Learning Outcomes of Forehand Serve Skill using STAD Learning Model

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Abstract: This quantitative research was conducted in SMPN 8 Gorontalo. It aims to determine how influential the model of cooperative learning toincrease learning outcomes of forehand serve skills in the table tennis on male students of VIII-5 at SMPN 8 Gorontalo. The study was conducted in18 meetings. The research's object was 17 students of Class VIII-5. Based on the pre-test results, it showeds that the highest scores and the lowest score was 16 and 8 respectively. After conducting the analysis, it was obtained that Mean was 207, a standard deviation was 2.12 and variance was 4,529. The post-test results showed that the highest score was23 and the lowest score was 16. After conducting the analysis, Mean was 324, a standard deviation was 2:01 and variance was 4,058. The results of the pre-test and post-test showed the price tcount 18:59. Meanwhile the price obtained from the distribution list ttable was 1,746. It is clear that tcount prices has been greater than ttable. It can be concluded that cooperative learning model type (STAD) has a very significant influence on forehand serve skills for the male students of Class VIII-5 at SMPN 8 Gorontalo.

1 INTRODUCTION

Physical education is important and it implies that it is not merely an ornament in a school program as a way to keep the students busy (Sutrisno & Khafadi, 2010). Physical education is a significant part of education itself. Through a guided physical education class, students will develop skills in which the activities can occupy their free time, lead them to involve in healthy activities to promote healthy lifestyle, develop their social skills and improve their physical and mental health. In the physical education, there will be problems arising in the teaching and learning process (Riduwan, 2013). Those factors include (1) students' learning motivation, (2) students' skills, (3) teacher's skills and (4) learning facilities. These four factors are dominant in determining the success of the learning process and also the effort in fulfilling the learning goals (Ruud, Den Hartigh, Christophe, 2018).

The weaknesses in teaching physical education coonstitute the teaching and learning process. The fact shows that teachers sometimes do not realize physical education can give the students chances to learn some valuable things. Therefore, many think that teaching physical education can be merely performed by asking students to go to the field, providing balls for the students and letting them play on their own and then the teacher's job is only watching them from afar as though physical education is less important than other lessons.

The described situation from the previous discussion can happen in any school in any part of Indonesia including SMP Negeri 8 Gorontalo. So far, the teaching and learning process of physical education class has always evolved. The changes can be seen from the achievements earned by the school, the improved facilities and the number of physical education teachers. However, despite many facilities and teachers, it did not improve the school's achievements and had no significant impact to the students' skills learning results in physical education lesson, especially in table tennis.

Table tennis game at first is only considered as an activity to do in a leisure time, as an entertainment or merely as recreation. Most Indonesian people know the game as "ping-pong" which was taken from the sound made by the ball when it hits the table or the soft paddle. Later on the name was changed into "table tennis" (Dini, 2013). This game requires some basic techniques such as the technique of holding the paddle, serve and many other techniques.

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In table tennis, most rallies are short and points can be scored in a relatively brief period of time. This makes it a particularly exciting sports to play and to watch, because one of the players can suddenly get the momentum and turn the match (Ruud, Den Hartigh, Christophe, 2018).

This game is done on the table with a specific standardized size. The players need to cross the ball over the net and land it in the opponent's area (Wisahati, Santoso, 2010). This game also has a game set that each set contains 11 points with rally point system in which the first player reaching 11 points will be claimed as a winner (Kusumawati, 2015). If both players have the same point of 10 – 10, then the players need to continue the play until there will be 2 point difference and the serve is done alternately. This is called deuce. Table tennis game is started by a serve and each player makes a serve two times in a row.

Serve is the first strike in table tennis game (Hanif, Syam, 2015). The first strike in table tennis game is known as forehand hit or backhand hit. Forehand strike is a strike in which the player hits the ball; the back of the hand which holds the paddle faces back (Sarjiyanto & Surjawadi, 2010). The steps in doing forehand serve involve a) standing in a posture as if taking a step, b) putting the ball in hand, c) holding the paddle in the handshake grip position or penhold grip, d) throwing the ball in the air, e) hitting the ball with the forehand strike. The steps in doing basic technique of forehand service include preparation stage, movement stage, and final movement stage (Simpson, 2014). Preparation stage consists of standing in a posture as if taking a step while facing slightly sideways from the table, leaning the body slightly forward, placing the ball inside the left palm and place it in front of the chest, then focusing on the direction of the movement. Movement stage includes pulling the paddle back, throwing the ball in the air, and when the ball is falling, hitting it with the paddle by swinging the paddle towards the ball until the top of the ball. Lastly, final movement stage includes moving the hand to follow the ball's movement and focusing on the direction of the ball movement.

Furthermore, table tennis is also one of the lessons taught in SMP Negeri 8 Gorontalo specifically in Grade VIII. Physical education, particularly table tennis lesson has not have the proper coaching and the suitable teaching and learning process, including issues of the teaching and learning process itself, irregular schedules, lack of school's facilities and lack of motivation or seriousness in providing the proper teaching process in learning forehand serve in table tennis.

Learning effectively requires effective self-regulation throughout the learning process. Not only do students have to plan and execute the process for learning, but they also need to remain on task and resist. The learning process is derived from educational psychology theory and learning theory which was designed based on analysis of the curriculum and its implication to the operational level (Dweck, Cohen & Siegler, 2016). The learning technique has wider meaning than the strategy, method or learning procedure. It has four specific characteristics which are not possessed by other learning methods or strategies (Oemar, 2013). They are rational and logical theory arranged by educators, the target of the learning process, the steps of the learning process needed to optimize the learning process, 4) the learning environment needed by the students to accomplish the target learning.

To boost the students' motivation in engaging in the teaching and learning process, it needs a serious effort and a scientifically organized coaching programme. It could be achieved by using the proper learning technique that is easy to be understood and will improve students' learning skill in doing forehand serve in table tennis game for junior high school students in grade VIII. The results of the learning process can be measured from how much of the learning target is achieved while also measuring the process of learning (Sutarmin, 2010). Bloom categorized learning outcomes into three domains which are: (1) cognitive (knowledge), (2) affective (attitude), (3) psychomotor (skills) (Mashar & Dwinarhayu. 2010). With these arising problems, it needs to find the effective learning technique in order to give a significant impact in learning outcomes of the junior high school students (Husdarta & Yudha, 2014).

The learning technique applied in SMPN 8 Gorontalo Grade 8 which is considered optimum and suitable for improving the forehand serve skill is cooperative method using STAD. From the five models of cooperative learning which are being examined, STAD is the most consistent method in giving the positive impact (89%) (Said, 2012). The STAD cooperative learning process is a learning approach focusing on small groups of students to work together in maximizing the learning condition in order to achieve the goals (Husdarta & Yudha, 2014). This learning technique aims to expand the students' social, cognitive and affective skills. This method was developed by Salvin and involves having "competition" among the groups. Students

are grouped by many ways such as skills, gender, race and ethnics. Therefore, The STAD cooperative learning technique is expected to be able to solve the problems by conducting experimental study in order to give a significant impact to the outcomes of learning forehand service in table tennis game.

2 RESEARCH METHOD

This research is a Pre Experimental research. The experiment design used one group pre-test and posttest design. This research is categorized as pre-experimental research because in the design there was still outside variable that contributes in affecting the making of the dependent variable caused by the lack of controlled variables. For the specific design of this experiment, the researcher used one-group pretest-posttest design.

Table 1: *Pre-experimental design*

Pre-test	Treatment	Post-test
O^1	X	O^2

The population in this research consists of 889 students of SMP Negeri 8 Gorontalo. There are 418 male students and 471 female students. In this case, the population is all students of SMP Negeri 8 Gorontalo, while the target population is the male students of grade 8 who have got different characteristics that needed to be examined. Male students are different from the female students in learning physical education lesson. The sample in this research was taken using purposive sampling. This sampling technique is also known as judgmental sampling which is used by determining particular criteria for the samples (Sarjono & Sumarja, 2010). There were nine classes in grade 8 and of those classes, there were 114 male students in total. Based on those characteristics, the sample for this research comprises 17 students of Class VIII-5 and later would be given STAD learning model.

The instrument used in this research is skill test for forehand serve. Some of the tests conducted in this research are: (1) pre-test which was conducted by giving skill test of forehand serve to the students; this pre-test gave each of student 5 chances of doing forehand serve to get the prior data before the treatment; (2) the treatment in which the researcher would apply STAD learning model to the students within 16 meetings for the students to master and understand correctly the forehand serve which follow the right steps; and then (3) post-test which was conducted by using the same test as the pre-test. These tests would determine how far the impact for the outcomes in learning forehand serve is after the treatment was applied.

To answer the research questions in this study, the researcher used a data analysis technique which aimed to categorize the variables and respondents by testing the research hypothesis using t-test. The formula used is presented as follows:

$$t = \frac{Md}{\sqrt{\frac{\sum X^2 d}{N(N-1)}}} \quad (1)$$

Notes: (Md) means the range between pre-test score and post-test score. (Xd) Deviation for each subject d-Md. (∑X2 d) the square sum of Deviation. (n) Subject of the samples.

3 RESULTS AND DISCUSSION

The result for this pre-experimental research is the improved forehand serve skill learning in table tennis using STAD learning model. This research was conducted from August 8 to September 16, 2016 and consisted of 18 meetings. The data analysis from both pre-test and post-test pertaining to the students' skill of forehand serve are explained in table 1 as follows:

Table 2: The description of the learning outcome data

Description	Mean	Min	Max	Std. Deviation
Pre test	12.17	8	16	2,12
Post test	19.05	16	23	2,01

From Table 1, it can be seen that the students'' learning results consist of 17 samples. Therefore, Mean of the pre-test is 12,17; the lowest score is 8, and the highest score is 16 with standard deviation of 2,12. Meanwhile, the research data show that Mean of the post-test is 19,05; the lowest score is 16, the highest score is 23 with standard deviation of 2,01. It can be concluded that there was an impact of STAD learning model for the students' forehand serve skill. The comparison from the pre-test and post-test are described in Table 3 as follows.

Table 3: The average of learning outcomes for forehand serce skill

Data	Average of Learning Outcomes
Pre-Test	12,17
Post-Test	19,05

Based on the results of the pre-test and post-test in Table 3, it can be found that Mean of the learning results of forehand serve skill using STAD learning model is 12.17 for the pre-test and 19.05 for the post-test.

Before conducting the analysis of the hypothesis test, the test of the precondition hypothesis was conducted. It was carried out by normality test in which it was done to determine whether or not the data in the research was normal. Normality test was performed using Chi-square formula. Based on the analysis, the results can be seen in Table 4 as follows.

Table 4: Results of normality test

Indicator	Significant	Description
Pre-Test	0,0961 ≤ 0,206	Normal
Post-Test	0,0485 ≤ 0,206	Normal

Based on the measurement, it was found that L_{count} (pre-test) = 0,0961 and L_{count} (post-test) = 0,0485; moreover L_{table} for α 0,05; n = 17 is 0,206. Therefore, L_{count} for pre-test = 14,9489 and posttest = 8,6490 is smaller than L_{table} = 0,206 , so the distribution of 17 male students can be considered normal.

Homogeneity test was carried out to determine whether or not some data population variables were homogeneous. Homogeneity test was performed using F-test. The results of the test can be seen in Table 5.

Table 5: Results of homogeneity test

Significant	Description
1,11≤ 2,33	Homogeneity

From the F-test in Table 5 above, it was concluded that F_{count} is 1,11 and F_{table} for α 0,05 dk denominator is n-1 (17 – 1 = 16) and dk numerator is n-1 (17 - 1= 16). It was found that the score is 2,33, so $F_{count} \leq F_{table}$ (F_{count} = 1,11 ≤ F_{table} = 2,33). Based on the test criteria stating that if $F_{count} \leq F_{table}$, H_0 is accepted and H_a. is refused Therefore, it can be concluded that the data presented above come from a homogeneous population.

The impact test in this research was conducted to determine the effect of STAD learning model to the VIII-5 male students' forehand serve skill.. The impact test in this research was performed using T-test. Based on the data analysis, the results can be seen in Table 6 as follows.

Table 6: Results of T-test

Description	Mean	T_{count}	d.k	T_{table}	Signifc
Pretest	12,17	18,59	17	1,740	0,05
Posttest	19,05				

From the results shown in Table65, it was found that t_{count} = 18,59 and t_{table} for α = 0,05; dk = n-1 (17 – 1 = 16) found 1,746, therefore t_{count} is bigger than t_{table} (t_{count} = 18,59 > t_{table} = 1,740). Based on the test criteria, it refuses H_0 if $t_{count} > t_{table}$ and accepts H_a. Therefore, it can be concluded that there is an impact of using STAD to the learning outcomes of forehand serve skill.among the male students of VIII-5 at SMP Negeri 8 Gorontalo**.**

4 CONCLUSION

As the data analysis and its discussion have been explained in the previous chapter, it can be concluded that there is an impact of using STAD learning model towards the learning outcomes of forehand serve skill of male students of VIII-5 at SMP Negeri 8 Gorontalo. STAD learning model can give a contribution to the learning outcomes of forehand service skill. These results were affected by the results coming from the experiment. It can be said that STAD learning model can give a positive influence towards the learning outcomes of forehand service skill in table tennis game for male students of VIII-5 at SMP Negeri 8 Gorontalo.

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