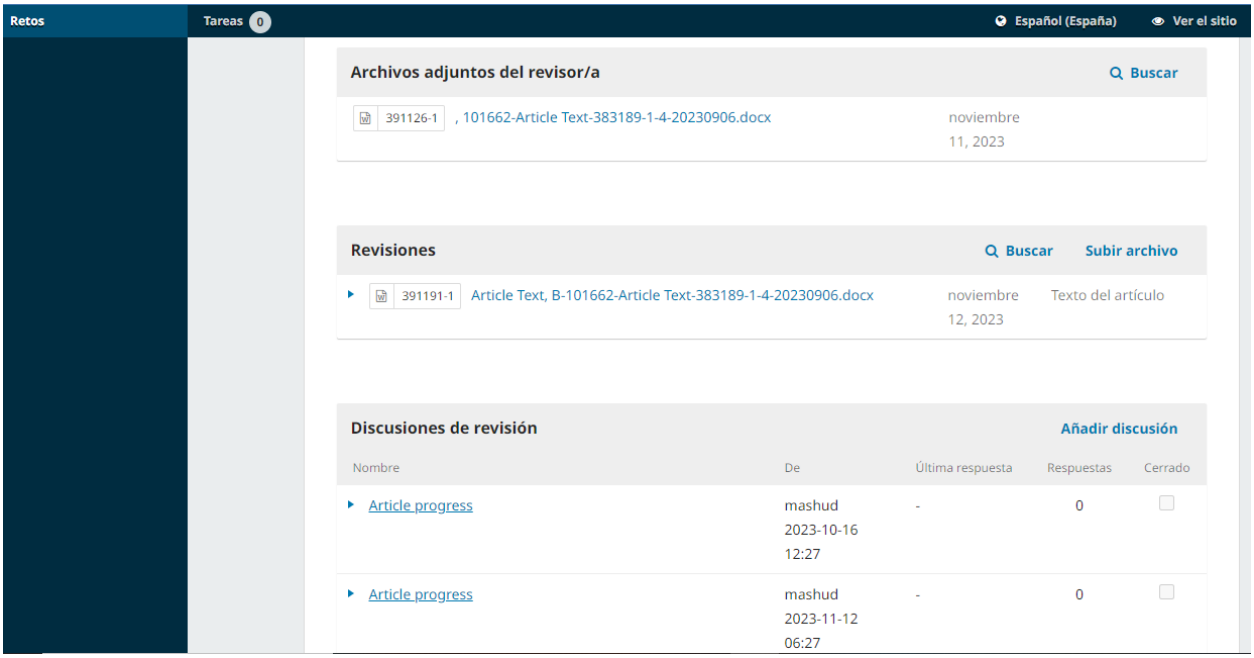
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Physical Fitness: Effects of Active Lifestyle Internalization Through Physical Literacy Awarenes Based Project

By Mashud Mashud

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Physical Fitness: Effects of Active Lifestyle Internalization Through Physical Literacy Awarenes Based Project

Anonymous

Abstract

Background and Study Aim. Physical fitness is an important indicator of the current and future health status of college students. But in reality, there are still many issues with poor physical fitness. Therefore, this study aims to determine and examine how internalizing an active lifestyle through physical literacy awareness based on project-based learning can improve physical fitness.

Materials and Methods. This research uses the experimental method of times-series type (equivalent times-series design). The population as well as the research sample were all physical education students of Lambung Mangkurat University, even in the 2022–2023 semester of programming physical literacy courses, totaling 140 people. The research sample was divided into three classes: 1) class A-1 numbered 48; 2) class A-2 numbered 45; and 3) class A-3 numbered 47. The three classes received intervention in lectures in the form of internalizing an active lifestyle through project-based learning and physical literacy awareness. The data collection instrument in this study was the TKPN (Student Fitness Test Nusantara) test in 2022. Data analysis using the SPSS version 26 application.

Results. The results showed that there was an increase in physical fitness after treatment. The results can be seen from the mean value of test 3 which is 3.076 greater than the value of test 1 which is 2.936 and in test 2 the mean value is 3.051. Next, the results of further tests using the Tukey test show a significance value of 0.000 < 0.05, so there is no significant difference between test 1 and test 2.

Conclusions. The results of the study provide information that internalizing an active lifestyle through project-based learning and physical literacy awareness can improve physical fitness. So that these results can be utilized and applied in physical education, especially to maintain physical fitness.

Keywords: Physical fitness, active lifestyle, physical literacy, project-based learning

Introduction

Physical fitness is defined as a set of attributes or characteristics that individuals have related to their ability to perform physical activities. Where this refers to the body systems that work together efficiently (Suryadi, Suganda, et al., 2023). Thus, to enable a person to be healthy and able to carry out daily physical activities without causing excessive fatigue, it requires good physical fitness (Rubiyatno et al., 2023). So that they are still able to enjoy their free time and be able to carry out their activities again (Mahfud, 2018). If the physical fitness conditions described are owned by someone, that person will be able to carry out daily activities well, be productive, and enjoy his life well too.

Sedentary lifestyles and a lack of physical activity in young people are two of the many causes of the obesity epidemic and even a decline in physical fitness. The implementation of Regular, quality physical activity during childhood can lead to improvements in physiologic and morphologic variables (Owen et al., 2010). The success of realizing physical fitness especially in school-age children, has been widely found. Various other benefits of physical Activity can provide psychological development for children (M. & I., 2019)(Bäckmand et al., 2006), lifestyle development, social development, cognitive development (Donnelly et al., 2016), and motor development (Samodra et al., 2023). Most children's physical activity is currently allocated to regular physical education classes at school for economic reasons (Bailey, 2016).

Physical fitness is an important indicator of the current and future health status of adolescents (Rubín et al., 2017). There are several factors that cause a decrease in physical fitness, including age, gender, BMI, waist circumference, hypertension, and diabetes mellitus (Juliansyah et al., 2021). Several studies emphasize that low physical fitness is a contributing factor. factor in the development of non-communicable diseases (Lavie et al., 2019), 2019). For example, if physical fitness is low, such as cardiovascular disease, then it is at risk of causing death (Vancampfort et al., 2019; Zhao et al., 2019). Research data assessing students' physical activity levels shows a lack of physical activity in modern youth (Lipošek et al., 2019). Some of these reviews reinforce the importance of maintaining physical fitness, which is not only for sportsmen but also important for the general public. With some research considerations, of course, it can be a reference on how to maintain good physical fitness.

A study found that 12 weeks of physical, functional-based training effectively improved students' physical fitness (Li et al., 2023). It turns out that the application of the interval training method can improve physical fitness (Hardiansyah, 2017)(Grygoriy et al., 2020). Further research adds that regular and measurable endurance and strength training can improve physical fitness (Görner & Reineke, 2020). Physical training for six months can cause significant changes and promote improved bone health, especially in women (De Oliveira et al., 2021). In addition, six months of physical training can improve cardiorespiratory capacity and upper limb muscle fitness in all students. Some of the research results above suggest that physical fitness is improved by doing physical activities by applying certain methods, carried out over a certain period, and strictly controlled by the teacher or coach. So that physical fitness can be improved properly.

Several studies have revealed various assumptions related to physical fitness. The facts presented also illustrates that the reduction in physical activity carried out by some people can cause a decrease in the level of physical fitness (Rubiyatno et al., 2023). However, researchers still consider it inappropriate if the goal of physical fitness is for the long term (lifelong physical fitness). So this requires knowledge, experience with discipline, motivation, confidence, and

awareness to carry out physical activity as a necessity of life. The The results of the study emphasize that physical fitness is related to health, which is influenced by several factors, including socioeconomic status (Kljajević et al., 2022), and body weight (Galan-Lopez et al., 2020).

Previous research has argued for the contribution that exercise makes to psychological emotional and physical well-being (Hughes et al., 2020). Exercise has benefits in improving body health and can also reduce the risk of disease (Meo et al., 2021). Based on these reviews, it has been explained that exercise plays an important role in keeping the body fit. The truth about this explanation has been proven by several studies: that physical Activities carried out through sports have a positive effect on physical fitness (Suryadi & Rubiyatno, 2022)(Suryadi et al., 2021)(Baek et al., 2020). Therefore, it is very important to maintain physical fitness in order to carry out various activities optimally. Lack of physical activity, such as moving, can cause the body's health to decline (Erliana & Hartoto, 2019). Which is estimated as one of the risk factors for various health problems and stress experienced (Østerås et al., 2017).

The United States Department of Health and Human Services recommends that youth ages 6–17 engage in at least 60 minutes of physical activity daily (USA. DHHS, 2018). Therefore, physical education as an organized and compulsory activity is a key component of physical education (Aziz, Okilanda, Rozi, et al., 2023)(Aziz, Okilanda, Permadi, et al., 2023)(Suryadi, Samodra, et al., 2023). So it can be one of several possible environments. Other Research reveals that incompetent general teachers in physical education have been a major problem for many years (Barroso et al., 2005)(Morgan & Hansen, 2008). Where teachers become one of the success factors of school learning (Hardinata et al., 2023)(Harianto et al., 2023). The union of teachers and pupils must have a mass, just as the union of athletes and their coaches must have a mass. A person's bodily and spiritual connection will last till the end of time. As a result, having training guidelines to enhance physical fitness autonomously with full knowledge, drive, and confidence is essential.

Based on the fact that research is currently developing, namely increasing physical fitness due to controlled and monitored training from teachers, trainers, or physical trainers. We understand together that the togetherness of a teacher and trainer has a time limit, namely as long as they are still students or under contract with their physical trainer. After that, They must separate, and the student or students will live independently and determine all their own life achievements. Independent in the sense that individuals are able to determine exercise patterns, exercise loads, exercise variations, and habits for continuous physical activity during their lifetime. Internalizing an active lifestyle through physical literacy using project-based learning is the right method to equip students with knowledge and experience so that they can be independent and realize the quality of their physical fitness. (Mashud, 2021). The main feature of its internalization is that students carry out physical activity consciously, continuously, and regularly every day, accompanied by knowledge understanding, motivation, and self-confidence of the physical activities carried out so that an active lifestyle is formed throughout their lives. Structured and patterned routines and continuous rounds of activity will form a fit body or physique (physical fitness).

The form of internalization of physical activity with physical literacy using the project-based learning method to form an active lifestyle is a novel concept that researchers carry in this research. Researchers claim that this internalization concept has not been maximally developed and needs deeper study and innovation, both abroad and domestically, especially in South

Kalimantan. In addition, the urgency of solutions in the short term is to form the awareness of prospective teacher students to be cultured in active living throughout the day so that they are expected to become a generation that is fit, healthy, and behaves productively. Furthermore, the urgency of long-term solutions is the realization of teachers who are aware of the culture of active living and physical literacy So that great hope will be formed, teachers who are able to innovate in carrying out their duties and functions as physical education teachers.

Materials and Methods

Participants. The study population was all physical education students at Lambung Mangkurat. University even in the semester of 2022-2023 who were programming physical literacy courses totaling 140 people, but in this study only 133 people were given treatment until completion. The sample used in this study is the entire population, also referred to as population research. The entire population becomes the research sample (Vaughn, Debbie, & Lomax, 2020).

The intervention technique or treatment to the research sample by following the class division carried out by the physical education study program, which is divided into three classes: 1) class A-1 totaling 48; 2) class A-2 totaling 45; and 3) class A-3 totaling 47. The research was conducted at Lambung Mangkurat University, Banjarbaru City, South Kalimantan. The research was conducted from April to June 2023.

Research Design. This study used the time-series experimental method, which was chosen by researchers because researchers only have access to one group and can study it within a certain period of time (Harrison et al., 2020). In addition, the selection of the time series experimental method was based on the research objectives, namely to determine the impact of changes in students' physical fitness after attending lectures and internalizing active lifestyles through project-based learning and physical literacy awareness for eight weeks or two months. or two months (Payadnya, I & Jayantika, I, 2018). It is said that the researcher only has access to one group; that is, researcher a wants to test the application of internalizing an active lifestyle through project-based learning-based physical literacy awareness on improving the physical fitness of all students. a schematic description of the time-series experimental method is shown in Figure 1 below.

>>>Figure 1. figure attached<<<

Research Procedure. Based on the research design of the time series experimental method in Figure 1, The research procedure can be described as follows: 1) the researcher collects students as research participants in accordance with the class group determined by the ULM physical education study program; 2) after being divided into class groups, the researcher conducts the first stage of measurement or observation (physical fitness) of participants; measurement and observation are carried out in the first week of the study; 3) then the learning intervention is carried out in the course by applying internalization of an active lifestyle through physical literacy awareness based on project-based learning; 4) In the fourth week, the second stage of measurement and observation (physical fitness) is carried out; 5) The learning intervention is carried out in the course by applying the internalization of an active lifestyle through physical literacy awareness based on project-based learning, and 6) in the twelfth week, the third and final stage of measurement and observation (physical fitness) is carried out.

In addition, in implementing physical literacy awareness based on project-based learning, students reported daily practice journals every week for eight weeks during the intervention

time. This data was also used by the researcher to investigate the stages of the project carried out by students each week.

Research Instruments. Data collection instruments in this study used two kinds of instruments: 1) instruments measuring physical fitness using the TKPN test (Student Fitness Test of the Archipelago) issued by the Ministry of Youth and Sports of the Republic of Indonesia (Pedoman Tes Kebugaran Pelajar Nusantara, 2022). 2) A physical literacy portfolio instrument in the form of a daily exercise journal.

The TKPN test in 2022 has five indicators, namely: 1) Body mass index test; 2) Sit and rich test to measure body flexibility, 3) A sit-up test to measure abdominal muscle strength and endurance, 4) Squatrus-test to measure body power, 5) Pacer test to measure cardio-respiratory endurance. While the physical literacy portfolio instrument is in the form of a daily exercise a journal is used to measure students' active lifestyles.

Statistical Analysis. Measurements were taken three times during the intervention period, resulting in three consecutive sets of data. For this reason, data analysis was conducted in three stages: descriptive statistics, normality, and repeated measurement ANOVA (Leppink, 2019).

Results

The results of the physical fitness category with internalization of active lifestyle through physical lieracy awarnes based on project-based learning. The results in table 1 and figure 2 show that out of 133 students there are 1.5% in the very low category, 40.6% in the low category, 57.1% in the moderate category and 0.8% in the good category. Based on these results, it provides evidence that physical fitness in test 1 is dominant enough.

Further data on test 2 physical fitness provides information that out of 133 students there are 33.1% in the low category. Next, there are 64.7% in the moderate category and 2.3% in the good category. Based on these results, it provides evidence that physical fitness in test 2 is in the moderate category. The results can be seen in table 2 and figure 3.

The results of the physical fitness test 3 showed that out of 133 students there were 9% in the low category. Next there are 82% in the moderate category and 9% in the good category. Based on these results, it provides evidence that physical fitness in test 3 is in the moderate category. The results have changed quite well, where the changes are clearly visible from the percentage of physical fitness that is getting better. The results can be seen in table 3 and figure 4.

>>>Table 1. table attached<<<

>>>Figure 2. Figure attached<<<

>>>Table 2. table attached<<<

>>>Figure 3. Figure attached<<<

>>>Table 3. table attached<<<

>>>Figure 4. Figure attached<<<

Based on descriptive data analysis shows that the results of physical fitness through the mean value of the increase that occurs. Where the results in test 1 show a mean value of 2.936 and the mean test 2 results are 3.051 where these results show an increase although not so great. The next result in test 3 physical fitness shows a mean value of 3.376 which is greater than the mean results of test 1 and test 2. Based on this data, it can be said that there is an increase in physical fitness that occurs after internalizing active lifestyle through project-based learning-based physical lieracy awarnes. To clarify the results can be seen in table 4 and figure 5.

>>>Table 4. table attached<<<

>>>Figure 5. Figure attached<<<

>>>Table 5. table attached<<<

>>>Table 6. table attached<<<

Based on the results of the normality test with Kolmogorov-Smirnov, shows that the significance value is p = 0.200> 0.05, so the data can be said to be normal. The results can be seen in table 5. Furthermore, the results in table show the value of the physical fitness homogeneity test on students. The results obtained a significance value of 0.181> 0.05 which provides information that the data is homogeneous. So that further tests can be carried out to see the difference in the data.

>>>Table 7. table attached<<<

The results of further tests in this study using the Tukey HSD test, the results of the study provide information on the significance value of 0.053> 0.05, the data can be concluded that Test 1 paired with Test 2 has no significant difference. The results of Test 1 paired with Test 3 showed a significant difference of 0.000 <0.05. The next data Test 2 is paired with test 1 with a significance value of 0.053> 0.05 which means there is no significant difference. The results of Test 2 are paired with test 3 with significance value of 0.000 <0.05, so the data has a significant difference. The results of Test 3 paired with Test 1 and Test 2 show a significant difference, this is clearly seen in the mean value of Test 3 which is more dominant. These results can be seen in table 7.

Discussion

This study aims to determine and examine how internalizing an active lifestyle through physical literacy awareness based on project-based learning can improve physical fitness. The results showed that there was an increase in physical fitness by internalizing an active lifestyle through physical literacy awareness based on project-based learning. These results can be seen from the fact that the mean value of test 3 is greater than the values of test 1 and test 2. In addition, the results of further tests also show significant differences when test 3 is paired with test 1 and test 2. Therefore, these results have provided valid information that the application of an active lifestyle through physical literacy awareness based on project-based learning can increase students' physical fitness.

According to a research (Rudd et al., 2020), physical literacy is a cause to increase physical activity performance, which is associated to fitness. It will build an active lifestyle with high physical literacy. Furthermore, research indicates that a physically active lifestyle plays an essential role in enhancing fitness and health (Nooijen et al., 2012). This remark is supported by study by (Filgueira et al., 2021), which found that a physically active lifestyle and physical

fitness can offer immunological protection. Increased physical exercise will improve physical fitness and may help minimize the risk of cardiovascular illness (Nooijen et al., 2012). As a consequence, the development of many facts will result in parallels and discrepancies with the study's findings. Furthermore, project-based learning (Candra et al., 2023) shows that the adoption of project-based learning can boost students' physical fitness. According to other studies, project-based learning is one of the most popular learning methodologies in modern education (Simonton et al., 2021).

Although not emphasized in this presentation, we suspect that active lifestyle through physical literacy awareness based on project-based learning can be an appropriate learning model in physical education, especially in maintaining physical fitness. This conjecture can be based on (Tables 1,2,3 and 4) where changes are clearly visible, so this is an illustration to improve and maintain physical fitness. In addition, sports teachers who implement project-based learning can simultaneously improve student learning and gain an equal position with other educational subjects by connecting with school initiatives (Simonton et al., 2021). (Simonton et al., 2021). The results showed that project-based learning with interactive multimedia can improve breaststroke swimming skills. (Mashud et al., 2023).. In the case of physical fitness, it turns out that the project-based learning model is better than the case method to improve physical fitness. (Candra et al., 2023).

Although it is not specifically mentioned in this presentation, we believe that an active lifestyle based on physical literacy awareness and project-based learning can be an acceptable learning paradigm in physical education, particularly for sustaining physical fitness. This hypothesis may be supported by (Tables 1,2,3, and 4) where improvements are plainly evident, demonstrating how to develop and maintain physical fitness. Furthermore, by collaborating with school projects, sports teachers may simultaneously boost student learning and attain parity with other educational topics (Simonton et al., 2021). The findings demonstrated that project-based learning with interactive multimedia may enhance breaststroke swimming abilities (Mashud et al., 2023). In the instance of physical fitness, it turns out that the project-based learning model is superior to the case approach (Candra et al., 2023).

Therefore, physical education must be of high quality to encourage and support all learners. So that they can develop into lifelong participants in a way that maintains their own health, fitness, and well-being (Griggs & Fleet, 2021). Research findings conducted by (Wong et al., 2022) Early life frequency in socioeconomic status has an important role in childhood and adolescent physical fitness. Osteoarthritis in children can be prevented by early-life interventions (Antony et al., 2016). This statement is reinforced by (Kang et al., 2015). The results of a multicomponent training program can improve the physical fitness of elderly women.

Several studies have shown that physical activity has a positive impact on physical fitness. (Pahkala et al., 2013; Suryadi, 2022; Suryadi, Suganda, et al., 2023), health (Moreno-Quispe et al., 2021), physical fitness (Dede Pebriandi Sihotang & Novita, 2021), pediatric knee structure (Antony et al., 2016), adiposity, bone health, psychological health, and cardiorespiratory fitness (Loprinzi et al., 2012). Furthermore, the provision of physical activity was also found to improve children's vascular hemodynamics (Köchli et al., 2021), reduce body fat levels (Dias et al., 2018; Magalhães et al., 2019; Ortega et al., 2013; Türk et al., 2017). Prevention of overweight (Obert et al., 2017; Wewege et al., 2017), obesity (Afrasyabi et al., 2019; de Lira et al., 2017; De Lorenzo et al., 2018; Musálek et al., 2021; Ortega et al., 2013; Soh et al., 2020), type 2 diabetes mellitus (Rush & Simmons, 2014), muscle endurance (Alficandra et al., 2019), and possibly increasing sports participation in high school (Battista et al., 2021).

These evaluations highlight the need of physical exercise, but particular dosages of physical activity that are appropriate for this age are required (Laurent et al., 2021). Multifaceted treatments can enhance preschoolers' body composition and physical fitness (Zhou et al. 2014). The research intended to offer an overview of effective learning activities that promote physical fitness. The key drawback of this study is the activities that students engage in prior to taking the exam, whether heavy or light. Further research should encourage regular exercise since the study on internalizing an active lifestyle through project-based learning-based physical literacy awareness on physical fitness has not been applied. In some of these talks, sports practitioners' readiness must be more mature (Parnell et al. 2020). Despite the limitations indicated, this study should provide a significant addition to physical fitness as well as physical fitness research, and it will be valuable in understanding the key unfavorable aspects (Kljajevi et al., 2022).

The realization of physical fitness through the internalization of an active lifestylephysical literacy awareness based on project-based learning. Where in this research study is it tointernalize the concept of physical activity by applying the principles of physical literacy usingproject-based learning methods in a patterned and structured manner so that periodicallyembedded awareness in students for an active lifestyle in everyday life. The discipline of carrying out the internalization stage with full awareness, ihklas, without any element ofcoercion, then students will be physically literate and form a body that is physically fit.

Conclusions

The results of the study have a strong foundation related to physical fitness, which has beenlisted in the discussion. The results showed that internalization of an active lifestyle throughPhysical literacy awareness based on project-based learning provides an increase in physicalfitness. The results also showed that there was a significant difference between test 3 pairedwith tests 1 and 2. Furthermore, test 1 paired with test 2 and test 2 paired with test 1 showed nosignificant difference. The results of this study have provided new references in physicaleducation, especially in maintaining fitness. Where in this study is the internalization of activelifestyle through physical literacy Awareness can be a reference for trainers, teachers, and thegeneral public to maintain physical fitness. That way, an active lifestyle through physical literacy awareness will be created by maintaining physical fitness in the environment of students, sportsmen, and the general public. Further research recommendations can add othervariables so that they can be comparable in improving physical fitness in students.

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Conflict of interest

There is no conflict of interest.

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TABLES AND FIGURES

Tables

Table 1. Physical Fitness Test 1 Results

Category	Frequency	Percent	Valid Percent
Very Low	2	1,5%	1,5%
Low	54	40,6%	40,6%
Fair	76	57,1%	57,1%
Good	1	0,8%	0,8%
Excellent	0	0	0
Total	133	100%	100%

Table 2. Physical Fitness Test 2 Results

Category	Frequency	Percent	Valid Percent
Very Low	0	0	0
Low	44	33,1%	33,1%
Fair	86	64,7%	64,7%
Good	3	2,3%	2,3%
Excellent	0	0	0
Total	133	100,0	100,0

Table 3. Physical Fitness Test 3 Results

Category	Frequency	Percent	Valid Percent
Very Low	0	0	0
Low	12	9%	9%
Fair	109	82%	82%
Good	12	9%	9%
Excellent	0	0	0
Total	133	100%	100%

Table 4. Descriptive Results of Physical Fitness

Results	N	Mean	Std. Deviationr	Std. Error	Minimum	Maximum
Test 1 Physical Fitness	133	2,936	0,4195	0,0364	1,8	4,2
Test 2 Physical Fitness	133	3,051	0,4124	0,0358	2,0	4,2
Test 3 Physical Fitness	133	3,376	0,3734	0,0324	2,4	4,4
Total	399	3,121	0,4425	0,0222	1,8	4,4

Table 5. Kolmogorov-Smirnov Normality Test

sults	test	Statistic	df	Sig.
Physical Fitness Results	Test 1 Physical Fitness	.139	133	.200*
	Test 2 Physical Fitness	.118	133	.200*
	Test 3 Physical Fitness	.166	133	.200*

Table 6. Homogeneity Test Results

Results		Levene Statistic	df1	df2	Sig.
Physical Fitness Results	Based on Mean	1,717	2	396	0,181
	Based on Median	1,286	2	396	0,277
	Based on Median and with adjusted df	1,286	2	394,382	0,277
	Based on trimmed mean	1,525	2	396	0,219

Table 7. Tukey HSD Further Test Results

Results	Physical Fitness	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Test 1 Physical Fitness	Test 2 Physical Fitness	-0,1150	0,0493	0,053	-0,231	0,001
	Test 3 Physical Fitness	-.4398*	0,0493	0,000	-0,556	-0,324
Test 2 Physical Fitness	Test 1 Physical Fitness	0,1150	0,0493	0,053	-0,001	0,231
	Test 3 Physical Fitness	-.3248*	0,0493	0,000	-0,441	-0,209
Test 3 Physical Fitness	Test 1 Physical Fitness	.4398*	0,0493	0,000	0,324	0,556
	Test 2 Physical Fitness	.3248*	0,0493	0,000	0,209	0,441

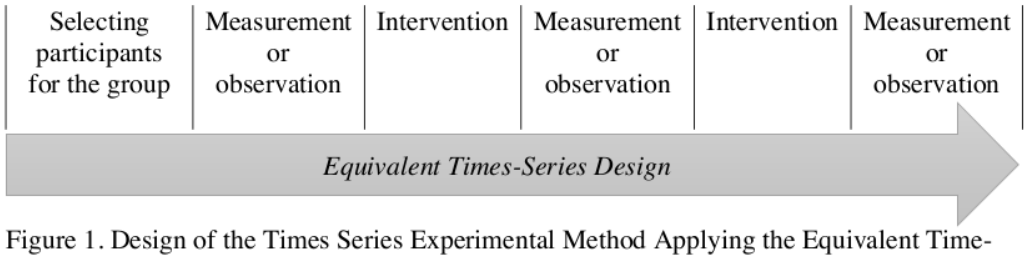

Figure 1. Design of the Times Series Experimental Method Applying the Equivalent Time-Series Design

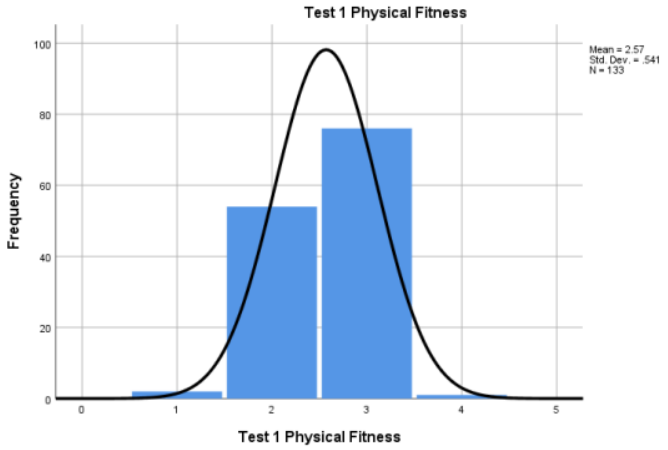

Figure 2. Description of Physical Fitness Test 1 Results

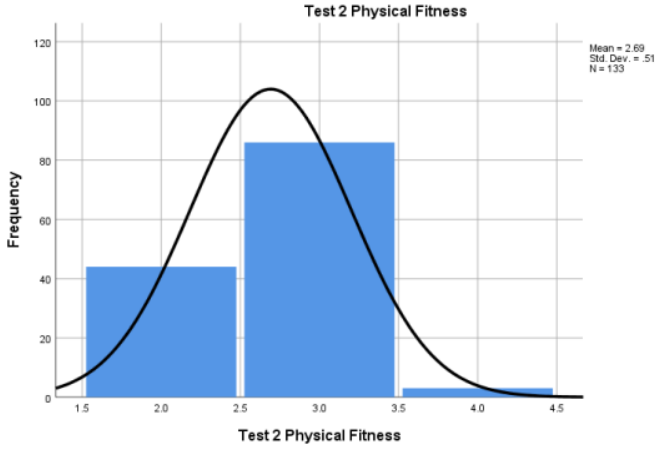

Figure 3. Description of Physical Fitness Test 2 Results

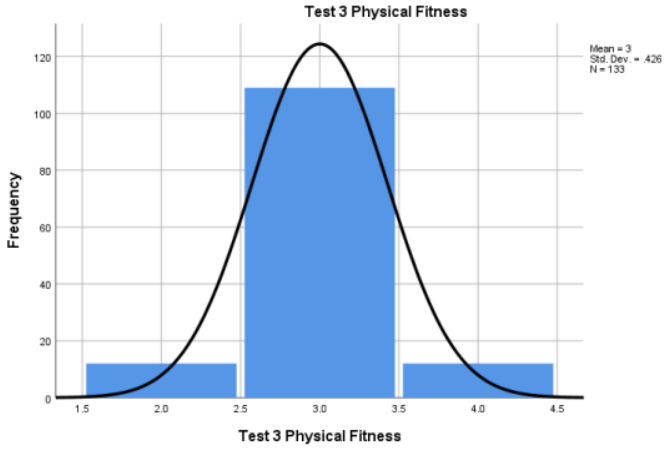

Figure 4. Description of Physical Fitness Test 3 Results

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Physical Fitness: Effects of active lifestyle internalization through physical literacy awarenes based project

Aptitud Física: Efectos de la interiorización de un estilo de vida activo mediante un proyecto basado en la alfabetización física

*Mashud, *Syamsul Arifin, *Herita Warni, **Y Touvan Juni Samodra, **Ghana Firsta Yosika, *Sunarno Basuki, ***Didi Suryadi, ****Imam Suyudi

*Universitas Lambung Mangkurat, (Indonesia), **Universitas Tanjungpura, (Indonesia), ***Universitas Negeri Yogyakarta, (Indonesia), ****Universitas Negeri Makassar (Indonesia),

Abstract. Background and Study Aim. Physical fitness is an important indicator of the current and future health status of college students. But in reality, there are still many issues with poor physical fitness. Therefore, this study aims to determine and examine how internalizing an active lifestyle through physical literacy awareness based on project-based learning can improve physical fitness. Materials and Methods. This research uses the experimental method of the times-series type (equivalent times-series design). The population as well as the research sample were all physical education students of Lambung Mangkurat University, even in the 2022–2023 semester of programming physical literacy courses, totaling 140 people. The research sample was divided into three classes: 1) class A-1, numbered 48; 2) class A-2, numbered 45; and 3) class A-3, numbered 47. The three classes received intervention in lectures in the form of internalizing an active lifestyle through project-based learning and physical literacy awareness. The data collection instrument in this study was the TKPN (Student Fitness Test Nusantara) test in 2022. Data analysis using the SPSS version 26 application. Results. The results showed that there was an increase in physical fitness after treatment. The results can be seen from the mean value of test 3 which is 3.376 greater than the value of test 1 which is 2.936 and in test 2 the mean value is 3.051. Next, the results of further tests using the Tukey test show a significance value of 0.000 < 0.05, so there is no significant difference between test 1 and test 2. Conclusions. The results of the study provide information that internalizing an active lifestyle through project-based learning and physical literacy awareness can improve physical fitness. So that these results can be utilized and applied in physical education, especially to maintain physical fitness.

Keywords: Physical fitness, active lifestyle, physical literacy, project-based learning

Resumen. Antecedentes y objetivo del estudio. La forma física es un indicador importante del estado de salud actual y futuro de los estudiantes universitarios. Pero, en realidad, todavía hay muchos problemas relacionados con una mala forma física. Por lo tanto, este estudio pretende determinar y examinar cómo la interiorización de un estilo de vida activo a través de la concienciación sobre la alfabetización física basada en el aprendizaje por proyectos puede mejorar la forma física. Materiales y métodos. Esta investigación utiliza el método experimental del tipo de series temporales (diseño de series temporales equivalentes). La población, así como la muestra de la investigación, fueron todos los estudiantes de educación física de la Universidad Lambung Mangkurat, incluso en el semestre 2022-2023 de programación de cursos de alfabetización física, con un total de 140 personas. La muestra de la investigación se dividió en tres clases 1) clase A-1, numerada 48; 2) clase A-2, numerada 45; y 3) clase A-3, numerada 47. Las tres clases recibieron la intervención en clase en forma de interiorización de un estilo de vida activo mediante el aprendizaje basado en proyectos y la concienciación sobre la alfabetización física. El instrumento de recogida de datos en este estudio fue la prueba TKPN (Student Fitness Test Nusantara) en 2022. Para el análisis de los datos se utilizó la aplicación SPSS versión 26. Resultados. Los resultados mostraron que hubo un aumento en la aptitud física después del tratamiento. Los resultados pueden observarse en el valor medio de la prueba 3, que es 3,376 superior al valor de la prueba 1, que es 2,936, y en la prueba 2 el valor medio es 3,051. A continuación, los resultados de las pruebas posteriores mediante la prueba de Tukey muestran un valor de significación de 0,000 < 0,05, por lo que no hay diferencias significativas entre la prueba 1 y la prueba 2. Conclusiones. Los resultados del estudio proporcionan información de que la interiorización de un estilo de vida activo a través del aprendizaje basado en proyectos y la concienciación de la alfabetización física puede mejorar la condición física. De modo que estos resultados pueden ser utilizados y aplicados en la educación física, especialmente para mantener la forma física.

Palabras clave : Condición física, estilo de vida activo, alfabetización física, aprendizaje basado en proyectos

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Mashud
mashud@ulm.ac.id

Introduction

Physical fitness is defined as a set of attributes or characteristics that individuals have related to their ability to perform physical activities (Rubiyatno et al., 2023). This refers to the body systems that work together efficiently (Suryadi, Suganda, et al., 2023). Thus, to enable a person to be healthy and able to carry out daily physical activities without causing excessive fatigue, it requires good physical fitness (Rubiyatno et al., 2023). So that they are still able to enjoy their free time and be able to carry out their activities again (Mashud, 2018). If the physical fitness conditions described are owned by someone, that person will be able to carry out daily activities well, be productive, and enjoy his life well too.

Sedentary lifestyles and a lack of physical activity among the youth contribute significantly to the obesity epidemic and a decline in physical fitness. Incorporating consistent and high-quality physical activity has a beneficial influence, as noted by (Hardinata, B, et al., 2023). The successful promotion of physical fitness, especially among school-age children, has been widely observed. Additionally, engaging in

physical activity offers various advantages for children, encompassing psychological development (Bäckmand, Kaprio, Kujala, Sarna, & Fogelholm, 2006; M. & I., 2019), lifestyle development, social development, cognitive development (Donnelly et al., 2016), and motor development (Samodra et al., 2023). Currently, due to economic considerations, the majority of children's physical activity is channeled through regular physical education classes at school (Bailey, 2016).

Physical fitness is a key predictor of adolescents' current and future health status (Rubín, Suchomel, Cuberek, Dušková, & Tláskalová, 2017). Age, gender, BMI, waist circumference, hypertension, and diabetes mellitus are all variables that contribute to a decline in physical fitness (Juliansyah, Sugiyanto, & Hita, 2021). Several studies have found that a lack of physical fitness is a factor in the development of noncommunicable illnesses (Lavie, Ozemek, Carbone, Katzmarzyk, & Blair, 2019). For example, if physical fitness is insufficient, cardiovascular disease is more likely to cause mortality (Vancampfort et al., 2019; Zhao, Sun, Xiong, & Zheng, 2019). Physical activity levels in modern adolescents are low, according to research data analyzing pupils' physical activity levels (Lipošek, Planinšec, Leskošek, & Pajtler, 2019). Some of these reviews reinforce the importance of maintaining physical fitness, which is not only for sportsmen but also important for the general public. With some research considerations, of course, it can be a reference on how to maintain good physical fitness.

A study found that 12 weeks of physical, functional-based training effectively improved students' physical fitness (Li, Cheong, & Hussain, 2023). It turns out that the application of the interval training method can improve physical fitness (Grygoriy et al., 2020; Hardiansyah, 2017). Further research adds that regular and measurable endurance and strength training can improve physical fitness (Görner & Reineke, 2020). Physical training for six months can cause significant changes and promote improved bone health, especially in women (De Oliveira et al., 2021). In addition, six months of physical training can improve cardiorespiratory capacity and upper-limb muscle fitness in all students. Some of the research results above suggest that physical fitness is improved by doing physical activities by applying certain methods, carried out over a certain period, and strictly controlled by the teacher or coach. So that physical fitness can be improved properly. Several studies have revealed various assumptions related to physical fitness. The statistics given also demonstrate that a decrease in physical activity performed by some people might result in a loss in physical fitness (Rubiyatno et al., 2023). However, researchers still consider it inappropriate if the goal of physical fitness is for the long term (lifelong physical fitness). So this requires knowledge, experience with discipline, motivation, confidence, and awareness to carry out physical activity as a necessity of life. The study's findings underline that physical fitness is linked to health, which is impacted by a variety of factors, including socioeconomic position (Kljajević et al., 2022), and body weight (Galan-Lopez et al., 2020).

Previous studies have claimed that exercise contributes to psychological, emotional, and physical well-being (Hughes et al., 2020). Exercise has been shown to improve overall health and lower the risk of illness (Meo et al., 2021). Based on these assessments, it has been said that exercise is essential for keeping the body fit. Several studies have demonstrated the validity of this explanation: physical activities performed through sports have a good influence on physical fitness (Baek et al., 2020; Suryadi & Rubiyatno, 2022; Suryadi, Samodra, & Purnomo, 2021). As a result, maintaining physical fitness is critical in order to perform diverse activities optimally. A lack of physical activity, such as moving, can lead to a reduction in the body's health (Erliana & Hartoto, 2019). Which is thought to be one of the risk factors for a variety of health issues and stress (Østerås, Sigmundsson, & Haga, 2017).

The United States Department of Health and Human Services advocates for a minimum of 60 minutes of daily physical activity for individuals aged 6–17 (USA. DHHS, 2018). Consequently, physical education, as an organized and mandatory activity, constitutes a crucial element of this recommendation (Aziz, Okilanda, Permadi, et al., 2023; Aziz, Okilanda, Rozi, Suganda, & Suryadi, 2023; Suryadi, Samodra, et al., 2023). It serves as one of the potential settings for fulfilling this requirement. Other studies point out that the issue of inadequately trained general teachers in physical education has been a significant concern for many years (Barroso, McCullum-Gomez, Hoelscher, Kelder, & Murray, 2005; Morgan & Hansen, 2008). Teachers become one of the success factors of school learning (Hardinata, Fakhruddin Fakhruddin, et al., 2023; Harianto, Gustian, Supriatna, Shalaby, & Taiar, 2023). The union of teachers and pupils must have a mass, just as the union of athletes and their coaches must have a mass. A person's bodily and spiritual connection will last till the end of time. As a result, having training guidelines to enhance physical fitness autonomously with full knowledge, drive, and confidence is essential.

Considering the ongoing development of research, the enhancement of physical fitness is attributed to regulated and supervised training provided by teachers, coaches, or fitness instructors (Ambroży et al., 2022). It is collectively recognized that the collaboration between a teacher and a trainer has a finite duration, extending only as long as the individuals remain students or are under a contractual agreement with their fitness instructor. Subsequently, a parting of ways is inevitable, leading the students to embark on an independent journey where they determine their life achievements. Independence, in this context, implies the ability of individuals to decide their exercise routines, workout intensities, variations, and habits for sustaining physical activity throughout their lives (Kljajevi et al., 2022). Internalizing an active lifestyle through physical literacy, facilitated by project-based learning, emerges as an apt method to furnish students with the knowledge and experience necessary for them to be self-reliant and achieve a

high standard of physical fitness (Mashud, 2021). The main feature of its internalization is that students carry out physical activity consciously, continuously, and regularly every day, accompanied by knowledge understanding, motivation, and self-confidence of the physical activities carried out so that an active lifestyle is formed throughout their lives. Structured and patterned routines and continuous rounds of activity will form a fit body or physique (physical fitness).

The introduction of the internalization of physical activity through physical literacy using the project-based learning method, aiming to foster an active lifestyle, is a novel concept proposed by researchers in this study. The researchers argue that this concept of internalization has not been sufficiently developed and requires in-depth exploration and innovation, both internationally and domestically, particularly in South Kalimantan. Additionally, the immediate need is to raise awareness among prospective teacher students, fostering a culture of active living throughout the day (Mashud, 2021). This, in turn, is expected to cultivate a generation that is not only physically fit and healthy but also demonstrates productive behavior. Looking at long-term solutions, the study underscores the importance of cultivating teachers who are conscious of an active lifestyle and physical literacy culture. This vision holds the promise of having teachers who can innovate in fulfilling their roles and responsibilities, especially as physical education instructors. The research also delves into examining how the internalization of an active lifestyle, specifically through a project aimed at promoting awareness of physical literacy, influences physical fitness.

Materials and Methods

Participants

The study population was all physical education students at Lambung Mangkurat University even in the semester of 2022-2023 who were programming physical literacy courses totaling 140 people, but in this study only 133 people were given treatment until completion. The withdrawal of samples in this study can be made by purposive sampling with the consideration that the samples used as research subjects are only those who complete the training or treatment program. The intervention technique or treatment is applied to the research sample by following the class division carried out by the physical education study program, which is divided into three classes: 1) class A-1 totaling 48; 2) class A-2 totaling 45; and 3) class A-3 totaling 47. The research was conducted at Lambung Mangkurat University, Banjarbaru City, South Kalimantan. The research was conducted from April to June 2023.

Research Design

This study used the time-series experimental method, which was chosen by researchers because they only have access to one group and can study it within a certain period of time (Harrison, Reilly, & Creswell, 2020). In addition, the selection of the time series experimental method was based on the research objectives, namely to determine the impact of changes in students' physical fitness after attending lectures and internalizing active lifestyles through project-based learning and physical literacy awareness for eight weeks or two months (Payadnya, I & Jayantika, I, 2018). It is said that the researcher only has access to one group; that is, the researcher a wants to test the application of internalizing an active lifestyle through project-based learning-based physical literacy awareness on improving the physical fitness of all students. A schematic description of the time-series experimental method is shown in Figure 1 below.

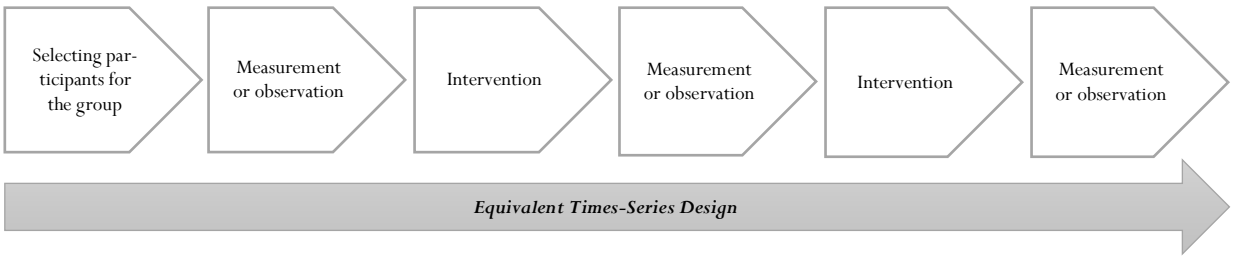

Figure 1. Design of the Times Series Experimental Method Applying the Equivalent Time-Series Design

Research Procedure

Based on the research design of the time series experimental method in Figure 1, the research procedure can be described as follows: 1) the researcher collects students as research participants in accordance with the class group determined by the ULM physical education study program; 2) after being divided into class groups, the researcher conducts the first stage of measurement or observation (physical fitness) of participants; measurement and observation are carried out in the first week of the study; 3) then the learning intervention is carried out in the course by applying internalization of an active lifestyle through physical literacy awareness based on project-based learning; 4) In the fourth week, the second stage of measurement and observation (physical fitness) is carried out; 5) The learning intervention is carried out in the course by applying the internalization of an active lifestyle through physical literacy awareness based on project-based learning, and 6) in the twelfth week, the third and final stage of measurement and observation (physical fitness) is carried out.

In addition, in implementing physical literacy awareness based on project-based learning, students reported daily practice journals every week for eight weeks during the intervention time. This data was also used by the researcher to investigate the stages of the project carried out by students each week.

Research Instruments

Data collection instruments in this study used two kinds of instruments: 1) instruments measuring physical fitness using the TKPN test (Student Fitness Test of the Archipelago) issued by the Ministry of Youth and Sports of the Republic of Indonesia (Kemenpora RI, 2022).

The TKPN test in 2022 has five indicators, namely: 1) Body mass index test; 2) Sit and rich test to measure body flexibility, 3) A sit-up test to measure abdominal muscle strength and endurance, 4) Squatrus-test to measure body power, 5) Pacer test to measure cardio-respiratory endurance. While the physical literacy portfolio instrument is in the form of a daily exercise a journal is used to measure students' active lifestyles.

Statistical Analysis. Measurements were taken three times during the intervention period, resulting in three consecutive sets of data. For this reason, data analysis was conducted in three stages: descriptive statistics, normality, and repeated measurement ANOVA (Leppink, 2019).

Results

The results of the physical fitness category with internalization of active lifestyle through physical lieracy awarnes based on project-based learning. The results in table 1 and figure 2 show that out of 133 students there are 1.5% in the very low category, 40.6% in the low category, 57.1% in the moderate category and 0.8% in the good category. Based on these results, it provides evidence that physical fitness in test 1 is dominant enough.

Further data on test 2 physical fitness provides information that out of 133 students there are 33.1% in the low category. Next, there are 64.7% in the moderate category and 2.3% in the good category. Based on these results, it provides evidence that physical fitness in test 2 is in the moderate category. The results can be seen in table 2 and figure 3.

The results of the physical fitness test 3 showed that out of 133 students there were 9% in the low category. Next there are 82% in the moderate category and 9% in the good category. Based on these results, it provides evidence that physical fitness in test 3 is in the moderate category. The results have changed quite well, where the changes are clearly visible from the percentage of physical fitness that is getting better. The results can be seen in table 3 and figure 4.

Table 1.
Physical Fitness Test 1 Results

Category	Frequency	Percent	Valid Percent
Very Low	2	1,5%	1,5%
Low	54	40,6%	40,6%
Fair	76	57,1%	57,1%
Good	1	0,8%	0,8%
Excellent	0	0	0
Total	133	100%	100%

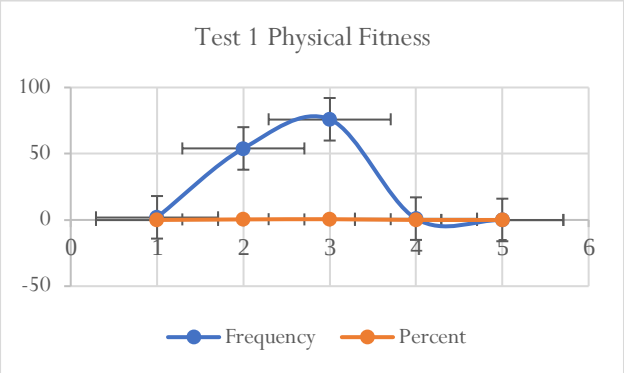

Figure 2. Description of Physical Fitness Test 1 Results

Table 2.
Physical Fitness Test 2 Results

Category	Frequency	Percent	Valid Percent
Very Low	0	0	0
Low	44	33,1%	33,1%
Fair	86	64,7%	64,7%
Good	3	2,3%	2,3%
Excellent	0	0	0
Total	133	100,0	100,0

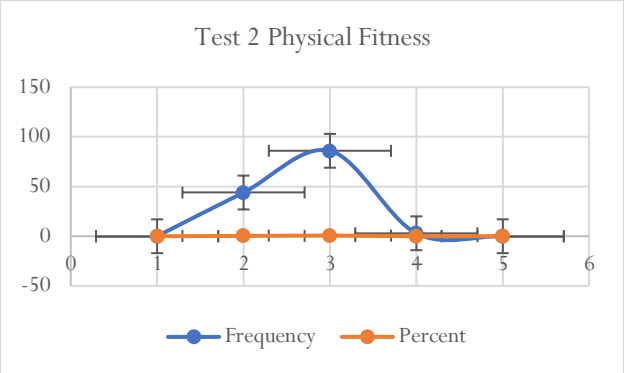

Figure 3. Description of Physical Fitness Test 2 Results

Table 3.
Physical Fitness Test 3 Results

Category	Frequency	Percent	Valid Percent
Very Low	0	0	0
Low	12	9%	9%
Fair	109	82%	82%
Good	12	9%	9%
Excellent	0	0	0
Total	133	100%	100%

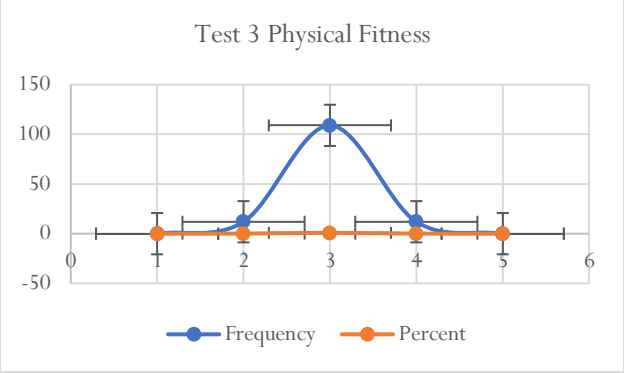

Figure 4. Description of Physical Fitness Test 3 Results

Table 4.
Kolmogorov-Smirnov Normality Test

Results	test	Statistic	df	Sig.
Physical Fitness Results	Test 1 Physical Fitness	.139	133	.200*
	Test 2 Physical Fitness	.118	133	.200*
	Test 3 Physical Fitness	.166	133	.200*

Table 5.
Homogeneity Test Results

Results		Levene Statistic	df1	df2	Sig.
Physical Fitness Results	Based on Mean	1,717	2	396	0,181
	Based on Median	1,286	2	396	0,277
	Based on Median and with adjusted df	1,286	2	394,382	0,277
	Based on trimmed mean	1,525	2	396	0,219

Based on the results of the normality test with Kolmogorov-Smirnov, it shows that the significance value is p = 0.200> 0.05, so the data can be said to be normal. The results can be seen in table 4. Furthermore, the results in table 6 show the value of the physical fitness homogeneity test on students. The results obtained a significance value of 0.181> 0.05 which provides information that the data is homogeneous. So that further tests can be carried out to see the difference in the data. The results can be seen in table 5.

Table 6.
ANOVA Test Results

ANOVA Physical Fitness Results					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.841	2	6.921	42.766	.000
Within Groups	64.082	396	.162		
Total	77.923	398			

According to the ANOVA test findings, the p-value is 0.000, indicating statistical significance at a level less than 0.05. This implies a noteworthy disparity in physical fitness outcomes following the implementation of an active lifestyle intervention facilitated by an awareness literacy-based project. The detailed results are provided in table 6.

Table 7.
Tukey HSD Further Test Results

Results	Physical Fitness	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Test 1 Physical Fitness	Test 2 Physical Fitness	-0,1150	0,0493	0,053	-0,231	0,001
	Test 3 Physical Fitness	-.4398*	0,0493	0,000	-0,556	-0,324
Test 2 Physical Fitness	Test 1 Physical Fitness	0,1150	0,0493	0,053	-0,001	0,231
	Test 3 Physical Fitness	-.3248*	0,0493	0,000	-0,441	-0,209
Test 3 Physical Fitness	Test 1 Physical Fitness	.4398*	0,0493	0,000	0,324	0,556
	Test 2 Physical Fitness	.3248*	0,0493	0,000	0,209	0,441

The results of further tests in this study using the Tukey HSD test provide information on the significance value of 0.053> 0.05, and it can be concluded that test 1 paired with test 2 has no significant difference. The results of test 1 paired with test 3 showed a significant difference of 0.000 <0.05. The next data point, test 2, is paired with test 1, with a significance value of 0.053> 0.05, which means there is no significant difference. The results of test 2 are paired with test 3 with a significance value of 0.000 <0.05, so the data has a significant difference. The results of test 3 paired with test 1 and test 2 show a significant difference; this is clearly seen in the mean value of test 3, which is more dominant. These results can be seen in Table 7.

Based on descriptive data analysis, the results of physical fitness are determined by the mean value of the increase that occurs. Where the results in test 1 show a mean value of 2.936 and the mean test 2 results are 3.051, these results show an increase, although not so great. The next result in test 3 on physical fitness shows a mean value of 3.376, which is greater than the mean results of tests 1 and 2. Based on this data, it can be said that there is an increase in physical fitness that occurs after internalizing an active lifestyle through project-based learning-based physical literacy awareness. To clarify, the results can be seen in Table 8 and Figure 5.

Table 8.
Descriptive Results of Physical Fitness

Results	N	Mean	Std. Deviationr	Std. Error	Minimum	Maximum
Test 1 Physical Fitness	133	2,936	0,4195	0,0364	1,8	4,2
Test 2 Physical Fitness	133	3,051	0,4124	0,0358	2,0	4,2
Test 3 Physical Fitness	133	3,376	0,3734	0,0324	2,4	4,4
Total	399	3,121	0,4425	0,0222	1,8	4,4

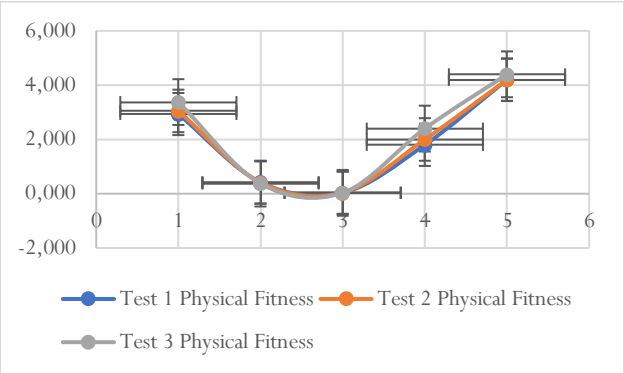

Figure 5. Graph of Descriptive Results of Physical Fitness

Discussion

This study aims to determine and examine how internalizing an active lifestyle through physical literacy awareness based on project-based learning can improve physical fitness. The results showed that there was an increase in physical fitness by internalizing an active lifestyle through physical literacy awareness based on project-based learning. These results can be seen from the fact that the mean value of test 3 is greater than the values of tests 1 and 2. In addition, the results of further tests also show significant differences when test 3 is paired with test 1 and test 2. Therefore, these results have provided valid information that the application of an active lifestyle through physical literacy awareness based on project-based learning can increase students' physical fitness.

According to research Rudd, Pesce, Strafford, & Davids, (2020), physical literacy is a cause of increased physical activity performance, which is associated with fitness. It will build an active lifestyle with high physical literacy. Furthermore, research indicates that a physically active lifestyle plays an essential role in enhancing fitness and health (Nooijen et al., 2012). This remark is supported by study by (Filgueira et al., 2021), which found that a physically active lifestyle and physical fitness can offer immunological protection. Increased physical exercise will improve physical fitness and may help minimize the risk of cardiovascular illness (Nooijen et al., 2012). As a consequence, the development of many facts will result in parallels and discrepancies with the study's findings. Furthermore, project-based learning (Candra et al., 2023) shows that the adoption of project-based learning can boost students' physical fitness. According to other studies, project-based learning is one of the most popular learning methodologies in modern education (Simonton, Layne, & Irwin, 2021).

Although it is not specifically mentioned in this presentation, we believe that an active lifestyle based on physical literacy awareness and project-based learning can be an acceptable learning paradigm in physical education, particularly for sustaining physical fitness. This hypothesis may be supported by (Tables 1,2,3, and 4) where improvements are plainly evident, demonstrating how to develop and maintain physical fitness. The findings demonstrated that project-based learning with interactive multimedia may enhance breaststroke swimming abilities (Mashud, Arifin, et al., 2023), and freestyle swimming skills (Mashud, Warni, et al., 2023). In the instance of physical fitness, it turns out that the project-based learning model is superior to the case approach (Candra et al., 2023).

Therefore, physical education must be of high quality to encourage and support all learners. So that they can develop into lifelong participants in a way that maintains their own health, fitness, and well-being (Griggs & Fleet, 2021). Research findings conducted by Wong et al., (2022) early life frequency and socioeconomic status have an important role in childhood and adolescent physical fitness. Osteoarthritis in children can be prevented by early-life interventions (Antony, Jones, Jin, & Ding, 2016). This statement is reinforced by (Kang, Hwang, Klein, & Kim, 2015). The results of a multicomponent training program can improve the physical fitness of elderly women.

Several studies have shown that physical activity has a positive impact on physical fitness. (Pahkala et al., 2013; Suryadi, 2022; Suryadi, Suganda, et al., 2023), health (Moreno-Quispe, Apaza-Panca, Tavara-Ramos, & Mamani-Cornejo, 2021), physical fitness (Dede Pebriandi Sihotang & Novita, 2021), pediatric knee structure (Antony et al., 2016), adiposity, bone health, psychological health, and cardiorespiratory fitness (Loprinzi, Cardinal, Loprinzi, & Lee, 2012). Furthermore, the provision of physical activity was also found to improve children's vascular hemodynamics (Köchli et al., 2021), reduce body fat levels (Dias et al., 2018; Magalhães et al., 2019; Ortega, Ruiz, & Castillo, 2013; Türk et al., 2017). Prevention of overweight (Obert, Pearlman, Obert, & Chapin, 2017; Wewege, van den Berg, Ward, & Keech, 2017), obesity (Afrasyabi, Marandi, & Kargarfard, 2019; de Lira et al., 2017; De Lorenzo, Van Bavel, De Moraes, & Tibiriça, 2018; Musálek et al., 2021; Ortega et al., 2013; Soh, Joo, Yun, & Kim, 2020), type 2 diabetes mellitus (Rush & Simmons, 2014), and possibly increasing sports participation in high school (Battista et al., 2021).

These evaluations highlight the need for physical exercise, but particular dosages of physical activity that are appropriate for this age are required (Laurent, Burkart, Andre, & Spencer, 2021). The research is intended to offer an overview of effective learning activities that promote physical fitness. The key drawback of this study is the activities that students engage in prior to taking the exam, whether heavy or light. Further research should encourage regular exercise since the study on internalizing an active lifestyle through project-based learning-based physical literacy awareness on physical fitness has not been applied. In some of these talks, sports practitioners' readiness must be more mature (Parnell, Widdop, Bond, & Wilson, 2020). Despite the limitations indicated, this study should provide a significant addition to physical fitness as well as physical fitness research, and it will be valuable in understanding the key unfavorable aspects (Kljajevi et al., 2022).

The realization of physical fitness through the internalization of an active lifestyle and physical literacy awareness based on project-based learning In this research study, it is intended to internalize the concept of physical activity by applying the principles of physical literacy using project-based learning methods in a patterned and structured manner so that students are periodically aware of the importance of an active lifestyle in everyday life. With the discipline of carrying out the internalization stage with full awareness, i.e., without any element of coercion, students will be physically literate and form a body that is physically fit.

Conclusions

The results of the study have a strong foundation related to physical fitness, which has been listed in the discussion. The results showed that the internalization of an active lifestyle through physical literacy awareness based on project-based learning provides an increase in physical fitness. The results also showed that there was a significant difference between test 3 and tests 1 and 2. Furthermore, test 1 paired with test 2 and test 2 paired with test 1 showed no significant difference. The results of this study have provided new references in physical education, especially in maintaining fitness. Where in this study is the internalization of an active lifestyle through physical literacy? Awareness can be a reference for trainers, teachers, and the general public to maintain physical fitness. That way, an active lifestyle through physical literacy awareness will be created by maintaining physical fitness in the environment of students, sportsmen, and the general public. Given that the concept of internalizing physical activity through physical literacy is a novel idea, researchers recommend conducting more in-depth studies and fostering innovation in this area. Both national and international collaboration can contribute to a more comprehensive understanding of the subject.

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Conflict of interest

There is no conflict of interest.

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