

# The Influence of Ball Modification on *Sepak Takraw* Service Learning Outcome

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**Abstract**—this study is aimed at determining the effect of takraw ball modification on the learning outcomes of sepak takraw service. This is used in learning physical education of sports and health in schools in Pontianak City. The research method used is experimental method with true experimental design. The data source of this research is a school with a population of 259 students and made up of 7 classes. The sample used 37 students as control class and 37 students as experimental class using purposive sampling. Data analysis was done by computerized system and analysis done by using t-test. The result of data analysis shows that the result of t-test on the control and experimental class is obtained as p value 0.000 <0.05 so  $H_0$  is rejected ( $H_a$  accepted) means that there is a significant improvement after treatment, where the difference of mean value in the experimental class (34.5) is greater than in the control class (16.0). The conclusion in the study shows that there is a significant effect of using the ball modification on the learning result of sepak takraw service.

**Keywords**—modifications, learning outcomes, service, sepak takraw

## I. INTRODUCTION

Proper physical activity can prevent overweight and obesity [1]. Physical education of sports and health development can be done through games or sports activities. Sports activities in physical education include athletics, rhythm and other fun and educational games such as sepak takraw. Football takraw is a modern traditional sport that has been modified and recognized around the world [2]. Sepak takraw or volleyball is a widely known sport in Indonesia Asia and is becoming more popular around the world. [3]. Sepak takraw is a fast and action-packed acrobatic game played on a field with two opposing teams separated by net [4]. In the game of sepak takraw, you must master the basic techniques. The basic technique in sepak takraw is service. The service is performed by tekong on the circle located in the field after getting the slope of the jackpot [5].

Based on observations made, student learning outcomes on basic techniques lower service is still low, this can be the choice of the number of students who can perform basic techniques under sevis and not. Because there are some that considerations, students feel afraid to play sepak takraw because the ball used is a standard ball made of material syntetic fiber. Based on the problems described, efforts should be made to avoid these occurring problems. For that

we need an interesting learning media so that it can make the process of teaching and learning effective. The process of learning sports through the usage of media can simplify the process of learning one of them using modifications to the ball takraw.

Modification is a tool that can be used by students to perform activities or activities above it, below it, in between, for example: sweden benches, goalkeeper, star block, ruler of high jumping equipment, bat and other equipment [6]. Modifications can be made to create different learning tools, such as modifying the takraw ball as a rubber ball coated in strapping band, strapped with a spherical echo-like ball of takraw. This is so that students no longer feel afraid due to the characteristics of a soft rubber ball and strapping band straps made of lighter plastic.

Based on the above explanation, the authors are interested in conducting a research on the effect of ball modification on learning outcomes sepak takraw service. Therefore, is there any effect of ball modification on learning result of sepak takraw service?

## II. METHODS

The method used is experimental method and research design used is *True Experimental Design* with shape *Pretest-Posttest Control Group Design* which can be described as follows [7].

TABLE I. RESEARCH DESIGN TRUE EXPERIMENTAL DESIGN PRETEST-POSTTEST CONTROL GROUP DESIGN

Group	Pretest	Treatment	Posttest
Experiments	O1	X	O2
Control	O3		O4

The population in the study amounted to 259 students. The sample in the study amounted to 74 students. Experiment class of 37 students using media learning modification and control class of 37 students without using media modification. The instrument of research is validated by sepak takraw experts with validation result that the instrument used is valid. The procedure in this research consists of 3 stages, namely: 1) preparation stage 2)

implementation stage 3) final stage. The data collection technique used in this research is direct observation technique in which the researcher observes the students who are doing the learning field before doing the experiment.

This observation illustrates the students' circumstances during the lesson and how the students behaved during the learning process. The measurement technique in this study is aimed at knowing the problem solving skills of students through student learning outcomes after using media modification learning. Documentary study techniques, namely data collection techniques with categorization and classification of written materials related to the problem of research. In this study the researchers used the document in the form of learning outcomes and student grades contained in the teacher subjects Penjasorkes. This is in addition to the documentary study, also in the form of photographs during the learning process.

Data collection tool used in this research is the use of test, observation sheet and documentation worksheet. The test is used to measure the ability of students in learning the material about basic management concepts that are implemented in the learning outcomes of students by using the medium of learning modification. This observation sheet was used to collect data on student learning activities during the development of action in learning, utilizing learning modification medium. While the documentation worksheet is a sheet related to matters relating to research objects obtained from archives and documents. To answer the research problem formulation, the researcher uses data analysis technique from SPSS version 20 program.

**III. RESULT AND DISCUSSION**

The result is based on the results of tests that have been done on the learning outcomes that students have with the analysis of influence test. Result of data analysis is then compared and conclusion is taken to know the result of research as answer from research problem, based on the results of research, while the research data obtained as follows:

**1. Description of Research Data**

Here is an overview of the results of data processing that has been done from the results of research both pretest and final test (post test).

**a. Control Class Description**

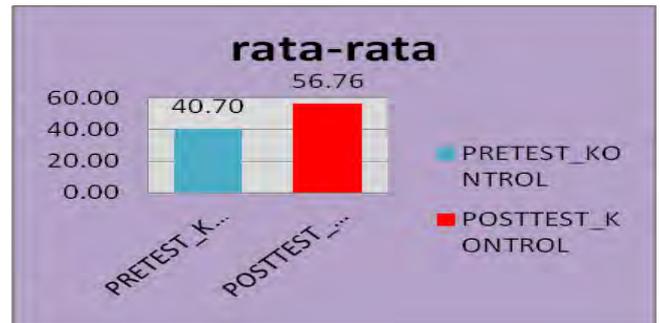
The description of data pretest and Post test results can be seen in the table 2 as follows:

**TABLE II. DESCRIPTION OF CONTROL CLASS DATA**

Control Class	Average	Lowest Score	High Score	Std. Deviation
Pretest	40.7	13	80	15.6
Posttest	56.7	26	86	16.9

Based on the results of the control data, the average score on pretest activity (40.7), and post test activity (56.7),

increased by 16%. The histogram graphics of pretest and post test average results can be seen in the picture as follows:



**Fig. 1. Average pretest and posttest**

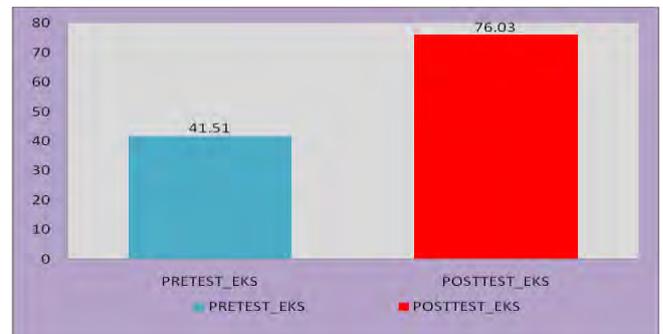
**b. Experiment Class Description**

The description of data pretest and post test results can be seen in table as follows:

**TABLE III. DESCRIPTION OF EXPERIMENT CLASSROOM DATA**

Experiment Class	Average	Lowest Score	High Score	Std. Deviation
Pretest	41.5	13	80	19.6
Posttest	76.0	46	100	13.6

Based on the results of data in the experimental class, the average score on the pretest activity (41.5), and the posttest activity (76.0), increased by 34.5%. The histogram graphics of pretest and post test average results can be seen in the picture as follows:



**Fig. 2. Average pretest and posttest**

**c. Description of Control Class and Experiment Class**

The description of control and experimental data can be seen in the following table:

**TABLE IV. DESCRIPTION OF CLASSROOM CONTROL AND EXPERIMENT CLASS**

Class	Average	Lowest Score	High Score	Std. Deviation
Control	56.7	26	86	16.9
Experiments	76.0	46	100	13.6

Based on the result of data in the control class and the experimental class, the average score on the control class post test activity is (56.7) and the experimental class post test activity (76.0). The histogram graph of the average results of control and experiment can be seen in the picture as follows:

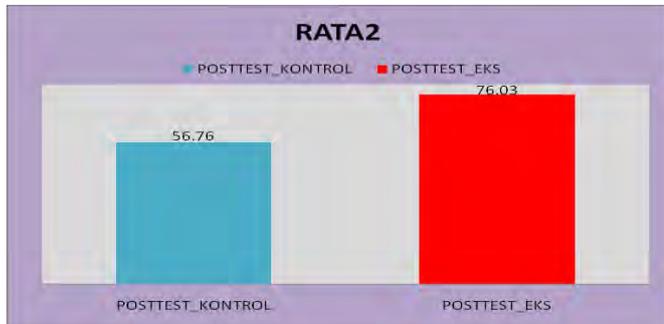


Fig. 3. Average control and experiment

2. Data Analysis Research

Before testing the hypothesis, first test pre requisite analysis. The test of the landing analysis is done with:

a. Normality test

Normality test conducted to determine whether or not there is normal data in the study. Normality test is done by looking at posttest grade control and the post test of experiment class and also comparison of significance value from each variable shown in Kolmogorov-Smirnov column using SPSS version 20.

TABLE V. TEST RESULT OF NORMALITY OF CONTROL CLASS AND EXPERIMENT CLASS

Indicator	Significance	Information
Control	0.065 > 0.05	Normal
Experiments	0.131 > 0.05	Normal

Based on the results of the table shown, the significance value of the control class and experimental class of each indicator is greater than 0.05. It can be concluded the data is normally distributed.

b. Homogeneity test

Homogeneity test is done to know homogenous or non-homogenous data in research. Homogeneity test is done by looking at the compares of significance values of each variable listed in the significant test of homogeneity column using SPSS version 20. The homogeneity test results that have been done can be seen in the table as follows:

TABLE VI. HOMOGENEITY TEST RESULT DATA

Indicator	Significance	Information
Pretest Control - Experiments	0,243 > 0,05	Homogeneous
Posttest Control - Experiments	0,846 > 0,05	Homogeneous

Based on the results of the table, seeing the significance value of each variable greater than 0.05, it can be concluded the data is homogeneously distributed.

c. Test of Influence

Adapting the influence test conducted whether the proposed hypothesis is accepted or rejected by using t-test analysis. Based on the calculation results through the application of t-test formula, data is obtained in the table as follows:

TABLE VII. DATA TEST RESULTS T-TEST LEARNING RESULTS

Posttest	Mean	Difference in Mean Value	Df	p value	Information
Control	56.7	19.2	36	0.000	Sig.
Experiments	76.0				

Based on the data in the table it is seen that the average value of experiments is higher than the average value of control with the difference of the mean value 19.2 and p value 0.000 < 0.05 then Ho is rejected (Ha accepted), meaning there is a significant increase.

In this study, the meeting is 7 times with the frequency of one week a meeting. The difference of pretest of control class is 40.7% while in posttest is 56.7% with increasing percentage equal to 16.0%. The pretest in the experimental class is 41.5% while in the post test it is 76.0% with the percentage increase of 34.5%. In the experimental class, percentage improvement is higher than the control class. This is certainly influenced by the media modification of learning, applied to the teaching and learning process.

The result of t-test calculation using SPSS Version 20 for service test has p value = 0.000 < 0.05, Ho is rejected (Ha accepted), meaning that there is a significant increase of pretest and post test activities due to the influence of ball modification. This means that there is influence of the use of ball modification to the learning result of service in sepak takraw learning.

The results of this study are in accordance with the opinion of Lutan [6], "that modification in learning can improve success in learning outcomes". This is in accordance with research on efforts to improve service learning outcomes through the modification of learning media. Physical education obtained the result that the modification of learning media improved the results of service learning dalam learning physical education in Surakarta. There are some things that become obstacles, such as the lack of discipline of students on the process of learning in the field and modified rubber balls sometimes is deflated. Nevertheless, researchers can solve these problems, so that the research can run well..

IV. CONCLUSION

Based on the result of the research, it is concluded that there is influence of ball modification on service learning result in experimental class with difference of pretest and post test value of 34.5%, based on t-test result obtained with p value = 0.000 < 0.05 then Ho is rejected (Ha accepted).

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