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An Experimental Study of Reciprocal and Self-Check Teaching Methods to Improve Tennis Skills

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Abstract

Objectives. This study aims to evaluate the effectiveness of reciprocal and self-check teaching methods, which can serve as a reference or alternative solution in tennis lectures to enhance the quality of learning.

Materials and methods. The study used an experimental method with a Pretest and Posttest design. The sample size matched the population, and individuals were paired based on their tennis ability. The t-test was used for analysis and showed a significant difference between the two groups.

Conclusion. Without a doubt, the evidence suggests that the reciprocal teaching method is vastly superior to the self-check method. By incorporating a collaborative approach, reciprocal teaching enables individuals to learn from one another and to engage in active discussions. On the other hand, self-checking lacks the interactive element that is crucial for effective learning. Therefore, it is not surprising that the results overwhelmingly favor the reciprocal teaching method as the more influential and successful approach.

Keywords: Reciprocal Method, Self-Check Method, and Tennis Field Ability

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Introduction

Developing athletes from the grassroots level to the pinnacle of achievement is an undertaking shared by the whole community. Achieving optimal sporting performance necessitates a long-term, well-planned, and ongoing coaching process. It is important to realize that regional and national sporting accomplishments are the outcomes of such a process and cannot be achieved overnight. This has been mandated in Law Number 3 of 2005 in Article 20 paragraph 3 that sports achievements are carried out through a planned, tiered and sustainable coaching and development process with the support of sports science and technology (Mashuri, 2019).

Sports coaching and development is aimed at achieving regional, national, and international sports achievements. Coaching is carried out by the parent sports organizations at

both regional and central levels. Empowering sports associations, developing national and regional sports coaching centers, and organizing competitions in stages are also ways through which coaching is carried out. The goal is to continuously improve sports achievements at all levels (Law Number 3 of 2005) (Firdaus, 2011)

Both the government and sports organizations continuously develop achievements in sports (Amni et al., 2019). Therefore, the development of each sport must be directed at improving performance which is expected to make the nation proud especially in the land of Papua. One of the sports is field tennis.

Sports education often emphasizes competitive training over cognitive and affective development. To effectively teach movement skills, teachers need to choose learning models that suit their students' needs and characteristics. Developing more efficient models that consider each student's abilities is crucial for improving sports performance. Effective interaction between teachers and students is essential for learning. Teachers should have efficient teaching methods to make the material understandable for students. A proactive teacher is always engaged with their students and society, preparing for their future life (Halim & Research, 2018)

Determining the right teaching style is an effective way to improve student learning outcomes in school. Quality education has both a forward and backward linkage. The teacher's teaching style is a crucial strategy for effectively conveying information to students (Halim & Research, 2018). Many factors influence success in the learning process, including the lecturer/teacher's ability, the student's performance, the quality of facilities and infrastructure, as well as the learning methods used. In the context of physical education, several teaching methods should be utilized Moston (1994:5) (Saptono, 2013) According to educational research, there are two main categories of teaching methods: direct and indirect. Direct teaching methods are those where the teacher takes center stage and has an active role in the learning process. These methods include five types: reciprocal, training, self-examination, and inclusion methods. On the other hand, indirect teaching methods are those that put the learner in the center and encourage them to discover and explore on their own. The four most common indirect teaching methods are guided discovery, convergent discovery, exploration, and divergent production methods (Amra, 2016).

Every student has physical abilities and psychological abilities, each student will have different abilities in carrying out their respective routines. There are differences in abilities between each student due to different physical conditions, both internal and external conditions. Rusli Luthan (1988:322) said that the factors that influence the movement learning process are;

(1) internal conditions, the student's condition which includes factors that exist or are inherent in the student, (2) external conditions, which include factors from outside that influence the student. Because many factors influence and the student's situation is heterogeneous, besides that the learning objectives must be achieved optimally, a learning method that is suitable for this activity is needed.

In the reciprocal teaching method, as developed by Palincsar and Brown (1984), (Rosenshine & Meister, 1994) Reciprocal teaching involves reading expository material paragraph by paragraph while practicing four reading comprehension strategies: questioning, summarizing, clarifying, and predicting. The teacher models the strategies on selected texts, and then students practice the next section with the teacher's support and feedback. The teacher adjusts the difficulty according to each student's level, as explained by Palincsar and Brown (1984) in (Rosenshine & Meister, 1994).

The reciprocal teaching method encourages students to provide feedback to peers. (Irwanto, 2017). The student now assumes responsibility for feedback, increasing peer interactions. As mentioned by Mosston (1994:65) in (Fazari et al., 2020) "Reciprocal teaching methods are defined as a teaching style that shows social relationships between peers and conditions for providing fast feedback." Mosston (1994:65) in (Fazari et al., 2020) The reciprocal method of learning involves repetitive practice with individual observers, receiving immediate feedback from peers, discussing specific aspects of the assignment, understanding the task sequence, and practicing without the teacher's input after correcting errors. The mechanism for implementing the reciprocal method according to Mosston (1994: 65) in (Fazari et al., 2020) are: The following are some ways to improve socialization skills: (1) Encourage giving and receiving feedback with peers, (2) Observe the abilities of your partner's friends, compare them, draw conclusions, and communicate the results with your partner's friends (3) Learn how to give corrective feedback without disrupting the continuity of the friendship (4) Develop patience, tolerance, and respect for the conditions necessary for successful learning (5) Reward those who are successful, and (6) Develop social ties through completing tasks.

The Self-Check Style is a unique approach designed to assist players in learning and comprehending the required actions, the level of control they have, and the intended outcome, whether it is positive or negative. This method aims to provide a clear understanding of the game mechanics and encourages players to make informed decisions while playing (Arisman et al., 2021). Mosston (1994: 103) in (Harahap et al., 2020) stated that self-check teaching improves the teacher-student relationship by having students check their assignments. This promotes accountability, engagement, and deeper understanding. Students carry out

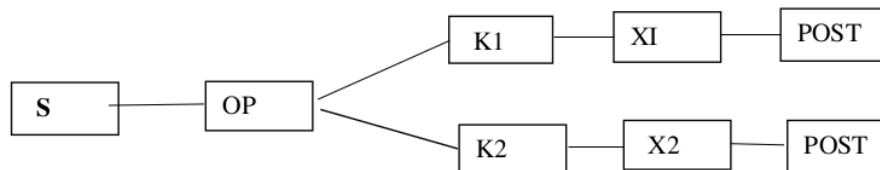
assignments and adapt to the criteria created by the lecturer as feedback. Furthermore, Mosston (1994: 103) in (Harahap et al., 2020) The purpose of the self-check method is to (1) prevent students from being too reliant on external feedback by encouraging self-reflection, (2) apply set criteria for self-correction, (3) maintain honesty and objectivity when evaluating oneself, (4) acknowledge one's limitations, and (5) continue personal growth by making informed decisions during and after lessons. In this self-check method, the material given to students is material that has already been given to them or students already have experience with the material. The criteria sheet for the self-check method can be used the criteria sheet for the reciprocal method (Mosston, 1994: 108).

Basic technique is a crucial factor that needs to be considered while playing tennis. A good and correct technique can significantly impact the productivity and effectiveness of one's gameplay. The fundamental techniques of tennis include the serve, the forehand shot, and the backhand shot. The objective of this research is to determine the effectiveness of reciprocal and self-check teaching methods in enhancing the field tennis abilities of Physical Education students at the Faculty of Teacher Training and Education, Cenderawasih University.

Materials and methods

Study Participants.

The test results were ranked to determine the proficiency of tennis playing skills, starting from the highest to the objects with similar scores. The aim was to match two groups that have almost the same tennis-playing skills using the matching method. The population under study were physical education students at FKIP UNCEN. 40 people were randomly selected for the study. They were split into two groups using an ordinal pairing design. Group A received reciprocal treatment while Group B received self-check treatment.



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Figure 1. Two Group Pre-test and Post-test Design

Information :

S: Sample

2
Pretest: Initial test of playing tennis skills

OP: Ordinal Pairing

K1: Group 1

K2: Group 2

X1: Reciprocal Teaching Method

X2: Self-Check Teaching Method

Posttest: Initial test of playing tennis skills

Study organization.

The method section of the article outlines the research design, subject, data source, data collection techniques, population, sample, implementation procedures, and data analysis methods used in the study. It should make up around 10-15% of the entire article and provide a clear understanding of the research methodology. The research method used in this research is the experimental method (Arikunto, 2010). This study uses a pre-test and post-test group design, with a sample size as large as the population. An initial pre-test assesses the participants' tennis ability.

Statistical analysis.

Tests were conducted to measure the learning outcomes of playing tennis, including forehand and backhand groundstrokes, as well as service accuracy from Hewitt (1966) (Prasetiono & Gandasari, 2018). The normality test determines if a sample comes from a normally distributed population, allowing for data analysis using ANOVA. As part of this study, we conducted a normality test using the Anderson-Darling method with the help of the Minitab 16 statistical program. The increase in tennis ability was used as sample data for this test, which was conducted separately for each treatment group. After carrying out the necessary calculations in Minitab, we obtained a p-value, which we used to determine whether to reject or accept the null hypothesis. If the p-value is less than 0.05, we reject the null hypothesis, which means that the residue is not normally distributed. Conversely, if the p-value is greater than 0.05, we accept the null hypothesis. (Number & Suryono, 2016).

Results

This chapter presents the results of data analysis in a summarized form, which was conducted to gain a general understanding of the data in a study, descriptive data analysis was performed on the collected data using the SPSS program.

Table 1. Descriptive Research Data Variables

	Descriptive	Initial	Final
	test	test	
<i>Reciprocity Teaching</i> (Group 1)	N	20	20
	Sum	2520	2760
	Mean	125	134
	Std. Deviation	10.65	13.85
	Variance	33.39	13.30
	Range	22	48
	Min	124	114
	Max	144	159
<i>Self-check Teaching</i> (Group 2)	N	20	20
	Sum	2380	2430
	Mean	122	126

Std. Deviation	8.17	10.65
Variance	134.80	114.00
Range	38	35
Min	109	114
Max	145	152

The conclusions for the table above will be explained in more detail as follows:

1. Reciprocal teaching group post-test results:
 - a. Pretest Total value: 2520, average value: 125, standard deviation: 10.65, variance: 33.39, data range: 124-144
 - b. Post-test Total value: 2760, average value: 134, standard deviation: 13.85, variance: 13.30, data range: 114-159
2. Self-check teaching group results:
 - a. Pretest total value: 2380, average value: 122, standard deviation: 8.17, variance: 134.80, data range: 109-145
 - b. Post-test total value: 2430, average value: 126, standard deviation: 8.17, variance: 114.00, data range: 114-152

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The results of testing the normality of research variable data can be seen in the following table:

Table 2. Data Normality Test Results

No	Court Tennis Ability		Sig value	α	Note
1	Reciprocity Teaching	Pre-test	0.915	0.05	Normal
	Self-check Teaching		0.641	0.05	Normal
2	Reciprocity Teaching	Posttest	0.987	0.05	Normal
	Self-check Teaching		0.936	0.05	Normal

The normality tests were conducted for the reciprocal and self-check teaching groups in both pretest and posttest. The results indicated that all the scores followed a normal distribution. Here are the significant level values obtained for each test:

- a. Reciprocal teaching group in pretest: 0.915
- b. Self-check teaching group in pretest: 0.641
- c. Reciprocal teaching group in posttest: 0.987
- d. Self-check teaching group in posttest: 0.936

This homogeneity test is required to test samples from a homogeneous population.

Table 3. Summary of variable data homogeneity tests

Top serviceability	Levene Statistics	Df 1	Df 2	Sig
<i>Pretestteaching group</i>	1,834	20	20	0.146

The pre-tests for both the reciprocal teaching group and the self-check teaching group are homogeneous, meaning they come from the same group. The homogeneity test ensures that the pre-test and post-test results of both groups are members of the same group. Overall, the group data results provide an overview of the findings obtained from the research.

Table 4. Summary of t-Test

Data	tcount	ttable	Note
Pretest and posttest reciprocal teaching	9.42	2,201	Sig
Pretest and posttest self-check teaching	4.32	2,201	Sig

According to the table above, reciprocal teaching achieved a tcount of 9.42 and a ttable of 2.201 with relevant information. Meanwhile, reciprocal teaching yielded a ttable of 2.201 and a tcount of 4.32. As a result, it can be inferred that reciprocal teaching groups can increase tennis ability more than self-check instruction.

Discussion

Reciprocal and self-check teaching methods have a positive impact on tennis ability. A well-structured teaching program with targeted techniques is important for improvement. Effective and efficient training can be achieved through a combination of practical and scientific approaches, such as centralized and random training methods. The reciprocal training style involves the teacher giving instructions for each movement, which students follow repeatedly. Mastering fundamental skills through systematic training can lead to improved overall performance.

Conclusions

The reciprocal teaching method was found to have a greater impact on improving field tennis ability than the self-check method. Both methods were found to influence tennis playing ability. To improve your tennis skills, practice backhand, forehand, and serving exercises regularly.

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