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## IMPROVING PHYSICAL FITNESS THROUGH THE OUTDOOR ADVENTURE EDUCATION PROGRAM IN PHYSICAL EDUCATION IN HIGH SCHOOL

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**Abstract** This research aims to find the effectiveness of the Physical Education learning model through the Outdoor Adventure Education Program to improve physical fitness for high school students. The research design using a pre-experimental method in the form of a one group pretest-posttest design, two groups that are given a pretest and a posttest, the experimental group is given sixteen times treatment to determine the effect of the program on increasing students' physical fitness. As many as 60 respondents divided into 30 experimental group respondents and 30 control group respondents. Physical fitness test instruments involve: (1) Hand Eye Coordination test, (2) Vertical Jump Test, (3) T-Test, (4) Hand Touch Reaction Test, (5) Dipping Test, and (5) Beep Test, the test based on Test guidelines Indonesian Student Fitness from the Ministry of Education and Culture. The results of the effectiveness test for the Experimental class were 67% in the quite effective interpretation category, the effectiveness test results for the control class were 21% in the less effective interpretation category. The test results for the difference in average physical fitness showed that the value was  $p = 0.000 < 0.05$ . This study shows that there is a significant average difference between the experimental group and the control group. The program of outdoor adventure education can improving physical fitness through physical education in high school

**Keywords:** physical education, physical fitness, outdoor adventure education



## INTRODUCTION

A young generation nowadays finds it difficult to engage in physical activity in accordance with the latest global activity guidelines from the World Health Organization (WHO) which recommends that children and adolescents engage in at least 60 minutes of moderate to vigorous physical activity every day to gain health benefits (Gomes et al., 2017; Pedretti et al., 2020; Reis et al., 2024) on average children aged 6-10 years spend 7.4 hours per day doing no physical activity which is not good and results in low levels of physical fitness. higher adiposity, decreased physical condition, poor cardiometabolism and so on (LeBlanc et al., 2015; Mello et al., 2016; Silva et al., 2018; Tapia-Serrano et al., 2022)

According Gray's shows that the current generation of children and adolescents rarely engage in outdoor activities compared to previous generations (Gray et al., 2015), physical activity is now changing from unstructured outdoor activities to supervised activities indoors. Various considerations in carrying out indoor activities include concerns about child safety, strangers, and injury (Carver et al., 2008; Clements, 2004; Holt et al.,

2015) although some children choose outdoor activities rather than indoor due to changes in attitudes and the need for physical activity.

Several studies have suggested that increasing outdoor activity time can be an effective strategy for reducing sedentary behavior and increasing physical activity and fitness in children and adolescents (Barber et al., 2013; Ngo et al., 2014) Physical education classes are widely believed to be one of the most effective and strategic platforms for encouraging physical activity for children and adolescents, physical education is carried out in conditions that involve children in school and infrastructure that supports physical activity (Jones et al., 2020)

An effective physical education whose improving physical fitness must focus on planned and structured classroom learning because a short time is not enough to improve physical fitness and other health components (García-Hermoso et al., 2020; Jones et al., 2020) Another benefit of physical activity in physical education it is can improving cardiorespiratory (Wu et al., 2023) Cardiorespiratory is related to a physical fitness, the physical fitness index is a value of a level of health. Increasing and



maintaining levels of physical fitness can reduce the risk of obesity (Hills et al., 2011) cardiovascular disease (Smith et al., 2014) and diabetes (Dwyer et al., 2009)

Standardized fitness level measurements are available with various variations and procedures according to the characteristics of the respondent. There are many choices of physical fitness tests in the world such as the AAHPER Youth Fitness test, Texas Youth Fitness, South Carolina Test which is used in America, NAPFA (The National Physical Fitness Award/Assessment) in Singapore, Manitoba Physical Performance in Canada, Australian Student Fitness Test in Australia, and the standardized ACSFPFT for Asian countries (Arisman et al., 2023) The Ministry of Education and Culture of the Republic of Indonesia uses the Indonesian Student Fitness Test to measure the fitness level of students in Indonesia (Septiana, 2019) There are five phases in the Indonesian Student Fitness Test, namely; (1) Phase A (Primary Grades 1 and 2); (2) Phase B (Primary Grades 3 and 4); (3) Phase C (Primary Grades 5 and 6); (4) Phase D (Middle School Grades 7-9); and (5) EF Phase (High School Classes 10-12)

(Kemendikbud, 2024) This studies targets a high school students with EF phase instruments including the Hand Eye Coordination Test, Vertical Jump Test, T-Test, Hand Touch Reaction Test, Dipping Test, and Beep Test to determine students' fitness levels.

Another research has been conducted on physical fitness with a focus on intervention training methods for physical fitness in children and adults. Schools are the place where a lot of research is conducted because there are large samples and a supportive environment (Fox et al., 2004). According Lin's research that neuromuscular training in school students is effective in increasing strength (Lin et al., 2022), Duncombe's states that the High-Intensity Interval Training (HIIT) training method carried out in schools contributes to increasing muscle and aerobic fitness (Duncombe et al., 2022). Endurance is the ability of a person to do activities with certain intensity over a long period times (Rosniawati et al., 2024). According Ridho (2023) the purpose of education is not only oriented to the mastery of materials by memorizing facts presented in the form of information or subject matter. Furthermore,



learning is expected to be more meaningful for learners with this concept. The learning process takes place naturally in the form of student activities to work and experience, not the transfer of knowledge from teacher to student. The learning process should be able to create a learning process that can explore the knowledge insights of learners and can develop meaning so that it will give a deep impression of what it has learned, one of them with outdoor education (Ridho & Siregar, 2023). Hernawan (2023) stated that outdoor learning has been shown to have an influence on aspects of well-being such as increasing mood, mental, increasing energy, social relations, stress, tension, depression, and other influences (Hernawan, 2023). Although studies have been conducted evaluating the impact of physical activity on physical fitness in schools, they have not stated which type of approach is superior in improving fitness.

Physical fitness is one of the areas of physical learning material which also serves as a specific learning objective that does not exist in other learning areas. One special learning method that can be applied to physical education is learning based on outdoor

adventure education. The concept of outdoor adventure education is carried out using outdoor education methods where the environment is open and characterized by an educational process in groups through interactivity and sharing the same experience (Sarivaara et al., 2022). Brussoni believes that outdoor adventure education is an activity outside the classroom as a form of play activity carried out in the open without having to focus on the size of the field (Brussoni et al., 2020). Outdoor activities through interactivity and sharing the same experience without having to focus on the size of the field are organized by implementing outbound-based physical activities with a focus on components may can improve students' physical fitness.

## **METHOD**

This research uses a pre-experimental research design in the form of a one group pretest-posttest design where there are two groups given a pretest and one group given treatment to determine the effect of the outdoor adventure education program on improving students' physical fitness. The respondents in this study were class A total of 60 respondents were grouped



into two, namely, 30 respondents into the experimental group and 30 respondents into the control group using the random sampling method. Both groups carried out pre-tests including the Hand Eye Coordination test, Vertical Jump Test, T-Test, Hand Touch Reaction Test, Dipping Test, and Beep Test. The experimental group was given treatment for 16 meetings with 30 learning models to increase physical fitness based on outdoor adventure education in the school environment and outside the school environment. Both groups were then given a post-test to obtain results of the respondents' physical fitness using the same instrument test as in the initial test. The research results were processed using IBM SPSS 26 by testing the t-test for two related samples and testing the effectiveness of the learning model by calculating the N-gain statistic.

## RESULT AND DISCUSSION

After conducting a pre-test on both groups, each group was given different treatment, where the experimental group was given a learning model to increase physical fitness based on outdoor adventure education designed, while the control group used conventional learning, where in the control group the researcher completely handed over the learning process to the teacher in that group. After giving the treatment, at the end of the meeting the researcher conducted a final test on all groups, both the experimental group and the control group with the same instrument test as in the initial test. The following are the results of *the pretest* and *posttest* for each group, which can be seen in the following table 1:

Table 1. Descriptive Statistics

	N	Minimum	Maximum max	Mean	Std. Deviation
Experimental Pretest	30	12	22	17.53	2,812
Experimental Posttest	30	20	29	25.50	2,649
Control Pretest	30	10	21	15.53	3,540
Control Posttest	30	14	23	18.43	3,234
Valid N (listwise)	30				

The data above can be used as a reference for researchers to test the effectiveness of the designed learning model. As is known, the experimental group's pretest data has a minimum value

of 12, a maximum value of 22, an average value of 17.53 and a standard deviation of 2.812; then it was discovered that the post-test score for the experimental group had a minimum



value of 20, a maximum value of 29, an average value of 25.50 and a standard deviation of 2.649. Furthermore, in the control group, the minimum value is 10, the maximum value is 21, the average value is 15.53 and the standard deviation is 3.540; Then it was discovered that the post-test score for the control group had a minimum score of 14, a maximum

score of 23, an average score of 18.43 and a standard deviation of 3.234.

Before determining the effectiveness test of the variations in learning models designed, there are several analysis requirements that researchers carry out, namely data normality tests and data homogeneity tests. The following is the data normality test table 2:

Table 2. Tests of Normality

Class	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			
	Statistics	df	Sig.	Statistics	df	Sig.	
Results	Pretest Experiment	.158	30	.054	.931	30	.051
	Experiment Posttest	.137	30	.154	.957	30	.252
	Pretest Kontrol	.136	30	.162	.934	30	.061
	Posttest Kontrol	.114	30	.200*	.934	30	.063

a. Lilliefors Significance Correction

Based on table 2 of the test of normality above, it is known that the significance value (Sig.) in the *Kolmogrov Smirnov* and *Shapiro Wilk tests* for the experimental class and control class, the Sig value for both

classes is greater than 0.05, so it can be said that the data used in the research this is a normal distribution. Furthermore, the results of the homogeneity test can be seen in the following table 3:

Table 3 Test of Homogeneity of Variance

		Levene Statistics	df1	df2	Sig.
Post Test	Based on Mean	3.730	1	58	.058
	Based on Median	3.916	1	58	.053
	Based on Median and with adjusted df	3.916	1	56.909	.053
	Based on trimmed mean	3.963	1	58	.051

Based on the Homogeneity Test calculation, it is known that the significance value Based on Mean is  $> 0.05$ , namely  $0.058 > 0.05$ . Thus it can be stated that the data variance is homogeneous.

Based on table 2 and table 3 above, it can be concluded that all requirements for effectiveness testing through independent sample T tests can be fulfilled. Apart from that, the difference in Mean N-Gain\_Persen of



the two groups via N-Gain\_Persen is in the following table 4:

Table 4 Effectiveness Test Results

		N	Mean	Minimum	Maximum	Std. Deviation
Learning Outcomes	Experiment Posttest	30	66.5291	41.18	88.89	13.17567
	Control Posttest	30	20.6314	11.11	30.77	5.62251

Based on table 4 above, it is known that the average value (Mean) of the effectiveness test results for the Experimental class is 66.5291 or if rounded up it becomes 67%. Based on the table of value effectiveness interpretation categories, it can be concluded that the experimental group is quite effective. Furthermore, it is known that the average value (Mean) of the control class is 20.6314 or if rounded up to 21%. Based on the table of value effectiveness interpretation categories, it can be concluded that the control class is less effective.

Next, the researcher carried out a mean difference test using the independent sample t-test with a significance level of 0.05. The test results for the difference in average physical fitness showed that the sig (2-tailed) value was  $0.000 < 0.05$  with a calculated  $t_{\text{value}} = 17.549$  with  $df = 58$ . obtained  $t_{\text{table}} = 2.0017$ . This shows that there is a significant average difference between the experimental group and the control group. Thus, it can be concluded

that the use of a physical education learning model based on outdoor adventure education has proven to be quite effective in improving the physical fitness of high school students.

The results of the study prove that physical fitness can be improved with various methods such as research conducted by Volovyk which uses a yoga exercise approach and recommends yoga activities into the education system that plays a positive role in improving fitness and mental health for children (Volovyk & Pidvalna, 2024). in line with Iswanto who concluded that traditional sports are effective in improving the physical fitness of elementary school students aged 10-12 years (Iswanto et al., 2024). Then Sukmawati stated that one of the sports activities that can support physical fitness is the 2022 Student SKJ exercise (Sukmawati et al., 2023). Furthermore, Ursa's research uses technology as a method for improving the fitness and technical abilities of athletes, especially young pencak silat athletes (Usra et al.,



2024). Efforts to improve fitness through other technologies were carried out by Deng who concluded that Active Video Games for adults are effective in increasing muscle strength and cardiorespiratory fitness, although the impact is limited (Deng et al., 2024). Furthermore, Yan reviewed the effectiveness of technology in his research explaining that during Covid-19, people's physical activity decreased and increased sedentary behavior, through a meta-analysis that mHealth application-based interventions can increase agility, body mass index, and muscle strength in children and adolescents (Yan et al., 2015).

Zhou's research examines that high-intensity exercise has positive and significant effects on body composition, cardiopulmonary function, and muscle fitness in children and adolescents, the results of the study suggest that schools focus on high-intensity sports activities in the implementation of physical education curriculum because they can improve students' physical fitness (Zhou et al., 2024). Based on the research above, it supports the results of the study that the method of improving physical fitness through implementation in physical education.

## **CONCLUSION**

Based on the research results, it can be shown that the use of an outdoor adventure education-based learning model created by researchers can overcome the problems found in the needs analysis and facilitate teachers in developing dynamic learning innovations. The research was designed in the form of experimental research where there were experimental classes and control classes, the number of students involved was 60 respondents from class X high school students in Serpong, South Tangerang, Banten Province.

Based on the independent sample t test, it shows that there is a difference in the average N-Gain physical fitness between the experimental group and the control group and it has proven to be quite effective in improving student fitness which can be seen from the increase in results between before and after the implementation of outdoor adventure education based physical education learning. Thus, the physical education learning model based on outdoor adventure education created by researchers can be a solution to the problems of teachers and students in the



field in terms of increasing students' levels of physical fitness.

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