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The Effect of Learning Basic Volleyball Passing Techniques Using The Playing Method on Physical Education Learning Outcomes

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Abstract

This study aims to determine the effect of learning basic volleyball passing techniques using the playing method on physical education learning outcomes in grade IV students at SDN Dukuh 08 Pag. Learning basic passing techniques with the play method is an active approach that involves students in game activities that are fun, directed, and in accordance with motor development. This method not only focuses on mastering movement techniques, but also fosters motivation, cooperation, and coordination of students' movements. The learning outcomes of physical education in this study include cognitive, affective, and psychomotor domains, especially in volleyball upper and lower passing skills. This study uses a quantitative approach with quasi-experimental methods and posttest-only control group design. The research sample consisted of 60 grade IV students who were divided into two groups: the experimental class that received learning using the play method, and the control class that received conventional learning. The data collection instrument used an observation sheet consisting of 6 aspects and 18 indicators of upper and lower passing techniques, with an assessment scale of 1–5. The validity of the instrument was consulted with a physical education expert, but the reliability was not tested. Data analysis was carried out using normality tests, homogeneity tests, independent sample t-tests, and effect size calculations with the help of IBM SPSS Statistics 27 software. The results showed that the data was normally distributed (Sig. > 0.05), but not homogeneous (Sig. < 0.05). The t-test showed a significant difference between the experimental and control classes in the upper passing ($t = 13.675$) and lower passing ($t = 11.500$) results. The calculation of effect size shows a very high influence. Thus, learning basic volleyball passing techniques through the playing method has been proven to have a significant effect on students' physical education learning outcomes.

Keywords: Learning; volleyball; Playing Methods; Physical Education.

INTRODUCTION

Physical Education has an important role in shaping the physical, cognitive, and affective development of students. However, many of the learning practices in the field still rely on repetitive exercises and theoretical explanations, which are not in accordance with the learning characteristics of elementary school students. Based on the findings at SDN Dukuh 08 Pagi, grade IV students experienced difficulties in mastering the basic techniques of volleyball passing, which was shown by a lack of confidence, limited motor coordination, and low involvement during the learning process. This is suspected to be due to the learning method that tends to be monotonous and does not involve game elements.

Game-based learning is one of the solutions because it can turn practice activities into interactive and meaningful learning experiences (Fauzia et al., 2024).

The use of the play method in teaching basic volleyball passing techniques helps students understand the concept of movement more easily, increases cooperation, and fosters motivation to learn from within students. Several previous studies have shown that the play method is able to increase skill mastery while increasing students' enthusiasm in participating in physical education learning. This study aims to find out how much the use of playing methods affects the mastery of basic volleyball passing techniques and the learning outcomes of physical education in general.

METHOD

This study uses a quantitative approach with a quasi-experimental method and a posttest-only control group design. The research was carried out at SDN Dukuh 08 Pagi, East Jakarta, involving 60 grade IV students divided into two classes. One class was designated as an experimental group that received volleyball passing learning using the playing method, while the other class became a control group that received conventional learning.

Data collection was carried out through observation sheets focused on volleyball upper and lower passing skills. The instrument consists of 6 aspects and 18 indicators which are assessed using a scale of 1–5. The validity of the instrument is consulted with experts in the field of physical education. Data analysis techniques include normality test, homogeneity test, independent sample t-test, and effect size calculation, with the help of IBM SPSS Statistics 27 software.

RESULTS AND DISCUSSION

Normality Test

Normality test using the Liliefors Test

Table 1. Normality Test Criteria (Post-Test)

Class	Sig	Alpha	Criterion	Information
Experiment	0,137	0,05	Sig > Alpha	Usual
	0,200			
Control	0,200	0,200		
	0,200			

Based on the results of the normality test calculation in the table above, it is known that in the experimental class using the playing method, a Sig value for the upper passing is 0.137 and the lower passing is 0.200, while in the control class the Sig value is 0.200 for the upper passing and the lower passing. With an alpha value

of 0.05, the experimental class Sig > Alpha is $0.137 > 0.05$ and $0.200 > 0.05$, and in the control class also Sig > Alpha is $0.200 > 0.05$, then H_0 is accepted. Thus, it can be concluded that the entire sample is Normally Distributed.

Homogeneity Test

The homogeneity test or variance similarity test between the two groups was carried out using the Levene test.

Table 2. Criteria for Homogeneity Test (Post-Test) Levene statistic

Technique	Experimental Variance	Control Variance	Sig	Alpha	Criterion	Information
Top Passing	0,206	0,078	0,002	0,05	Sig < Alpha	Not Homogeneous
Bottom Passing	0,189	0,085	0,017			

The results of the upper Levene Passing test showed a significance value (GIS) of 0.002. Because the GIS value < 0.05 , it can be concluded that the data on the learning outcomes of the upper passing technique between the experimental and control classes is not homogeneous.

Meanwhile, the lower pass shows a significance value (GIS). obtained is 0.017. Because the sig value < 0.05 alpha, it can be concluded that the learning data of the lower passing technique between the experimental and control classes is also inhomogeneous.

Hypothesis Test

Hypothesis testing there was a significant difference between the learning outcomes of upper and lower passing in students in grades 4B and 4A, the Independent Sample T-Test was carried out. This test aims to find out the average difference between two groups that are not paired, namely the experimental class and the control class. The analysis began with testing the assumption of homogeneity of variance using Levene's test. The results of this test are used as a reference in choosing the right line on the t-test output, namely using the Equal Variances Not Assumed row, because the data does not meet the assumption of variance homogeneity. Furthermore, the significance value (Sig) in the T-Test For Equality Of Means column is seen to determine whether there is a significant average difference between the two groups.

Table 3. Hypothesis Test Results (Independent Samples Test)

		Independent Samples Test									
		Levene's Test for Equality of Variances					t-test for Equality of Means			95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
passing atas	Equal variances assumed	11.060	.002	13.675	58	<.001	12.000	.878	10.243	13.757	
	Equal variances not assumed			13.675	48.312	<.001	12.000	.878	10.236	13.764	
passing bawah	Equal variances assumed	6.092	.017	11.500	58	<.001	9.900	.861	8.177	11.623	
	Equal variances not assumed			11.500	50.697	<.001	9.900	.861	8.172	11.628	

Based on the results of Levene's Test, the significance values for the upper pass (Sig. = 0.002) and the lower pass (Sig. = 0.017) indicate that the variance between groups is not homogeneous because the value is smaller than 0.05 therefore the interpretation of the t-test is performed based on the Equal Variances Not Assumed line.

In the upper passing variable, a calculated t-value of 13.675 with a degree of freedom (df) of 48.312 was obtained. Based on the distribution table t, with $\alpha = 0.05$ (two sides) and $df = 48$, the t-value of the table is about 2.011. Since t calculates $>$ table ($13.675 > 2.011$), H_0 is rejected.

Likewise, in the lower pass, t calculation was obtained of 11,500 with a df of 50,697. With a table t value of around 2.009, it also applies to t count $>$ table t ($11,500 > 2.009$). Thus, H_0 is rejected.

H_0 's rejection decision that the Sig. (2-tailed) value for both types of passing is $<$ 0.001, which means it is smaller than $\alpha = 0.05$. This shows that there is a significant difference between the learning outcomes of students in the experimental class and the control class. The mean difference showed that the experimental class had higher results with a difference of 12,000 points for the upper pass and 9,990 for the lower pass.

Discussion

The results of statistical calculations show that the average score of the learning outcomes of students in the experimental class is higher than that of the control class. For the top pass, students in the experimental class obtained an average score of 4.2933, while the control class obtained an average of 2.9950. Meanwhile, for the lower passing, the experimental class obtained an average of 4.3227, while the control class obtained an

average of 3.2217. This difference shows that the method of play has a positive impact on student learning outcomes.

This result was then strengthened through a hypothesis test using the Independent Sample T-Test which showed that the t-value calculated for the upper pass was 13.3675 and the lower pass was 11.559 with a significance level of $0.000 < 0.05$. Thus H_0 was rejected and H_1 was accepted, which means that there is a significant influence of the use of the playing method on the learning outcomes of students' basic volleyball passing techniques. Furthermore, the results of the Effect Size test also support this finding for the upper passing, Cohen's d of 3.399, Hedges' Correction of 3.443, and Glass's Delta of 2.526. As for the bottom passing, Cohen's d was 3.334, Hedges' Correction was 3.379, and Glass's Delta was 2.626. These values fall into the very high category which means that the method of play not only has a significant influence, but also a strong influence on improving student learning outcomes in the basic aspects of passing techniques.

When viewed from a theoretical point of view, the play method proves to be effective because it is able to create fun and meaningful learning. According to Darmawan et al. (2021), the play method increases students' motivation, engagement, and understanding through physical activities designed according to their age and motor development. This is in accordance with the characteristics of PJOK learning at the elementary school level which emphasizes more on direct experience and kinesthetic activities. The improvement in learning outcomes of basic volleyball passing techniques can also be attributed to the advantages of playing methods in developing movement coordination, confidence, and social interaction between students, as explained by Hambali (2019). Previous research also supports the effectiveness of playing methods in improving the learning outcomes of sports skills, including in volleyball passing material.

Thus, learning basic volleyball passing techniques using the playing method has been proven to have a significant and positive influence on students' PJOK learning outcomes. This interactive and fun designed learning not only improves engineering skills, but also motivates students to be more active in following the learning process. These findings support the research hypothesis that there is a significant influence of playing methods on PJOK learning outcomes, especially on volleyball passing skills.

CONCLUSION

Based on the results of research conducted in grade IV of SDN Dukuh 08 Pagi, it was concluded that learning basic volleyball passing techniques using the playing method has a significant influence on students' Physical Education learning outcomes. This method has been proven to effectively improve mastery of upper and lower passing skills and encourage active involvement of students in the learning process.

Statistically, the post-test results in the experimental class showed an average score of 4.49, with a standard deviation of 0.29, and a maximum score of 5.00, indicating the dominance of skills in the high category. The normality test showed that the data from the experimental and control classes were normally distributed (Sig. 0.157 and 0.147 > 0.05), while the homogeneity test produced a Sig. value of 0.019 < 0.05, so that the data was declared inhomogeneous but could still be analyzed using the variant approach was not the same. The results of the Independent Sample T-Test show that the t-table > calculation for both the upper (13,368 > 2,001) and lower passing (11,500 > 2,001) skills, so it can be concluded that the use of the playing method has a real influence on the improvement of the learning outcomes of basic volleyball passing techniques in physical education learning.

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