9 (3) (2020) 142 - 148

Journal of Physical Education, Sport, Health and Recreations

http://journal.unnes.ac.id/sju/index.php/peshr

Effectiveness of Role Playing and Demonstration to Improve Smash the Tennis Technique

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Article History

Received 05 July 2020
Accepted October 2020
Published October 2020

Keywords:
learning methods; role playing; demonstration; smash

Abstract

This study aims to examine and analyze the effectiveness of the use of learning methods, namely role playing and demonstration in improving tennis smash technique. This type of research itself is comparative, with matched subject design, involving 24 samples. The instrument used was a back-board test, analyzed using tests: normal, homogeneity, and hypothesis with a significance level of 0.005. The results obtained from this study include: (1) There is no significant effect between role playing on the smash technique; (2) There is an influence between demonstration on the smash technique; and (3) demonstration method is better than role playing on the tennis smash technique. This research provides benefits for the development of tennis in Papua, coaches and tennis athletes need new methods of training. Should an amateur student or athlete who is just learning tennis try the results of this research method and not be discouraged quickly in training.

How to Cite

Qomarrullah, R., Kurdi, & Putra, I. P. E. W. (2020). Effectiveness of Role Playing and Demonstration to Improve Smash the Tennis Technique. *Journal of Physical Education, Sport, Health and Recreation,* 9(3), 142-148.

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p-ISSN 2460-724X
e-ISSN 2252-6773

INTRODUCTION

Sports courses in the scope of higher education are the processes of systematic interaction between students, lecturers, and the environment that are managed through effective and efficient physical and cognitive activity activities towards the formation of whole people (Febriyani and Wen, 2018). Then, the scope of available material is an integral part of overall education that supports student expertise through physical activities and general knowledge (Kusworo, 2012). Sports skills as a means of education cannot be separated from teaching and learning activities (Hermahayu, et al, 2019).

Lecturing as a learning process contains three elements that can be distinguished, namely the purpose of teaching (instructional), experience (process) of teaching and learning, and learning outcomes (Marlina, et al, 2019). The relationship between these three elements can be concluded that an activity or action to see the extent to which instructional goals (Aji and Budioyo, 2018), can be achieved or mastered by students in the form of learning outcomes that are shown after they have taken their learning experience (the learning process teaching) (Laksono, et al, 2013). Therefore, the most strategic activity in the teaching and learning process is the selection and determination of learning methods before the teaching and learning process is carried out.

The use of effective learning methods for students will be easier in capturing learning material (Bidabadi, et al, 2016), and doing the assigned tasks so that the objectives of the learning can be achieved well (Mitchell and Manzo, 2018). One form of effective learning methods is role playing and demonstration. Role playing is a method of learning by mastering the task of learning motion through the appreciation of students by playing it as the main actor of the task of doing the movement consciously and discussing about the role in the group (Purwoko, 2015). Demonstration is a method of teaching using a demonstration to clarify an understanding or to show how a certain formation process goes on in students (Yulianti, 2016).

Both of these methods are some methods that are considered appropriate in tennis lectures. In addition, this method also includes a fairly complete method, because in this method there is a combination of reciprocal methods, discussions and other methods (Outhwaite, et al, 2020). Furthermore, through this form of method students will better understand and easily grasp the material provided.

Tennis is a sports skill in a practical theory (TP) course in the Bachelor of Sports Science (IKOR) Faculty of Sport Science (FIK) at Cenderawasih University (Uncen) which must be mastered by students as a prerequisite for lectures. Tennis itself is played using a racket, with it limited by the net (Siregar, et al, 2019). The basic basic techniques of punch in tennis include: (1) Groundstroke (forehand and backhand); (2) Service; (3) Volley; (4) Lob; (5) Smash; and (6) Variation of punches in game situations (Zetou, et al, 2012). Based on a preliminary study in 2020, as a tennis lecturer subject there are several major obstacles faced:

a. Many students know tennis after entering college at S1 IKOR FIK Uncen.
b. There are still many mistakes when smashing, this can be seen from the frequent balls coming out, involving on the net and not on target. Some of the factors that influence, among others, are still weak strength of hand grip and flexibility of the waist that affect the accuracy of movement.
c. Accuracy, grip strength and flexibility of the waist contribute especially in tennis.

Based on the explanation above, it is necessary to use an effective form of learning methods, namely role playing and demonstration in order to assist the development of students in attending lectures, especially tennis. Field tennis game is not only a sport that must be mastered in lectures, but in the future if the sport is controlled by students, it can be a source of additional income as a job that can be professionally cultivated.

Several previous studies to provide reinforcement of the methods used include: (1) Putri and Hudah (2019): the role playing method provides a significant and effective contribution when applied to basketball learning; (2) Alit (2019) the demonstration method has a significant impact and is able to improve the learning of big ball games. Based on the explanation and research linkages, it is then necessary to use an effective form of learning method, namely role playing and demonstration in order to help the development of students in attending lectures, especially tennis court. The game of tennis court is not only a sport that must be mastered in lectures, but in the future, if this sport is mastered by students, it can be a source of additional income as a job that can be done professionally.

METHODS

This type of research is an experimental research with a comparative method (comparison) (Engbers, 2016). The design of this study uses a pre-test and post-test design (Marsdena and Torgerson, 2012). The pattern used is matched by subject design (M-S) or group matching (Bakker, et al, 2010). Then, it is paired using the formula A-B-B-A, so that it gets the same value for each group (Hardinata and Hidayah, 2015).

The population and sample in this study amounted to 24 people with an age range of 18 to 21 years, using purposive sampling techniques (Palinkas, et al, 2015), and carried out from April to July 2020 at the tennis court at Cenderawasih University, Papua. The independent variables in the study are the method of role playing and demonstration while the dependent variable is the tennis smash technique. The data collection technique of this research was carried out with the procedure arranged as follows: (1) Prepare the tool to be used; (2) Prepare a research sample; and (3) Data retrieval includes tests of independent variables and dependent variables.

The instruments in this study used the back-board tennis test (Monicha and Hafidz, 2018). This test is intended to measure the ability to play tennis goals with moderate or advanced level of play, with validity: (1) 0,68 to 0,73 for beginners, (2) 0,84 to 0,89 for advanced levels; with reliability: (1) 0,82 for beginners, and (2) 0,95 advanced level (Prasetiono and Gandasari, 2018). Equipment and equipment: (1) Tennis racket; (2) Stop watch; (3) Basket and tennis ball; (4) Duct tape for barriers; and (5) Making net boundaries on walls as high as 0,96 m.

Data analysis techniques used in the study are as follows: (1) Test the normality of the sample, testing of whether or not the data analyzed is normal, the test used is the Kolmogorov Smirnov test (Amni, et al, 2019); (2) Homogeneity test, to ensure that groups forming samples from the same population use the Levene's Test (Siahaan, 2019); (3) Research hypothesis testing (Veazie, 2015). Then, to test the research hypotheses using the t-test test analysis using the SPSS 2.0 computer program with a significance level of 5% or 0.05 (Kim, 2015).

RESULTS AND DISCUSSION

The research that has been carried out obtained some data, the following is a complete description:

Description of Research Results

The results of the variable description between the role playing method (MRP) and the demonstration (MD) method on the ability of the tennis smash technique are shown in **Table 1**. below:

Table 1. Description of Research Data

Descriptive Statistics					
Process Procedur	N	Min	Max	Mean	SD
Pre-test MRP	6	14,00	26,50	19,7500	4,63411
Pre-test MD	6	11,00	28,00	19,8333	5,93857
Pos-test MRP	6	15,50	28,50	21,4167	4,56527

Source: Research Data for 2020.

Based on **Table 1** shows that the average before learning with the application of MRP is 19,75 with the highest data of 26,50 and the lowest 14. Changes occur after learning with the application of MRP increased to 21.41 with the highest test results 28,50 and the lowest 15.50. Then, the average before learning with the application of MD is 19,83, the highest value is 28 and the lowest is 11. The average after learning with the application of MD increases to 25,50 with the highest result 33,50 and the lowest is 19,50.

Test Prerequisite Analysis

a. Normality test

Normality test is performed to determine whether the data to be sampled is normal or not. One method that can be used for normality tests is the Kolmogorov-Smirnov test. Data is said to be normal if the probability value is greater than the error level (0,05). Normality test is calculated using SPSS. The normality test as contained in **Table 2**.

Based on **Table 2**. the statistical calculation of the study has a Kolmogorov-Smirnov value with probabilities of 0,984, 0,994, 0,997 and 0,94. These results indicate that the probability value of the data is greater than the level of error (0,984, 0,994, 0,997 and 0,94) 0,05. Thus the data is normally distributed and the analysis prerequisite tests can be continued.

b. Homogeneity test

The homogeneity test is used to determine whether the population in the study comes from the same ability level. One way that can be used to test homogeneity is using the levene statistics

test. Data is said to have the same or homogeneous variance if the probability value is greater than the error level (0.05). The homogeneity test in this study was calculated using SPSS as shown in **Table 3**.

Table 3. Test of Homogeneity of Variances

Post Test			
Levene Statistic	df1	df2	Sig.
0,080	2	9	0,921
Post Test			
Levene Statistic	df1	df2	Sig.
0,411	2	9	0,673

Source: Research Data for 2020.

Based on **Table 3** the statistical calculations show the results of 0,921 and 0,673. These results indicate that the probability value of the data is greater than the level of error (0,921 and 0,673> 0,05). Thus the data can be assumed to be homogeneous or have the same variance and the analysis prerequisite tests can be continued.

T-Test

The t-test or different test in this study is intended to distinguish whether there is an influence between MD and MRP on the ability to hit the tennis smash technique as described in **Table 4**.

Based on **Table 4** can be explained as follows:

a. Before the MRP learning was given and after treatment it was shown that the t-test results were -2,10 with a probability of 0,088, because probability> 0,05 (0,088), it could be assumed or concluded that there was no significant influence or difference after learning with MRP on the ability to hit tennis smash techniques.
b. Before the MD learning is given and after the treatment is given, it shows that the t-test result is -6,21 with a probability of 0,002, because the probability <0,05 (0,002 <0,05), it can be assumed or concluded that there is a significant influence or difference after given an MD study of the ability to hit the tennis smash technique.
c. The average difference before and after MRP learning on the ability to hit the tennis smash technique is 1,66. Then, the average difference before and after MD learning on the ability to hit the tennis smash technique is equal to 5,26.

Therefore, this means that MD learning outcomes are better than MRP on the ability of the smash technique. Then, based on all the research data that has been described above, the following discussion studies can be carried out as follows:

First, the result of the t-test value is -6,21, with a significance level of 0,05 and with the degree of freedom for this significant test is the number of subjects minus one or N-1 = 6-1 = 5, obtained t-table = 2,422 it can be concluded that the value of t-count = 6,22> t-table = 2,422 this result is significant, so the null hypothesis (H0) which reads "there is no difference in the results of the ability of tennis smashes before and after being given MRP learning" is rejected. It means that the alternative hypothesis (H1) which reads that there is a difference in the results of the ability of the tennis smash before and after being given MRP learning is accepted. The average difference before and after being given MRP learning of tennis smash ability is only 1,66. Therefore, these results show insignificant differences.

Second, the results of the t-value = -2,10, with a significance level of 0,05 and with a degree of freedom for this significant test is the number of subjects minus one or N-1 = 6-1 = 5, obtained t-table = 2,422 can be concluded that the value of t = 2,10 <ttable = 2,422 this result is not significant, so the null hypothesis (H0) which reads "There is no difference in the results of the ability of tennis smashes before and after being given MD learning" is accepted. It means that the alternative hypothesis (H2) which says there is a difference in the results of the ability of the tennis smash before and after being given MD learning is rejected. The average difference before and after being given MD learning about the ability of tennis smashes is 5,26. Therefore, this result shows a significant difference.

Third, more effective learning between MRP learning and MD learning exercises on the ability of tennis smash punches using the final mean difference test of the experimental group and the control group shows that MD learning is more effective learning to improve the ability of the tennis smash technique. The final mean difference test, obtained the mean results from the MRP learning experimental group that is 1,66 with MD learning which is 5,66, this means that the MD experimental group is better than the MRP control group. Then, thus the alternative hypothesis (H3) which reads the effect of MD learning on tennis smash ability is accepted, with the acceptance of H3, then Ho (the null hypothesis) is rejected.

Smash is a hard blow to hit the head of the racket with service-like movements as a combination of elements of strength, explosive power, accuracy, and speed (Miranda, et al, 2020). The term smash is commonly referred to as overhead (Tsetseli, et al, 2010). MRP and MD learning can be used by coaches to improve the ability to punch tennis athletes, especially for amateur classes. Smash is a complete movement of tennis, generally the match will be won by a team with good punch quality and supported by good defense and endurance (Broadbent, et al, 2017). This research has several links with previous research, including:

a. Nugroho (2011): the ability of tennis skills is influenced by variations in the training model used, the main physical components strongly support the athlete's achievement.
b. Riza (2015): the right learning model really helps improve basic technical abilities in the game of tennis, this result significantly helps amateur athletes and coaches.
c. Irawan, et al (2017): the development of tennis micro learning models helps to significantly improve the ability to play tennis techniques.

Some of the previous studies are closely related to the results of this study that the use of appropriate media and methods in learning/ practicing tennis skills can increase motivation, interest, and enthusiasm for learning. Furthermore, with that provision the teacher/trainer will find it easier to provide training/learning materials. As it is understood that the role playing method in its implementation is carried out by playing a role, or playing a certain role. Meanwhile, the demonstration method is a development strategy by providing a learning experience through seeing and listening followed by imitating the work being demonstrated.

Both methods have several advantages and similarities in stimulating the senses of students, namely the sense of sight and the sense of hearing during the process of conveying information. The difference is in the way the material is presented. The role playing method is carried out by making someone have certain roles and tasks, then in the demonstration method, students can interact directly with the educator.

Simultaneously, from some of the research results it can be drawn that the ability to play tennis, especially the smash technique, is strongly influenced by the physical components of the support and the method or model that is appropriate and effective. The coach doubles as a teacher and friend. As a teacher a trainer is required to be able to provide gradual progress in systemic knowledge for the progress of the athlete. Meanwhile, as a friend, a trainer and concurrently a parent in the field, so it is also required to present a friendly atmosphere in this case using methods that are not monotonous when training.

Given the two learning methods used, here are the reviews:

a. The role playing method (MRP) is one of the methods of creative learning, where learners can freely imagine and express themselves to be directly involved in mastering the material (Nurhasanah, et al, 2016). This method has advantages in the field of learning science material or social science in the form of textual teaching materials, but in the field of psychomotor skills the method is less suitable to be applied in learning.

b. Demonstration method (MD) is a method of learning with a demonstration model, in which active learners to demonstrate teaching material movements with evaluation and learning feedback (Subrata, 2016). This method has weaknesses for teaching materials that are merely textual in nature, but for learning material that processes psychomotor motion, especially physical skills, the method is very effective in improving the quality of learning.

Therefore, no method of learning has absolute perfection, all of them have specifications of excellence depending on where, when, and what materials are used. The results of this study are very helpful for tennis coaches in Papua to determine variations of training models that are efficient and easy to practice. Furthermore, the coaches and athletes should continue to develop and promote tennis so that the people of Papua become more fond and fit, especially playing tennis.

CONCLUSION

The conclusions from the results of this study include: First, there was no significant effect after applying the role playing (MRP) method to the ability of the tennis smash technique. Second, there is a significant effect after the implementation of the demonstration method (MD) on the ability of the tennis smash technique. Third, the demonstration method is better than the role playing of the tennis smash technique.

Table 2. Normality Test

One-Sample Kolmogorov-Smirnov Test					
N		Pre-Test MRP	Pre-Test MD	Pos-Test MRP	Pos-test MD
		6	6	6	6
Normal Parametersa	Mean	19.7500	19,8333	21,4167	25,0833
	Std. Deviation	4.63411	5,93857	4,56527	4,93373
Most Extreme Differences	Absolute	0,188	0,173	0,163	0,173
	Positive	0,188	0,130	0,163	0,173
	Negative	-0,124	-0,173	-0,136	-0,129
Kolmogorov-Smirnov Z		0,461	0,424	0,399	0,425
Asymp. Sig. (2-tailed)		0,984	0,994	0,997	0,994

Source: Research Data for 2020.

Information: Test distribution is normal.

Table 4. T-Test Hypothesis Test

Paired Samples Test	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pre-test & Pos-test MRP	-1,66	1,942	0,79232	-3,702	0,371	-2,10	5	0,088
Pair 1 Pre-test & Pos-test MD	-5,26	2,067	0,84410	-7,418	-3,080	-6,21	5	0,002

Source: Research Data for 2020.

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