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Effects of the Student Teams Achievement Division (STAD) Model on Basketball Chest Pass Learning Outcomes

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ABSTRACT

Students in Physical Education classes often experience difficulties in mastering basic basketball skills, particularly the chest pass technique. Preliminary observations in Class X Culinary 4 at SMK Negeri 4 Denpasar revealed that students' learning outcomes were still low and classroom learning remained predominantly teacher-centered. This study aimed to improve students' learning outcomes in the basic *chest pass* technique of basketball through the implementation of the *Student Teams Achievement Division* (STAD) cooperative learning model in Class X Culinary 4 of SMK Negeri 4 Denpasar during the 2025/2026 academic year. This study employed Classroom Action Research (CAR) consisting of two cycles, involving 42 students as the research subjects. Each cycle included four stages: planning, action, observation, and reflection. Data were collected through practical tests and observations. The results showed that the implementation of the *Student Teams Achievement Division* (STAD) cooperative learning model improved students' learning outcomes. Classical learning mastery increased from 47.62% in Cycle I to 90.48% in Cycle II. Based on these findings, it can be concluded that the *Student Teams Achievement Division* (STAD) cooperative learning model effectively improved students' learning outcomes in the basic *chest pass* technique of basketball among Class X Culinary 4 students of SMK Negeri 4 Denpasar in the 2025/2026 academic year. The findings indicate that STAD promotes collaborative learning, active participation, and peer-assisted skill acquisition, making it an effective instructional strategy in Physical Education classes. Therefore, Physical Education teachers may consider integrating STAD into basketball instruction to enhance students' skill mastery and classroom engagement.

KEY WORDS

basketball, *chest pass*, learning outcomes, *Student Teams Achievement Division* (STAD).

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A. Introduction

Physical Education, Sports, and Health (PJOK) is an integral component of the school curriculum that contributes to students' holistic development by promoting cognitive, affective, and psychomotor competencies. Beyond improving physical fitness and motor skills, PJOK fosters discipline, teamwork, responsibility, sportsmanship, and healthy lifestyles that support lifelong learning. Effective PJOK instruction should therefore provide meaningful learning experiences through active student participation and appropriate instructional strategies that encourage both individual and collaborative learning (Yulianingsih et al., 2022).

Despite its important role, PJOK instruction continues to face several challenges in achieving optimal learning outcomes. In many schools, learning activities remain predominantly teacher-centered, limiting students' opportunities to actively engage in practice, collaborate with peers, and construct knowledge through interaction. Such instructional practices often reduce students' motivation, participation, and opportunities to develop movement competencies effectively (Kezya Meylani Fernanda Putri et al., 2024). Consequently, innovative instructional models that promote active learning and collaboration are increasingly needed in Physical Education.

Among the various learning materials taught in PJOK, basketball presents particular challenges because it requires students to master both fundamental technical skills and teamwork. One of the most essential basketball techniques is the chest pass, which enables players to maintain ball possession, execute offensive strategies, and create scoring opportunities. However, many students experience difficulties in performing accurate and coordinated chest passes due to limited practice opportunities, insufficient peer interaction, and instructional approaches that emphasize teacher demonstrations rather than active student involvement. These conditions often result in unsatisfactory learning outcomes in basketball instruction.

To address these challenges, cooperative learning has been widely recommended as an instructional approach capable of increasing student engagement and improving motor skill acquisition. One of the most extensively implemented cooperative learning models is the Student Teams Achievement Division (STAD), developed by Slavin. STAD organizes students into heterogeneous learning groups in which members work collaboratively, support one another, and are collectively responsible for achieving learning objectives. Through peer tutoring, discussion, guided practice, and group recognition, STAD encourages active participation while simultaneously developing technical competence, communication skills, and teamwork.

These challenges were also observed in Physical Education classes at SMK Negeri 4 Denpasar, particularly among Grade X Culinary 4 students. Preliminary classroom observations revealed that many students had not yet mastered the basketball chest pass technique, resulting in learning outcomes that remained below the expected mastery criteria. Furthermore, classroom instruction was still largely teacher-centered, while students with better skills rarely assisted classmates who encountered learning difficulties. As a result, opportunities for collaborative learning and peer interaction were limited, reducing students' participation and overall learning effectiveness.

Previous studies have consistently demonstrated the positive contribution of the STAD cooperative learning model to Physical Education learning. Umatjina (2019) reported that STAD significantly improved football passing skills, while Darani et al. (2020) found positive effects on basketball passing performance. Similarly, Sofyan (2020) and Kurniawan et al. (2023) concluded that STAD enhanced students' technical skills, learning motivation, classroom participation, and teamwork during basketball instruction. Tanaya (2023) further confirmed that STAD effectively improved learning outcomes in Physical Education through collaborative learning activities.

Although previous studies have established the effectiveness of STAD across various Physical Education contexts, several research gaps remain. First, relatively few studies have specifically investigated the improvement of basketball chest pass skills rather than general basketball performance or other technical skills. Second, most previous studies employed experimental or quasi-experimental designs, whereas evidence derived from Classroom Action Research (CAR), particularly within vocational high school settings, remains limited. Third, studies focusing on vocational school students, whose learning characteristics differ from those of general senior high school students, are still scarce. These gaps indicate the need for further investigation to provide empirical evidence regarding the effectiveness of STAD in improving basketball chest pass learning outcomes within vocational education.

Based on the identified problems and research gaps, this study aims to examine the implementation of the Student Teams Achievement Division (STAD) cooperative learning model to improve students' learning outcomes in the basketball chest pass technique among Grade X Culinary 4 students at SMK Negeri 4 Denpasar. The findings are expected to contribute empirical evidence regarding the effectiveness of STAD in vocational Physical Education settings while providing practical recommendations for teachers seeking to improve students' participation and basketball learning outcomes through cooperative learning.

B. Theoretical framework and Literature review

Cooperative Learning Theory

Cooperative learning is an instructional approach that emphasizes students working together in small groups to achieve shared learning goals. According to Johnson and Johnson (2017), cooperative learning is built upon five essential elements: positive interdependence, individual accountability, promotive interaction, interpersonal skills, and group processing. Through cooperative learning, students are encouraged to actively participate, exchange ideas, assist peers, and take responsibility for both individual and group success. In Physical Education settings, cooperative learning provides opportunities for students to improve motor skills while simultaneously developing communication, teamwork, and social interaction abilities. The collaborative nature of cooperative learning creates meaningful learning experiences and promotes higher academic achievement compared to traditional teacher-centered approaches.

Social Constructivism Theory

The theoretical foundation of cooperative learning is closely related to Vygotsky's Social Constructivism Theory. Vygotsky (1978) argued that knowledge is constructed through social interaction and collaborative activities. Learning occurs most effectively when students engage with peers and receive support within their Zone of Proximal Development (ZPD), which refers to the gap between what learners can accomplish independently and what they can achieve with guidance. In cooperative learning environments, students who possess stronger abilities can provide assistance to peers who experience difficulties. Through discussion, demonstration, and peer tutoring, students construct new knowledge collectively. Therefore, Social Constructivism Theory provides a strong rationale for implementing the Student Teams Achievement Division (STAD) model in Physical Education learning.

Student Teams Achievement Division (STAD)

Student Teams Achievement Division (STAD) is one of the most widely used cooperative learning models developed by Slavin (2015). The STAD model organizes students into heterogeneous groups consisting of learners with different academic abilities, genders, and backgrounds. The implementation of STAD generally involves five stages: class presentation, team study, quizzes or evaluation, individual improvement scoring, and group recognition. During team study activities, students work together to understand learning materials and help one another master the required competencies. Group rewards are provided based on collective performance, encouraging students to support each other's learning progress.

The STAD model has several advantages in Physical Education learning. It increases student participation, enhances motivation, improves teamwork, and promotes active engagement during instructional activities. In sports learning contexts, STAD encourages students to practice movement skills collaboratively while receiving feedback from peers. Consequently, students become more confident and motivated to improve their performance.

Learning Outcomes Theory

Learning outcomes refer to measurable changes in students' knowledge, attitudes, and skills resulting from instructional activities. Bloom's Taxonomy classifies learning outcomes into three domains: cognitive, affective, and psychomotor. The cognitive domain focuses on knowledge acquisition and intellectual development. The affective domain relates to attitudes, values, and emotional responses. The psychomotor domain involves the development of physical and motor skills.

Physical Education learning primarily emphasizes psychomotor development while simultaneously supporting cognitive understanding and positive attitudes toward physical activity. Effective instructional strategies are expected to improve students' performance across all three domains. Therefore, learning

outcomes serve as an important indicator of the effectiveness of a particular instructional model. In this study, learning outcomes are measured through students' mastery of the basketball chest pass technique.

Basketball Chest Pass Technique

The chest pass is one of the fundamental skills in basketball and serves as the primary passing technique used during games. A chest pass is executed by holding the ball in front of the chest and pushing it directly toward a teammate using both hands. The objective of this technique is to deliver the ball accurately, quickly, and efficiently while maintaining ball control.

The execution of a chest pass consists of three movement phases. The preparation phase involves holding the ball at chest level with both hands while maintaining a balanced stance. The execution phase begins when the arms extend forward and the wrists snap outward to propel the ball toward the target. The follow-through phase occurs when the arms are fully extended and the fingers point toward the intended receiver, ensuring accuracy and control.

Mastery of the chest pass technique is essential because passing is a fundamental component of basketball gameplay. Effective passing allows teams to maintain possession, create scoring opportunities, and execute offensive strategies successfully. Students who possess good chest pass skills are generally better able to participate in team-based basketball activities. Therefore, improving chest pass performance is an important objective in Physical Education basketball instruction.

Literature Review

Previous studies have demonstrated the effectiveness of cooperative learning, particularly the Student Teams Achievement Division (STAD) model, in improving learning outcomes in Physical Education. Umatjina (2019) found that STAD significantly improved students' football passing skills compared to conventional instructional approaches. Similarly, Darani et al. (2020) reported that STAD positively influenced students' basketball passing performance and learning achievement.

Research conducted by Sofyan (2020) showed that STAD improved students' lay-up shooting skills and increased learning participation during basketball instruction. Kurniawan et al. (2023) further confirmed that cooperative learning strategies enhanced students' motivation, teamwork, and skill acquisition in basketball learning environments. Tanaya (2023) reported that STAD successfully increased learning outcomes and student engagement in Physical Education classes.

Recent studies have also emphasized the importance of collaborative learning in promoting active participation and academic achievement. Yulianingsih et al. (2022) found that cooperative learning combined with digital learning support significantly improved Physical Education outcomes. Putri et al. (2024) highlighted that cooperative learning encourages greater student interaction and engagement compared to traditional teacher-centered methods.

Although previous studies have established the effectiveness of STAD in football, volleyball, and basketball learning, limited research has specifically focused on improving chest pass skills among vocational high school students using a Classroom Action Research approach. Most previous studies concentrated on general basketball skills or other sports disciplines. Therefore, further investigation is needed to examine the effectiveness of STAD in enhancing chest pass learning outcomes within vocational education settings.

Based on Cooperative Learning Theory, Social Constructivism Theory, STAD principles, Learning Outcomes Theory, and previous empirical findings, it can be assumed that the implementation of the Student Teams Achievement Division (STAD) cooperative learning model can improve students' learning outcomes in the basketball chest pass technique through collaborative learning, active participation, peer interaction, and continuous practice.

C. Methods

The research design serves as a framework that guides the processes of data collection, presentation, and analysis, enabling the information obtained to be processed and interpreted effectively and efficiently (Kanca, 2010). This study employed a Classroom Action Research (CAR) design.

This study involved 42 students of Class X Culinary 4 at SMK Negeri 4 Denpasar during the 2025/2026 academic year. The participants consisted of 18 male students and 24 female students, aged between 15 and 17 years. The participants were selected using total sampling because all students in the class were involved

in the classroom action research process. The selection of this class was based on preliminary observations indicating that students experienced difficulties in mastering the basic chest pass technique in basketball and had not yet achieved the expected learning mastery criteria.

This Classroom Action Research (CAR) was conducted in two cycles, with each cycle consisting of two learning sessions. Each cycle was designed as an effort to improve both the learning process and learning outcomes through the implementation of the Student Teams Achievement Division (STAD) cooperative learning model. During the learning process, observations were carried out to monitor students' learning activities. At the end of each cycle, an evaluation was conducted to determine the improvement in students' learning outcomes. The results of the evaluation were then used as the basis for planning and implementing improvements in the subsequent cycle.

Research Procedure

This study employed Classroom Action Research (CAR) consisting of two cycles based on the model proposed by Kemmis and McTaggart. Each cycle comprised four stages: planning, action, observation, and reflection. The research procedure is presented in Table 1.

Table 1. Research Procedure of Classroom Action Research

Cycle	Stage	Description of Activities
Cycle I	Planning	Preparing lesson plans, learning materials, observation sheets, performance assessment rubrics, and instructional scenarios based on the Student Teams Achievement Division (STAD) cooperative learning model.
	Action	Implementing basketball chest pass instruction using the STAD model. The teacher presented the learning objectives, explained the chest pass technique, organized students into heterogeneous groups, facilitated group discussions and practice sessions, and encouraged peer tutoring.
	Observation	Observing students' participation, cooperation, motivation, and performance during learning activities using observation sheets and performance assessment rubrics.
	Reflection	Analyzing the results of Cycle I to identify strengths and weaknesses of the learning process. The findings were used to improve the instructional strategy implemented in Cycle II.
Cycle II	Planning	Revising lesson plans and learning strategies based on the reflection results from Cycle I, including improving demonstrations, teacher guidance, and collaborative practice activities.
	Action	Implementing the revised STAD learning activities with greater emphasis on peer collaboration, repeated practice, feedback, and active student participation.
	Observation	Observing students' learning activities and evaluating their basketball chest pass performance using the same assessment instruments applied in Cycle I.
	Reflection	Evaluating the effectiveness of the revised learning process and determining whether the predetermined classical learning mastery criterion had been achieved. The research was concluded when the learning mastery target was successfully attained.

Research Instruments

Two instruments were used in this study:

Chest Pass Performance Rubric

Students' chest pass skills were assessed through a performance test consisting of three assessment aspects:

1. Preparation Phase
 - a) Body position

- b) Hand placement
 - c) Ball control
- 2. Execution Phase
 - a) Arm extension
 - b) Ball release
 - c) Coordination of movement
- 3. Follow-Through Phase
 - a) Wrist action
 - b) Body balance
 - c) Accuracy of movement

Each aspect was scored using a scale ranging from 1 to 4, where:

4 = Very Good

3 = Good

2 = Fair

1 = Poor

The total score was then converted into a percentage score.

Observation Sheet

Observation sheets were used to record students' participation during learning activities. The observed indicators included:

Learning participation

Group cooperation

Responsibility

Motivation

Active involvement in practice activities

The observation data were used to support the interpretation of students' learning outcomes.

Data Analysis

The collected data were analyzed descriptively using percentages.

Individual learning mastery was calculated using the following formula:

$$P = \frac{f}{N} \times 100\%$$

Where:

P = Percentage of learning mastery

f = Number of students achieving mastery

N = Total number of students

Classical learning mastery was determined by calculating the percentage of students who achieved the minimum mastery criterion (KKM).

Tabel 2. The criteria for learning mastery

Percentage	Category
85–100%	Very Good
70–84%	Good
55–69%	Fair
40–54%	Poor
0–39%	Very Poor

Students were considered to have achieved individual mastery if their score was equal to or greater than 75. The learning process was considered successful if at least 75% of the students achieved the mastery criterion.

C. Result and Discussion

This study was motivated by problems identified by the researcher during a preliminary observation of Physical Education, Sports, and Health (PJOK) learning in Class X Culinary 4 at SMK Negeri 4 Denpasar. The results of the observation revealed that most students experienced difficulties in mastering the basic chest pass technique in basketball. In addition, the learning process was still predominantly teacher-centered, resulting in students' activeness, cooperation, and participation not being optimally developed. Based on these conditions, the researcher implemented the Student Teams Achievement Division (STAD) cooperative learning model as an alternative approach to improve students' learning outcomes. Prior to the implementation of the intervention, an initial observation and pre-test were conducted to determine students' baseline abilities in performing the basic basketball chest pass technique.

Prior to the implementation of the Student Teams Achievement Division (STAD) cooperative learning model, an initial observation and pre-test were conducted to assess students' baseline mastery of the basketball chest pass technique. The results revealed that only 17 out of 42 students achieved the minimum mastery criterion, resulting in a classical learning mastery percentage of 41.67%. These findings indicated that most students had not yet mastered the chest pass technique and highlighted the need for instructional improvement through the implementation of the STAD cooperative learning model.

This Classroom Action Research (CAR) was conducted in two cycles, with each cycle consisting of two learning sessions. In each cycle, the learning process was carried out through the implementation of the STAD cooperative learning model, which included the presentation of learning objectives and instructional materials, the formation of heterogeneous learning groups, group discussions and practice activities, evaluation sessions, and the provision of rewards to groups achieving the best performance. Through these stages, students were encouraged to collaborate, engage in discussions, and assist their group members in understanding and practicing the basic chest pass technique in basketball.

The implementation of the intervention in Cycle I indicated that the learning process had not yet been carried out optimally. Some students were still unfamiliar with group-based learning, and effective cooperation among group members had not been fully established. The evaluation results in Cycle I showed that, out of 42 students, 20 students (47.62%) achieved mastery learning, while 22 students (52.38%) had not yet met the mastery criteria. Based on the reflection results from Cycle I, several improvements were made in Cycle II, including providing clearer demonstrations of the movement techniques, increasing guidance during group activities, offering greater motivation to students, and optimizing group discussions and practice sessions.

The improvements implemented in Cycle II produced better results. Students became more accustomed to cooperative learning, participated more actively in the learning process, demonstrated greater confidence in performing the chest pass technique, and showed improved teamwork throughout the activities. The evaluation results indicated that 38 students (90.48%) achieved mastery learning, while only 4 students (9.52%) had not yet reached the mastery criteria. This improvement demonstrates that the implementation of the Student Teams Achievement Division (STAD) cooperative learning model was effective in enhancing students' learning outcomes in the basic chest pass technique of basketball among Class X Culinary 4 students at SMK Negeri 4 Denpasar during the 2025/2026 Academic Year.

Tabel 3. Improvement of Learning Mastery Across Research Cycles

Phase	Learning Mastery (%)
Initial Observation	41.67
Cycle I	47.62
Cycle II	90.48

Figure 1. Percentage of Learning Mastery Across Research Cycles

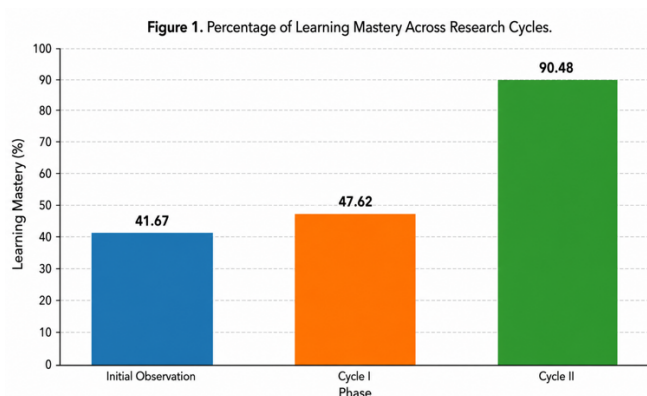
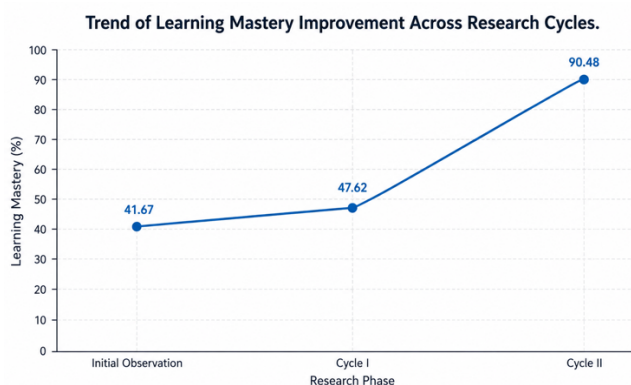


Figure 1 illustrates a continuous improvement in students' learning mastery throughout the research cycles. The percentage of classical learning mastery increased from 41.67% during the initial observation to 47.62% in Cycle I. A substantial improvement was observed in Cycle II, where the mastery percentage reached 90.48%. These findings indicate that the implementation of the STAD cooperative learning model contributed significantly to improving students' chest pass learning outcomes.

Figure 2. Trend of Learning Mastery Improvement Across Research Cycles



Tabel 4. Percentage Distribution of Individual Learning Mastery Categories of Class X Culinary 4 Students at SMK Negeri 4 Denpasar in Cycle I

No.	Category	Frequency	Percentage	Mastery Percentage	Number of Students	Remarks
1	Very Good	3	7.14%	7.14%	20 Students Achieved Mastery	Learning Mastery Target Above 75% Has Not Yet Been Achieved
2	Good	17	40.48%	40.48%		
3	Fair	21	50.00%	—		
4	Poor	1	2.38%	—		

5	Very Poor	0	0.00%	–	22 Students Did Not Achieve Mastery
Total		42	100%	47.62%	42

Tabel 5. Percentage Distribution of Individual Student Learning Mastery Categories among Grade X Students of SMKN 4 Denpasar in the 2025/2026 Academic Year During Cycle II

No.	Category	Frequency	Percentage	Mastery Percentage	Number of Students	Description
1	Very Good	9	21.43%	21.43%	38 Students Achieved Mastery	The learning mastery target of more than 75% has been achieved
2	Good	29	69.05%	69.05%		
3	Fair	4	9.52%	9.52%		
4	Poor	0	0.00%	–	4 Students Did Not Achieve Mastery	
5	Very Poor	0	0.00%	–		
Total		42	100%	100%	42	

Source: Research Data from Cycle II.

Discussion

The findings of this study demonstrated that the implementation of the Student Teams Achievement Division (STAD) cooperative learning model significantly improved students' learning outcomes in the basic chest pass technique of basketball. The percentage of classical learning mastery increased from 41.67% during the initial observation to 47.62% in Cycle I and further improved to 90.48% in Cycle II. This substantial improvement indicates that the STAD model effectively facilitated students' understanding and mastery of the chest pass skill through collaborative learning activities, peer interaction, and active participation.

The improvement in learning outcomes can be attributed to several characteristics of the STAD model. First, students were encouraged to work collaboratively in heterogeneous groups, allowing those with higher skill levels to assist peers who experienced difficulties. Such interactions enabled students to receive immediate feedback and additional practice opportunities beyond teacher instruction. Second, group discussions and cooperative practice activities increased student engagement and motivation throughout the learning process. Third, the reward system implemented in STAD encouraged students to contribute actively to group success, thereby increasing responsibility and participation during learning activities.

The findings of this study are consistent with Cooperative Learning Theory proposed by Johnson and Johnson (2017), which emphasizes positive interdependence, individual accountability, promotive interaction, interpersonal skills, and group processing. Through the STAD learning process, students were required not only to improve their own performance but also to support the achievement of their teammates. This collaborative environment contributed to more meaningful learning experiences and enhanced skill acquisition in basketball learning.

The results are also supported by Social Constructivism Theory developed by Vygotsky (1978). According to this theory, learning occurs through social interaction and collaboration with others. The STAD model provides opportunities for students to learn within their Zone of Proximal Development (ZPD), where

students who possess greater knowledge or skills can assist peers in achieving higher levels of performance. During group discussions and practical activities, students exchanged ideas, demonstrated movement techniques, and provided corrective feedback, thereby facilitating the construction of knowledge through social interaction.

The improvement in students' learning outcomes observed in this study is consistent with previous research findings. Darani et al. (2020) reported that the implementation of the STAD cooperative learning model significantly improved students' basketball passing skills and learning achievement. Similarly, Sofyan (2020) found that STAD positively influenced students' lay-up shooting skills and increased active participation during basketball learning activities. Kurniawan et al. (2023) further demonstrated that STAD enhanced students' teamwork, motivation, and technical skill performance in basketball instruction. These findings suggest that cooperative learning approaches can effectively improve both cognitive understanding and psychomotor performance in sports education.

In addition, the results support the findings of Umatjina (2019), who reported that STAD improved football passing skills among senior high school students. Although the sport context differed, both studies indicate that cooperative learning promotes active engagement and peer-assisted learning, leading to better mastery of sport-specific skills. Likewise, Tanaya (2023) found that STAD increased students' learning outcomes and classroom participation in Physical Education lessons. The consistency of these findings strengthens the argument that STAD is an effective instructional strategy across various sports learning contexts.

The substantial increase in learning mastery observed in Cycle II suggests that repeated implementation and refinement of the STAD model can maximize learning effectiveness. Reflection conducted after Cycle I identified several weaknesses, including students' unfamiliarity with cooperative learning procedures and limited interaction among group members. After improvements were introduced in Cycle II through clearer demonstrations, increased teacher guidance, and more structured group activities, students demonstrated greater confidence, cooperation, and technical proficiency. This finding highlights the importance of continuous reflection and instructional improvement in Classroom Action Research.

From a practical perspective, the findings of this study provide important implications for Physical Education teachers. The STAD model can serve as an alternative instructional strategy to enhance student participation, cooperation, and learning outcomes during basketball lessons. Rather than relying solely on teacher-centered approaches, educators can utilize cooperative learning to create more interactive and student-centered learning environments. Through collaborative activities, students become more actively involved in the learning process and gain opportunities to learn from their peers.

The findings also have implications for schools and curriculum implementation. Schools should support the use of innovative instructional approaches by providing adequate facilities and opportunities for teacher professional development. Furthermore, the implementation of cooperative learning aligns with the objectives of contemporary Physical Education curricula, which emphasize not only skill acquisition but also the development of communication, teamwork, responsibility, and social interaction skills. Therefore, integrating STAD into Physical Education instruction can contribute to achieving broader educational goals.

The novelty of this study lies in the application of the STAD cooperative learning model specifically to improve basketball chest pass skills among vocational high school students through a Classroom Action Research approach, an area that remains underexplored in previous Physical Education studies. While previous research has primarily focused on football skills, volleyball learning, and basketball lay-up shooting, limited attention has been given to chest pass skill development within vocational education settings. Therefore, this study contributes new empirical evidence regarding the effectiveness of STAD in improving basketball chest pass learning outcomes among vocational high school students.

Overall, the findings indicate that the Student Teams Achievement Division (STAD) cooperative learning model is an effective instructional strategy for improving students' basketball chest pass skills. Through collaborative learning, peer support, active participation, and structured group activities, students were able to achieve significantly higher levels of learning mastery. These results reinforce the importance of cooperative learning approaches in Physical Education and provide practical guidance for teachers seeking to improve student learning outcomes through innovative instructional practices.

D. Conclusion

This study found that the implementation of the Student Teams Achievement Division (STAD) cooperative learning model effectively improved students' learning outcomes in the basketball chest pass technique among Grade X Culinary 4 students at SMK Negeri 4 Denpasar. The percentage of classical learning mastery increased substantially from the initial observation stage to Cycle II, indicating the effectiveness of cooperative learning in enhancing students' psychomotor performance and active participation.

This study contributes to the growing body of Physical Education research by providing empirical evidence regarding the effectiveness of STAD in improving basketball chest pass skills among vocational high school students through a Classroom Action Research approach. The findings extend previous studies on cooperative learning by focusing on a specific basketball skill within a vocational education context.

Practically, the results suggest that Physical Education teachers may utilize the STAD cooperative learning model as an alternative instructional strategy to promote collaborative learning, increase student engagement, and improve skill mastery during basketball lessons. Schools are also encouraged to support the implementation of student-centered learning approaches to enhance the quality of Physical Education instruction.

Future studies are recommended to investigate the effectiveness of STAD in different sports disciplines and educational levels using experimental research designs and larger sample sizes. Further research may also compare STAD with other cooperative learning models to determine the most effective strategies for improving students' learning outcomes in Physical Education.

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Conflict of Interest

The author declares no conflict of interest regarding the publication of this manuscript.

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