

Reciprocal Cooperative Learning Strategy and Learning Achievement in Physical Education

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Abstract

Reciprocal cooperative learning encourages students to work together, enhancing their understanding and skills in physical education. Promoting teamwork and active engagement helps improve learning achievement in a supportive environment. The focus of the study was to determine the efficacy of reciprocal cooperative learning strategy in the learning performance of grade 8 students for both cognitive and psychomotor aspects of Physical Education. It utilized a quasi-experimental design to compare the learning performance level of the control and experimental group in physical education before and after the intervention, wherein the primary instrument was the fifty-item test questionnaire to assess cognitive performance and various psychomotor activities with rubrics to assess the psychomotor performance of the students which was adopted from DepEd's Grade eight Physical Education second Quarter Alternative Delivery Mode

(ADM) materials. Furthermore, the researcher constructed a four As Daily Lesson Plan that indicated the teaching strategies that the researcher used during class sessions for the experimental group. In data analysis, the researcher utilized mean and standard deviation to measure the quality delivery of the strategy. A paired t-test was also employed to determine the intervention's effectiveness. The study's findings about the intervention used were effective and met 81% and above standard. Moreover, both cognitive and psychomotor aspects before the intervention implementation revealed no significant difference in the learning performance of both experimental and control groups. However, after implementing the strategy, they significantly differed in their learning performance. The mean gain difference further supported the control and experimental groups' cognitive and psychomotor learning performance.

Keywords: *Reciprocal cooperative learning strategy, Physical Education, Learning Achievement in Physical Education*

Introduction

In today's educational landscape, teachers are expected to employ varied instructional strategies to create engaging and effective learning experiences. This is particularly important in Physical Education,

which aims to develop students' physical fitness, coordination, and overall well-being. As education shifts toward more personalized approaches, teachers must adapt their methods to address the diverse learning needs of their students.

In a study conducted at the Aristotle University of Thessaloniki Sports Centre in Northern Greece, Theodosiou et al. (2016) discovered several issues in applying reciprocal cooperative teaching style. The first difficulty mentioned was time management. Students noted that planning lessons using this strategy originally took significant effort, limiting the amount they learned in academic time. However, as they gained acquainted with the structure, the lessons became more fluid. Furthermore, in the study of Munandar, (2020) found that students encountered some challenges, including boredom because of the repetitive and simple content, challenges with certain abilities, and concerns about negative perceptions from some peers, which they feared could lead to discipline issues and hinder learning. Even though there were challenges observed, in study of Izzatin and Heriyawati's (2022) found that reciprocal cooperative learning improved student performance compared to traditional teaching methods.

Recent Philippine-based studies highlight the effectiveness of reciprocal cooperative learning in improving students' comprehension and cognitive abilities. Cuartero and Elpa (2018) found that this strategy enhanced the use of four key reading strategies—predicting, clarifying, questioning, and summarizing—with summarizing showing the most improvement due to peer-supported reflection. Likewise, Gonzales and Torres (2016) reported that reciprocal cooperative learning significantly improved higher-order thinking skills, particularly evaluation and critical thinking, among Grade 8 Filipino ESL learners. These gains were attributed to the collaborative nature of the strategy, which fosters active participation, peer interaction, and mutual scaffolding, ultimately supporting both comprehension and critical thinking development.

Meanwhile, Cataylo et al. (2023) conducted a study at Western Mindanao State University Integrated Laboratory School to determine the effectiveness of Reciprocal Teaching a form of reciprocal cooperative learning on the academic performance of Grade 5 learners. The study revealed that students who were taught using this strategy scored significantly higher in their posttests compared to those who received traditional instruction. This suggests that reciprocal teaching contributes to improved cognition and retention among elementary learners. Complementing this, Rivera and Taglucop (2019) also reported favorable outcomes in their investigation of reciprocal learning strategies in the context of reading comprehension. Their findings indicated that the strategy fostered active engagement, critical thinking, and collaborative learning. These benefits highlight the value of reciprocal cooperative learning not only in improving academic achievement but also in developing essential 21st-century skills such as communication and analytical thinking.

While, several studies have demonstrated the effectiveness of reciprocal cooperative learning in enhancing students' cognitive performance, most of these investigations have focused primarily on academic subjects such as reading and language comprehension. However, there remains a noticeable gap in literature regarding its effect on the learning in Physical Education where psychomotor and cognitive domain are equally important. Additionally, there is limited empirical evidence examining how reciprocal cooperative learning strategies influence knowledge retention and skill acquisition. This gap underscores the need for further research that explores the applicability and effectiveness of reciprocal cooperative learning style in learning Physical Education.

In the local school where the researcher is currently teaching, where Physical Education is often underemphasized, investigating the effectiveness of such strategies is essential. This study aims to provide timely insights into how reciprocal cooperative learning can be applied to improve teaching outcomes in PE, thereby addressing an overlooked aspect of learner development and contributing to the enhancement of teaching practices aligned with 21st-century competencies.

1.1 Objective of the Study

The study determined the effect of Reciprocal Cooperative Learning in Teaching Physical Education on the learning performance of grade 8 learners. It answered the following questions (1) What is

the level of quality delivery of the reciprocal cooperative learning strategy in terms of learning environment, diversity of learners, curriculum, and assessment, (2) What is the level of learning performance of grade 8 students in the pre-test and post-test of the control and experimental group in terms of cognitive and psychomotor, (3) Is there any significant difference of the learning performance during the pre-test and post-test of the experimental and control group in terms of cognitive and psychomotor.

Methods

This study employed a quantitative research design, specifically a quasi-experimental design, to examine the effectiveness of the intervention on the participants' learning achievement in physical education. This study employed a quantitative research design, specifically a quasi-experimental design, to examine the effect of the Reciprocal Cooperative Learning strategy on the learning performance of Grade 8 Physical Education students. Quantitative research is rooted in the positivist paradigm, which assumes that reality can be objectively measured and analyzed through numerical data (Creswell & Creswell, 2017).

Specifically, this study utilized a quasi-experimental research design, using a nonrandomized pretest-posttest strategy, to determine whether the Reciprocal Cooperative Learning Strategy improves learning achievement in Physical Education. According to Lory Thomas (2020), quasi-experimental designs aim to define a cause-and-effect relationship between an independent and dependent variable.

The samples for this study were selected using the Total Population Sampling approach. According to Makwana, (2023), total population sampling is most effective when the target population is small and possesses characteristics that are not widely found in the general population. It allows for in-depth and complete data collection without the risk of omitting potentially important subgroups. The identified respondents were two sections of Grade 8 pupils from Datu Arnel Datukon National High School, who served as the control and experimental groups, respectively. They were both in the same class, guaranteeing that the respondents' characteristics were well-defined and identifiable.

Results and Discussion

Table 1

Level of Quality Delivery of the Reciprocal Cooperative Learning Strategy in Terms of Learning Environment

Creates An Environment that Promotes Fairness	Mean	SD	Desc
1. Maintains a learning environment of courtesy and respect for different learners	5.00	0.00	Outstanding
2. Provides gender-fair opportunities for learning	4.33	0.58	Outstanding
3. Recognizes that every learner has strengths	4.67	0.58	Outstanding
(overall)	4.67	0.33	Meets 81% and above of standard
Makes the Classroom Environment Safe and Conducive to Learning			
4. Maintains a safe and orderly classroom free from distractions	4.00	0.00	Outstanding
5. Arranges challenging activities in a given physical environment	4.67	0.58	Outstanding
6. Uses individual and cooperative learning activities to improve capacities of learners for higher learning	5.00	0.00	Outstanding

<i>(overall)</i>	4.56	0.51	Meets 81% and above of standard
Communicates Higher Learning Expectations to Each Learner			
7. Encourages learners to ask questions	5.00	0.00	Outstanding
8. Provides learners with a variety of learning experiences	5.00	0.00	Outstanding
9. Provides varied enrichment activities to nurture the desire for further learning	5.00	0.00	Outstanding
10. Communicates and maintains high standards of learning performance	5.00	0.00	Outstanding
11. Handles behavior problems quickly and with due respect to children's rights	4.67	0.58	Outstanding
12. Gives timely feedback to reinforce appropriate learners' behavior	4.00	0.00	Outstanding
13. Guides individual learners requiring development of appropriate social and learning behavior	4.33	0.58	Outstanding
14. Communicates and enforces school policies and procedures for appropriate learner behavior	5.00	0.00	Outstanding
<i>(overall)</i>	4.75	0.39	Meets 81% and above of standard
Creates a Healthy Psychological Climate for Learning			
15. Encourages free expression of ideas from students	5.00	0.00	outstanding
16. Creates stress-free environment	4.33	0.58	outstanding
17. Takes measure to minimize anxiety and fear of the teacher and/or subject.	4.67	0.58	outstanding
<i>(overall)</i>	4.67	0.33	outstanding
overall	4.66	0.08	Meets 81% and above of standard

Table 1 shows the outcome of the evaluated quality delivery of the reciprocal cooperative learning method regarding the learning environment. It demonstrates that the indicators under “Creates an environment that encourages fairness” had an overall mean score of 4.67 and a standard deviation of 0.33. The indicators that make the classroom environment safe and conducive to learning had an overall mean of 4.56 and a standard deviation of 0.51.

Furthermore, the indicators that communicate higher learning expectations to each learner have an overall mean score of 4.75 with a standard deviation of 0.39, and indicators included in the Creates a healthy psychological climate for Learning have an overall mean of 4.67 and a standard deviation of 0.33. The overall mean of all mentioned indicators is 4.66 with a standard deviation of 0.08, described as outstanding and meets the 81% and above standard indicators is 4.66 with a standard deviation of 0.08 described as outstanding and meets the 81% and above of standard.

In terms of learning environments, the teacher's personality significantly impacts the whole educational atmosphere. Teachers are important in building a pleasant, encouraging teaching-learning environment that promotes a productive, engaging, and flexible instructional process (Usman, 2016).

Furthermore, the findings are consistent with Usman's (2019) research, which found that kids in schools with competent educators and a pleasant learning environment outperformed those with untrained teachers and a challenging setting (Mudassir & Norsuhaily, 2015).

Table 2
Level of Quality Delivery of the Reciprocal Cooperative Learning Strategy in Terms of Diversity of Learners

	Mean	SD	Desc
1. Obtains information on the learning styles, multiple intelligences and needs of learners	4.67	0.58	Outstanding
2. Designs or selects learning experiences suited to different kinds of learners	5.00	0.00	Outstanding
3. Establishes goals that define appropriate expectations for all learners	4.00	0.00	Outstanding
4. Paces lessons appropriate to needs and difficulties of learners	4.67	0.58	Outstanding
5. Initiates other learning approaches for learners whose needs have not been met by usual approaches	5.00	0.00	Outstanding
6. Recognizes multi-cultural background of learners when providing learning opportunities	5.00	0.00	Outstanding
7. Adopts strategies to address needs of differently-abled students	5.00	0.00	Outstanding
8. Makes appropriate adjustments for learners of different socio-economic backgrounds	4.33	0.58	Outstanding
overall	4.71	0.19	Meets 81% and above of standard

Table 2 shows the results of the rated quality delivery of the reciprocal cooperative learning strategy in terms of diversity of learners. It revealed that the overall mean of 4.71 and a standard deviation of 0.19, described as outstanding, implies that the quality delivery of teaching using a reciprocal cooperative learning strategy meets the standard at 81% and above.

According to Angela Daniel (2023), a successful teacher can identify and address their pupils' needs. Teachers must consider students' varied learning styles while selecting how to provide knowledge. Adopting new tactics and investigating creative teaching approaches are critical for solving future educational difficulties. Teachers who are adaptive and willing to use a variety of educational tactics are more likely to produce successful, well-rounded students who are ready to develop into productive citizens.

Furthermore, Shey and Fangwi (2020) stressed the importance of teachers using logical and culturally relevant teaching approaches to meet the requirements of different students. Recognizing students' learning styles is critical to providing good learning opportunities (Payaprom & Payaprom, 2020).

Table 3
Level of Quality Delivery of the Reciprocal Cooperative Learning Strategy in Terms of Curriculum

	Mean	SD	Desc
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Demonstrates Mastery of the Subject

1. Delivers accurate and updated content knowledge using appropriate methodologies, approaches and strategies	5.00	0.00	Outstanding
2. Integrates language, literacy and quantitative skill development and values in his/her subject area	3.00	0.00	Outstanding
3. Explains learning goals, instructional procedures and content clearly and accurately to students	4.67	0.58	Outstanding
4. Links the current content with past and future lessons	5.00	0.00	Outstanding
5. Aligns with lesson objectives the teaching methods, learning activities and instructional materials or resources appropriate to learners	5.00	0.00	Outstanding
6. Creates situations that encourage learners to use high order thinking skills	5.00	0.00	Outstanding
7. Engages and sustains learners' interests in the subject by making content meaningful and relevant to them	5.00	0.00	Outstanding
8. Integrates relevant scholarly works and ideas to enrich the lesson as needed	4.33	0.58	Outstanding
9. Integrates content of subject area with other disciplines	3.33	0.58	Satisfactory
<i>(overall)</i>	4.48	0.78	Meets 81% and above of standard

Communicates Clear Learning Goals for the Lessons that Are Appropriate for Learners

10. Sets appropriate learning goals	5.00	0.00	Outstanding
11. Understands the learning goals	5.00	0.00	Outstanding
12. Establishes routines and procedures to maximize instructional time Plans lessons to fit within available instructional time	5.00	0.00	outstanding
<i>(overall)</i>	5.00	0.00	Meets 81% and above of standard

Selects Teaching Methods, Learning Activities and the Instructional Materials or Resources Appropriate to the Learners and Aligned to Objectives of the Lesson

13. Translate learning competencies to instructional objectives	5.00	0.00	Outstanding
14. Selects, prepares, and utilizes technology and other instructional materials appropriate to the learners and the learning objectives	3.00	0.00	Satisfactory
15. Provides activities and uses materials which fit the learners' learning styles, goals and culture	5.00	0.00	Outstanding

16. Uses a variety of teaching approaches and techniques appropriate to the subject matter and the learners	5.00	0.00	Outstanding
17. Utilizes information derived from assessment to improve teaching and learning	5.00	0.00	Outstanding
18. Provides activities and uses materials which involve students in meaningful learning	5.00	0.00	Outstanding
<i>(overall)</i>	4.67	0.82	Meets 81% And Above of Standard
Recognizes General Learning Processes as well as Unique Processes of Individual Learners			
19. Designs and utilizes teaching methods that take into account the learning process	5.00	0.00	Outstanding
20. Cultivates good study habits through appropriate activities and projects	4.33	0.58	Outstanding
<i>(overall)</i>	4.67	0.47	Outstanding
	4.70	0.22	Meets 81% and above of standard
Overall			

Table 3 shows the results of the rated quality delivery of the reciprocal cooperative learning strategy regarding curriculum. It can be seen in indicators demonstrating mastery of the subject that the description of being outstanding has an overall mean score of 4.48 and a standard deviation of 0.78. While the indicators communicate clear and learning goals for the lessons are appropriate for learners, they garnered an overall mean score of 5.00 with a standard deviation of 0.00.

Moreover, the indicators for selecting teaching methods, learning activities, and instructional materials or sources appropriate to the learners and aligned to the lesson's objective have an overall mean score of 4.76 with a standard deviation of 0.82. The indicators that recognize general learning processes and unique processes of individual learners obtained a general mean score of 4.67 and a standard deviation of 0.47. All indicators for the quality delivery of the reciprocal cooperative learning strategy in terms of curriculum are outstanding and meet the 81% and above standard.

However, indicator 9, integrating the subject area's content with other disciplines, received a low rating with a mean score of 3.33 and a standard deviation of 0.58, and indicator 14 obtained the lowest mean score of 3.00. Both indicators 9 and 14 were satisfactory and met the 41-60% standard. The overall result, which obtained a mean score of 4.70 and a standard deviation of 0.22, was outstanding and met the 81% and above standard.

The results indicate that the instruction was delivered successfully. The Reciprocal Cooperative Learning Strategy is acknowledged as improving teaching efficacy. Supporting this viewpoint, Eli (2021) stated that using new interactive teaching methodologies has become necessary, as teaching innovation is now a prevalent notion in educational settings regardless of curriculum or subject. Furthermore, Kapur (2021) noted that curriculum design and teaching practices are critical in boosting students' acquisition and comprehension of academic topics and lesson plans.

Table 4
Level of Quality Delivery of the Reciprocal Cooperative Learning Strategy in Terms of Assessment

	Mean	SD	Desc
Develops and Uses A Variety of Appropriate Assessment Strategies to Monitor and Evaluate Learning			
1. Prepares formative and summative tests in line with the curriculum	5.00	0.00	Outstanding
2. Employs non-traditional assessment techniques (portfolio, journals, rubrics, etc)	5.00	0.00	Outstanding
3. Interprets and uses assessment results to improve teaching and learning	5.00	0.00	Outstanding
4. Identifies teaching -learning difficulties and possible causes and takes appropriate action to address them	5.00	0.00	Outstanding
5. Uses tools for assessing authentic learning	5.00	0.00	Outstanding
6. Recognizes multi-cultural background of learners when providing learning opportunities	4.00	0.00	Outstanding
7. Adopts strategies to address needs of differently-abled students	5.00	0.00	Outstanding
8. Makes appropriate adjustments for learners of different socio-economic backgrounds	5.00	0.00	Outstanding
(overall)	4.88	0.35	Meets 81% and above of standard
Monitors Regularly and Provides Feedback on Learners' Understanding of Content			
9. Provides timely and accurate feedback to learners to encourage them to reflect on and monitor their own learning growth	5.00	0.00	outstanding
10. Keeps accurate records of grades/performance levels of learners	5.00	0.00	outstanding
(overall)	5.00	0.00	outstanding
overall	4.94	0.04	Meets 81% and above of standard

Table 4 presents the results of the rated quality delivery of the reciprocal cooperative learning strategy in terms of assessment. It revealed that the indicators under development and using various appropriate assessment strategies to monitor and evaluate learning have an overall mean score of 4.88 with a standard deviation of 0.35. This implies that the delivery of the reciprocal cooperative learning style was outstanding and met the 81% and above standard. This is the same for indicators belonging to monitors regularly, providing feedback on learners' understanding of content with a mean score of 5.00. The overall mean for quality delivery of a reciprocal cooperative learning strategy in terms of assessment is 4.94, with a standard deviation of 0.04. This indicates that it is outstanding and meets the 81% and above standard.

Assessment is an important part of the educational process since it not only determines the extent to which established educational goals have been met but also provides vital feedback for improving teaching procedures. According to Banta and Palomba (2015), evaluation is typically a measure of an individual's knowledge and abilities. Kırmızı and Kömeç (2016) stressed the importance of assessment in both teaching and learning. It guides instructional decisions, identifies students' strengths and shortcomings in classroom instruction, and gives tailored feedback to help students learn. As a result, adequate assessment procedures are critical for ensuring that the data acquired is useful and that educators can implement appropriate treatments or solutions.

Table 5
Level of Learning Performance of Grade 8 Students in the Pre-Test of the Control and Experimental Group in terms of Cognitive Aspect

	Mean	SD	Description
Control	16.62	4.55	Fairly Satisfactory
Experimental	16.25	4.36	Fairly Satisfactory

Table 5 presents the cognitive pre-test results of the control and experimental groups. The data revealed that in the pre-test, the control group had a mean score of 16.62, with a standard deviation of 4.55, which was described as fairly satisfactory. Meanwhile, the experimental group gathered a mean score of 16.25, with a standard deviation of 4.36, which was also described as fairly satisfactory. This means the control group performed better than the experimental group in terms of the pre-test cognitive aspects.

Cognitive learning performance is an important aspect of education because it helps measure the acquisition of essential skills and indicates when learning has occurred. According to Carag (2020), instructional methods that incorporate innovative approaches effectively address students' various learning styles and abilities.

Employing innovative teaching strategies that visually and conceptually portray topics can boost teachers' confidence while enhancing students' critical thinking skills. Since education is a constant learning process, integrating diverse strategies and methods can help create engaging courses and enhance learners' overall learning performance.

Furthermore, Saro's (2022) study indicated that teaching styles and procedures are critical in laying the groundwork for efficient classroom management. These methods influence class delivery and assist students in understanding what is expected of them. These strategies help to increase educational achievement and overall academic success by cultivating a shared classroom culture in which students take more responsibility for their involvement and learning.

Table 6
Level of Learning Performance of Grade 8 Students in the Post-Test of the Control and Experimental Group in terms of Cognitive Aspect

	Mean	SD	Description
Control	30.93	5.92	Very Satisfactory
Experimental	34.07	6.70	Very Satisfactory

Table 6 shows the post-test results of the control group and experimental group. It revealed that the control group increased their performance and got a mean score of 30.93 and a standard deviation of 5.92.

This was described as very satisfactory, while the experimental group obtained a significant improvement in their performance with a mean score of 34.07 and a standard deviation of 6.70 this described as very satisfactory.

The result shows that the experimental group's learning performance is higher than the control group. This signifies that using a reciprocal cooperative learning strategy may help the students increase their cognitive performance.

The findings are congruent with the research done by Bakare and Orji (2019), which emphasizes the fact that reciprocal teaching improves students' critical thinking skills by helping them through the analysis and evaluation process. Students are urged to think critically about the content and build their own perspectives by employing forecasting, questioning, clarifying, and summarizing tactics. Reciprocal teaching promotes active learning by immersing students directly in the learning process, converting them from passive recipients of information to interested and active participants.

While cooperative learning encourages students to collaborate in small groups to reach a common objective, it also promotes mutual encouragement and cooperation in the learning process (Johnson & Holubec, 2021). Slavin's (2021) research supports this notion, which discovered that cooperative learning greatly improves academic achievement, particularly among students from underprivileged backgrounds. Cooperative learning combined with reciprocal teaching has proven extremely beneficial in enhancing students' overall educational performance and supporting academic improvement and sociability.

Table 7
Level of Learning Performance of Grade 8 Students in the Pre-Test of the Control and Experimental Group in terms of Psychomotor Aspect

pre		Mean	SD	Description
Lesson 1 A1	Control	1.54	0.44	Below Basic
	Experimental	1.55	0.69	Below Basic
Lesson 1 A2	Control	3.18	0.41	Developing
	Experimental	2.97	0.42	Developing
Lesson 2	Control	2.12	0.85	Developing
	Experimental	1.93	0.63	Beginning
Lesson 3	Control	3.39	0.55	Fair
	Experimental	3.19	0.48	Fair

Table 7 shows the results of the control and experimental groups during the pre-test regarding psychomotor from lesson 1 to lesson 3. The data showed that the control group obtained a mean score of 1.54 and a standard deviation of 0.44 in lesson 1 activity 1. On the other hand, the experimental group got a mean score of 1.55 and a standard deviation of 0.69, which is described as below basic. Furthermore, in Lesson 1 Activity 2, the control group got a mean score of 3.18 and a standard deviation of 0.41, described as developing, and the experimental group achieved a mean score of 2.97 and a standard deviation of 0.42 with a description of developing.

For lesson 2, the control group attained a mean score of 2.12 and a standard deviation of 0.85, which was described as developing. The experimental group obtained a mean score of 1.93 and a standard deviation of 0.63, which was described as beginning. Additionally, the control group gained a mean score of 3.39 with a standard deviation of 0.55.

It is widely believed that learning occurs across three key domains: cognitive, affective, and psychomotor. Haryadi (2015) pointed out that teachers and parents often emphasize children's success in

the cognitive and affective domains, while the psychomotor domain tends to receive less attention. However, the psychomotor dimension can significantly contribute to developing cognitive and affective skills.

Education is a continuous process in which teachers are urged to be creative in their teaching techniques and approaches to improve the learning experience. Understanding the various learning domains allows educators to arrange classes more efficiently and satisfy students' requirements. These categories are critical for evaluating students' academic achievements, learning abilities, achievement, and learning attitudes.

As Mallillin (2020) stated, investigating those areas within instructional strategies is critical for increasing lesson implementation and cognitive growth. Focusing on these characteristics helps to encourage pupils, promote excellent study habits, establish values, and develop a dedication to learning. This comprehensive strategy eventually encourages meaningful involvement and improved educational outcomes.

Table 8
Level of Learning Performance of Grade 8 Students in the Post-Test of the Control and Experimental Group in terms of Psychomotor Aspect

post		Mean	SD	Description
Lesson 1 A1	Control	1.91	0.75	Basic
	Experimental	2.41	0.80	Basic
Lesson 1 A2	Control	3.52	0.53	Proficient
	Experimental	3.89	0.45	Proficient
Lesson 2	Control	2.68	0.97	Developing
	Experimental	3.30	0.88	Developing
Lesson 3	Control	3.68	0.51	Fair
	Experimental	4.07	0.49	Good

Table 8 presents the post-test results of the control and experimental groups. In Lesson 1 Activity 1, the control group obtained a mean score of 1.91 and a standard deviation of 0.75.

Meanwhile, the experimental group had a mean score of 2.41 and a standard deviation of 0.80. The learning performance of both groups was described as basic. Furthermore, activity two under lesson 1 showed that the control group obtained a mean score of 2.52 and a standard deviation of 0.53, which was described as proficient. On the other hand, the experimental group got a mean score of 3.89 with a standard deviation of 0.45, which was described as proficient.

Moreover, the control group obtained a mean score of 2.68 with a standard deviation of 0.97. In contrast, the experimental group had a mean score of 3.30 and a standard deviation of 0.88, which was described as developing in Lesson 2. Additionally, in lesson 3, the control group performed fairly, with a mean score of 3.68 and a standard deviation of 0.51. In contrast, the experimental group got a mean score of 4.07 and a standard deviation of 0.49, which was described as a good performance.

Teaching practices are important supporting variables for academic performance. Teachers must choose tactics appropriate for their teaching content to guarantee effective education. In this regard, Hayati et al. (2020) underlined that reciprocal teaching is one of the most successful instructional strategies. It improves student learning and helps students attain common educational goals. Furthermore, Syakur and Azis (2020) demonstrated that reciprocal teaching efficiently engages students from various cultural backgrounds, encouraging engagement in the learning process.

Furthermore, Shoeib's (2016) study found that cooperative learning improves student performance while fostering collaboration, teamwork, altruism, and innovation. Thus, the study's findings show that combining reciprocal and cooperative teaching improves students' psychomotor performance.

Table 9
Significant Difference in the Learning Performance during Pre-test of the Experimental and Control Group in Terms of Cognitive

	Mean	sd	diff	ttest	pvalue
Control	16.62	4.55	0.37	0.45	0.65
Experimental	16.25	4.36			

Table 9 revealed the pre-test results for the cognitive aspects of the control and experimental groups. The results showed no significant difference in the pre-test scores between the control and experimental groups. Their pre-test scores were comparable, meaning that the control and experimental groups had almost the same learning performance levels before the intervention was implemented.

The findings underscore the importance of using effective teaching tactics to increase students' learning outcomes. This is consistent with the findings of Mafarja et al. (2023), who discovered that reciprocal teaching improved subject comprehension, fostered cooperative learning, increased academic accomplishment, and strengthened communicative and metacognitive skills. Similarly, Dawal (2024) supports similar findings, stating that cooperative learning and reciprocal teaching considerably improve students' academic success.

Table 10
Significant Difference in the Learning Performance during Post-test of the Experimental and Control Group in terms of Cognitive

	Mean	SD	diff	ttest	pvalue
Control	30.93	5.92	3.13	2.71	0.008
Experimental	34.07	6.70			

Table 10 presents the ttest result of the control and experimental group after the implementation of the intervention. This result showed that there is a significant difference in the post test scores between control and experimental groups. It was revealed that the experimental group had significantly higher mean post-test score than the control group. The total difference was 13.3

Similarly, Nisa, Izzatin, and Heriyawati (2022) discovered that integrating reciprocal cooperative learning resulted in higher student performance than traditional teaching approaches. Similarly, Ogunyebi's (2018) study found an important distinction in posttest mean scores between students taught using reciprocal and conventional teaching methods. However, the study found no significant change in posttest mean scores between male and female students treated to these tactics.

Conclusion and Recommendation

Based on the rated quality teaching delivery of reciprocal cooperative learning strategy in terms of learning environment, diversity of learners, curriculum, and assessment, it showed the effective implementation of the intervention supported through the overall mean results, which was described as meeting 81% and above standard.

Meanwhile, in the level of learning performance of the grade 8 students in terms of cognitive aspect, it was revealed that both the experimental and control groups had fairly satisfactory learning performance before the implementation of the intervention, and the control group performed well compared to the experimental group. Furthermore, regarding the psychomotor aspect, the control group had a learning performance level described below in lesson 1, activity 1. In contrast, lesson 1, activity 2, and lesson 2 revealed a developing level of learning performance. In lesson 3, their learning performance was described as that of a beginner. However, after the implementation of the intervention, there was a significant increase in the learning performance of the experimental group, which surpassed the mean score of the control group in terms of cognitive aspect.

On the other hand, in the psychomotor aspect, the experimental group also showed an increased level of performance compared to the learning performance of the control group in all lessons. In lesson 1, activity 1, the experimental group obtained a basic learning performance level, the same level as the learning performance of the control group.

However, the experimental group had higher mean scores than the control group. In lesson 1 and activity 2, both groups obtained proficient learning performance. However, the experimental group had a higher mean score than the control group. In lesson 2, both groups also had the same level of learning performance described as developing, but the control group got a lower mean score than the experimental group. In lesson 3, the control group performed fairly, whereas the experimental group demonstrated good learning performance.

Furthermore, the result showed no significant difference in the learning performance of the control and experimental group in both cognitive and psychomotor aspects before the implementation of the intervention. However, after implementing the reciprocal cooperative learning strategy, it was revealed that there was a significant difference in the learning performance between the control and experimental groups. This signifies that the experimental group performed better in both cognitive and psychomotor aspects than the control group. Therefore, it was concluded that using a reciprocal cooperative learning strategy could help the students improve their learning performance.

Moreover, it is recommended that school officials, administrators, and stakeholders may collaborate to find solutions and provide teachers access to technology to make teaching more achievable and effective. Teachers may integrate language, literacy, quantitative skill development, and values in their subject area to ensure students learn more. Teachers may use or integrate the reciprocal cooperative learning strategy to enhance their students' learning performance regarding physical education's cognitive and psychomotor aspects. Students may explore and apply this learning strategy to help themselves or other students enhance their learning performance and promote positive relationships with others. Future researchers may conduct a study similar to the current research on a large number of teachers and students, another subject area, and other places to validate the result of this study: a survey of the effects of reciprocal cooperative learning strategies on students' learning performance.

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