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# The Effect of the Jigsaw Learning Model on Self-Esteem and Basic Basketball Skills in Elementary School

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Jigsaw; Self-Esteem; Basic Technical Skills; Basketball; Elementary School

## Abstract

The Jigsaw Learning Model is a learning strategy that emphasizes cooperation among students by dividing the material into small sections that are studied in groups. Each group member is responsible for studying one section of the material, then meets with members of other groups who are studying the same section (called expert groups), and then returns to their original group to teach the material they have understood. The purpose of this study is to analyze improvements in basic basketball skills and self-esteem through the application of the Jigsaw cooperative learning model. The research method used is Classroom Action Research (CAR) with a pre-experimental approach. The research subjects are students in class VC, who were divided into small, heterogeneous groups. The research data was analyzed using Excel 2021. The results showed an improvement in the basic basketball skills of students in Class VC at Elementary School 178 Gegerkalong KPAD following the implementation of the jigsaw learning model. The students' average score increased from 41 in the pre-cycle phase to 62.4 at the end of Cycle II. Additionally, students' self-esteem levels also increased, from an initial average score of 60.45 to 78.62 following the implementation of the instructional interventions. In conclusion, the implementation of the jigsaw learning model, carried out over four interventions across two cycles, proved effective in enhancing both the basic basketball skills and self-esteem of students in Class VC at Elementary School 178 Gegerkalong KPAD. The results of the students' basic basketball skill tests showed a significant improvement from the pre-cycle results to the fourth intervention in Cycle II. Implicitly, the Jigsaw cooperative learning model can be used as an effective learning strategy to improve students' basic basketball skills.

## How to Cite

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## INTRODUCTION

Physical education serves to develop motor skills and social abilities, as well as to foster a healthy lifestyle (Salamah & Raharjo, 2023)The components of physical education have implications for learning across all levels of education in Indonesia. For example, (Mabrur et al., 2021) emphasize that physical education and sports hold an important place within the curriculum framework; therefore, it is crucial to implement physical education at every educational level using diverse teaching models that align with students' characteristics. Furthermore, research by (Kamaruddin et al., 2023) indicates that physical education can significantly contribute to students' character development; thus, a curriculum emphasizing physical education supports the formation of students' positive personalities.

In physical education, there are various sports, one of which is basketball. Basketball is an accessible sport, even in elementary school settings. Mastering basic basketball skills such as dribbling, passing, and shooting from an early age provides a solid foundation for the development of children's fine and gross motor skills. Additionally, basketball practice also develops hand-eye coordination, balance, and reaction speed, all of which provide significant benefits in children's daily activities. Beyond physical benefits, basketball also teaches important values such as teamwork, communication, and increased self-confidence. When students successfully make a shot or pass the ball accurately, they experience a sense of accomplishment that can boost their self-esteem.

In the context of children's education and character development, sports such as basketball make significant contributions to their social and emotional development. As noted by Santua (Santua, 2020), basketball serves not only as a physical activity but also fosters social values such as cooperation, communication, and a sense of responsibility among children. When a child successfully makes a shot or passes the ball accurately, they experience a sense of accomplishment, which directly boosts their self-confidence (Santua, 2020).

Basketball practice plays a role in developing children's hand-eye coordination, balance, and reaction speed. Several studies confirm the link between physical activity and motor skills. A study by (E. Saputra et al., n.d.) found that dribbling skills in basketball are closely related to hand-eye coordination and speed.

Furthermore, the social skills acquired through basketball, such as cooperation and communication, are crucial for successful interpersonal relationships at school and in daily life. Research by (Putro & Artikel, 2020) supports this argument by demonstrating that basketball has great potential in helping students develop social competencies, including negotiation skills and the ability to adapt to various social situations. Children with high self-esteem tend to participate more actively in sports activities, possess strong self-confidence, and are not afraid to make mistakes. Research by (Orth et al., 2012) indicates that increased self-esteem during childhood correlates with various positive outcomes in life, including the ability to engage in activities both in and out of school. This suggests that interventions to boost children's self-esteem can have positive impacts on other aspects of their lives, such as academic achievement and social relationships (Orth et al., 2012).

The implementation of the jigsaw cooperative learning model in basketball can be carried out by dividing basic technical skills such as dribbling, passing, shooting, and defense into small groups. Each group is responsible for studying one skill in depth and then teaching it to the other groups. (Slavin, 1990) in the journal Cooperative Learning: Theory, Research, and Practice states that cooperative learning can increase students' active participation and self-confidence. Children who previously had low self-confidence can feel proud of becoming "experts" in a specific skill, which in turn naturally boosts their self-esteem.

In addition, the jigsaw cooperative learning model places greater emphasis on cooperation among students than on competition between them. In a collaborative environment like this, children feel more comfortable learning, making mistakes, and growing together. (McCaslin & Hickey, 2001) in their book titled The Social Context of Education also emphasize that a positive learning environment can boost students' self-esteem. Consequently, children feel accepted for who they are, without fear of being mocked or compared. This creates a more enjoyable basketball learning environment that supports their emotional development. The novelty of this study lies in the use of the Jigsaw cooperative learning model in physical education learning in elementary schools, which not only focuses on improving basic basketball technical skills but also pays attention to the development of students' self-esteem simultaneously. Unlike previous studies that generally examine these

two aspects separately, this study combines them in one comprehensive approach. Furthermore, the Jigsaw model, which is usually applied in classroom learning, is adapted to movement-based learning activities, making it more appropriate to the characteristics of physical education that emphasizes cooperation and active student involvement. Another novelty lies in the method of measuring self-esteem that is directly linked to students' experiences in sports activities, so this study contributes to developing learning that not only improves physical abilities but also builds students' overall self-confidence.

## METHOD

This study is a Classroom Action Research. Classroom Action Research (CAR) plays a strategic role in supporting the improvement of the quality of learning that takes place in the classroom. Through actions within the organized cycles of CLA, teachers can identify learning problems in a structured and systematic manner, design and implement appropriate intervention strategies, and conduct evaluations to assess the success of the actions taken(Siregar et al., 2024). Classroom Action Research (CAR) has very important strategies and roles when implemented properly and correctly. The objective of this study is that, through specific actions namely the implementation of the jigsaw learning model students can improve their basic basketball skills and self-esteem.

The population is defined as the entire group of research subjects who possess specific characteristics and criteria that researchers analyze to draw relevant conclusions (Iba, n.d.). The population in this study consists of fifth-grade students at Elementary School 178 Gegerkalong, Bandung City, which served as the research site during the 2026/2027 academic year. The population of fifth-grade students consists of 90 students. The researcher selected this population because, during the implementation of the P3K program at the school, the students demonstrated poor performance on the basketball test and exhibited a lack of self-esteem, which led to a lack of self-confidence. A sample is defined as a selected portion of the population for research purposes, chosen based on specific objectives, methods, procedures, and considerations that can represent the population (Imansari & Kholifah, 2023). The subjects used in this study comprised Class VC, consisting of 29 students 16 boys and 13 girls for children aged 10-11 years. The selection of Class VC as the research subjects was conducted using a purposive sampling method. Since this is a Classroom Action Research (CAR) study, the objective is not to generalize the findings to the entire population but rather to address learning issues through action cycles that can improve the learning process facilitated by the researcher.

Data collection techniques are a crucial component of research, as they serve as the methods researchers use to gather data. Data collection is the process of obtaining information or empirical evidence that can form the basis of research using instruments (tools) in a study (Herdayati et al., 2019). Research instruments or measurement tools are academically valid means for measuring specific objects or collecting data on the variables under study (Sappaile, 2007). Instruments consist of written guidelines that include methods such as interviews, observations, or prepared questions designed to gather information (A. Saputra, 2020). Data collection in this study utilized a questionnaire distributed to the students serving as the research sample. The questionnaire used as the instrument to collect data on self-esteem was the Coopersmith Self-Esteem Inventory (SEI). Data analysis is conducted once the researcher has obtained raw data from the research instruments; this data must be analyzed using data analysis techniques to give the research meaningful results. Through data analysis, the research assumptions proposed to address the research questions formulated in the background section can be tested. The first stage of data analysis involves analyzing the data from the research instruments; subsequently, data analysis is conducted using Microsoft Excel 2016 and IBM SPSS Statistics 24. The assessment tools include the basic technical skills instrument and the Coopersmith Self-Esteem Inventory (SEI) questionnaire. Classroom Action Research (CAR) consists of four stages: (1) planning; (2) implementation; (3) observation; and (4) reflection.

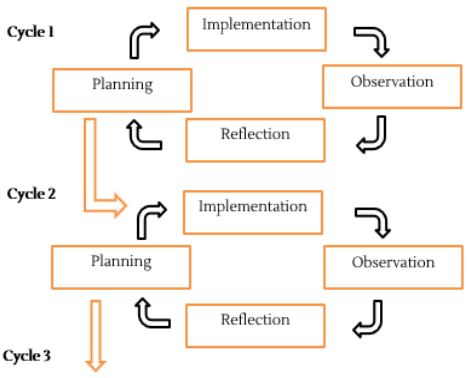


**Figure 1.** The Kemmis and McTaggart Action Research Model. Source: Kemmis & McTaggart in (Utomo et al., 2024).

## RESULTS AND DISCUSSION

This study is a Classroom Action Research (CAR) project. Classroom Action Research (CAR) helps solve problems faced by teachers. The focus of this study is to improve basic basketball skills and self-esteem among elementary school students through the implementation of the Jigsaw learning model. The researcher conducted the study with 29 students in Class VC at Elementary School 178 Gegerkalong KPAD, Bandung City.

The research was conducted every Tuesday according to the school's lesson schedule. The study began on Tuesday, January 13, 2026. The field practice of the interventions was carried out in accordance with the previously developed teaching modules and was observed by the physical education teacher at Elementary School 178 Gegerkalong; the observation process took place during the lessons conducted by the researcher.

Prior to implementing the intervention, an initial observation was conducted to assess the condition of Class VC at Elementary School 178 Gegerkalong KPAD. This observation covered two main aspects that were the focus of the study: students' basic basketball skills and their self-esteem. The initial observation was conducted on Tuesday, January 13, 2026. Prior to the initial observation, the researcher had also communicated with the school principal and the physical education teacher at the school to obtain permission and explain the purpose and objectives of the study. The results of the pre-cycle test on students' basic basketball skill levels showed that no students (0%) were in the very low category, 5 students (17%) were in the low category, 24 students (83%) were in the moderate category, and no students (0%) reached the high or very high categories. The following bar chart shows the percentage of students' basic basketball skill levels in the pre-cycle results.

Based on **Figure 2** above, it can be seen that improvements are needed in the area of basic basketball skills. The percentage of students in the "average" category exceeds 50%; therefore, measures are needed to improve students' basic basketball skills, specifically through varying the intensity of physical activities in Physical Education classes.

Meanwhile, the pre-cycle results for self-esteem indicate that the majority of students already have self-esteem that is classified as good. No students (0%) fell into the low or very low categories; 14 students (48%) were in the adequate category, and 15 students (52%) were in the good category; however, no students (0%) were in the very good category. The following bar chart shows the pre-cycle self-esteem results.

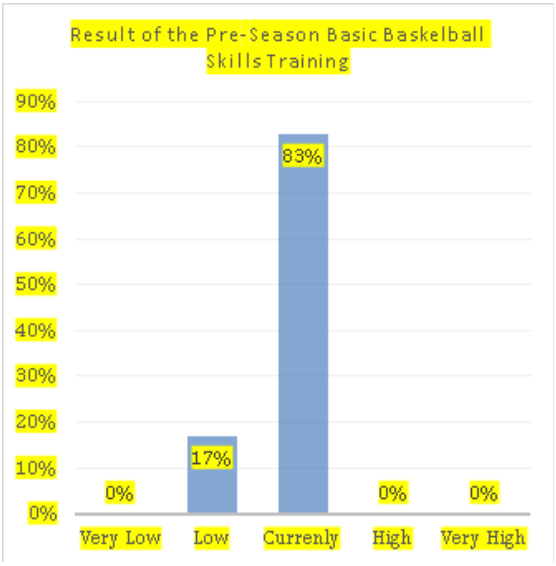


**Figure 2.** Pre-Season Chart for Basic Basketball Skills

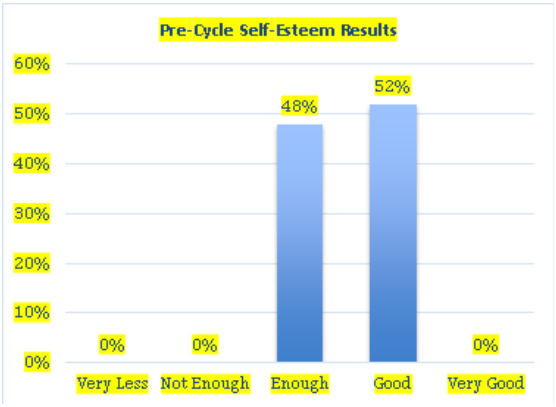


**Figure 3.** Pre-Cycle Self-Esteem Chart

Based on **Figure 3** above, it can be seen that most students already demonstrate positive self-esteem; however, there are still a number of students who require special attention, as well as efforts to raise the self-esteem of all students to a higher level

The results of the basic basketball skills of students in Class VC at Elementary School 178 Gegerkalong KPAD showed improvement following the implementation of the jigsaw learning model. There was a significant increase in the average score for students' basic skills from Pre-Cycle I to Cycle II. As shown in the bar chart of students' basic skill results below:

**Figure 4** above shows that during the pre-cycle phase, the average score was 41; following the implementation of Cycle II in the fourth intervention, the average score increased to 62.4.

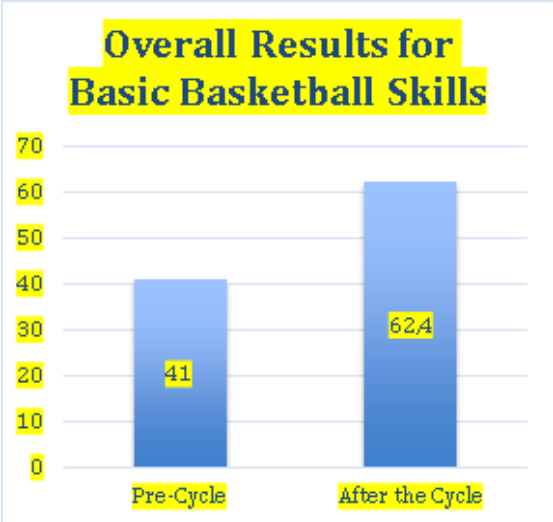


**Figure 4.** Overall Results for Basic Basketball Skills

The self-esteem scores of students in Class VC at Elementary School 178 Gegerkalong KPAD also improved following the implementation of the jigsaw learning model. The overall increase in average self-esteem scores, as shown in the bar chart below:


**Figure 5.** Overall Self-Esteem Results

As shown in **Figure 5** above, there was an increase in the average self-esteem score of the students at each stage. In the pre-cycle stage, which reflects the initial conditions before the intervention was administered, the average self-esteem score of the students was 60.45; after the intervention was implemented, the post-cycle average score showed a significant increase, reaching 78.62.

The results of the study indicate a significant improvement in students' basic basketball skills from the pre-cycle to the post-cycle. The average score for students' basic technical skills increased from 41 in the pre-cycle phase to 62.4 in the post-cycle phase. This increase indicates that a learning model that actively involves students can gradually improve motor skills. These findings align with research (Dyson, 2022) and several studies highlighting that the implementation of the Jigsaw model enhances technical skills in sports (including basketball) through discussion and practice, Structured instruction and peer-to-peer teaching can improve dribbling and passing skills. For example, a study evaluating the impact of the Jigsaw method on dribbling and passing skills in physical education classes found that the implementation of the Jigsaw model had a positive effect on learning outcomes related to these motor skills.

In the pre-cycle stage, most students were still in the low and moderate categories, indicating that basic technical skills such as dribbling, passing, and shooting had not yet developed optimally. This situation was caused by a lack of active student engagement in learning as well as teaching methods that remained teacher-centered. According to (Sumiati et al., 2023), less interactive learning can lead to low student skills due to the lack of opportunities for direct practice and exploration. Thus, it can be concluded that the findings of this study are consistent with previous research. An effective learning model not only contributes to the development of skills related to sports but also fosters a full understanding of the importance of improving physical fitness linked to lifelong health. The systematic implementation of an innovative learning model can have a positive impact on enhancing elementary school students' basic basketball skills.

Following the implementation of the Jigsaw cooperative learning model in Cycle I, an improvement in students' skills began to emerge, although the results had not yet reached their full potential. This improvement indicates that student-centered learning models are beginning to have a positive impact on engagement and active participation in the learning process. However, the suboptimal results are attributed to students still being in the adaptation phase to this new learning approach, which requires cooperation, communication, and individual responsibility within the group. At this stage, some students were still confused about their roles and tasks and were not yet fully able to contribute actively to group discussions. According to (Slavin, 1990), the adaptation process is a crucial component of cooperative learning, as students require time to adjust

to group dynamics and individual responsibilities before achieving optimal learning outcomes. Therefore, improvements and reinforcements are needed in the next cycle to help students better understand the Jigsaw learning mechanism and demonstrate more significant skill improvements.

A more significant improvement was observed in Cycle II, during which students had become accustomed to applying the Jigsaw cooperative learning model and were able to master the basic techniques more effectively than in the previous cycle. At this stage, students demonstrated increased self-confidence and independence in learning, and were able to perform their roles optimally in both their home groups and expert groups. Interactions among students also continued to develop, marked by more effective cooperation, the ability to help one another, and the provision of constructive feedback regarding technical errors made by their groupmates. Through the group discussion process, students not only gain a deeper understanding of the material but also learn to correct errors through mutual evaluation, thereby making learning more meaningful. This indicates that the Jigsaw cooperative learning model creates an active, collaborative, and supportive learning environment, which significantly enhances students' basic technical skills. This aligns with the research findings presented by (Putra et al., 2023), which state that social interaction in cooperative learning plays a crucial role in enhancing students' understanding, skills, and learning outcomes through the mechanisms of mutual assistance and feedback within the group.

The research results also indicate a significant increase in students' self-esteem at each stage of the study. The average self-esteem score of students increased from 60.45 in the pre-cycle stage to 78.62 in Cycle II, indicating positive development in students' affective aspects. This increase suggests that the implementation of the Jigsaw cooperative learning model not only impacts cognitive and psychomotor skills but also makes a tangible contribution to students' social and emotional development. Through learning that emphasizes cooperation and interaction among students, they feel more valued within their groups, thereby fostering greater self-confidence. This aligns with research cited by (MEI, 2024), which states that cooperative learning can enhance students' self-confidence through active engagement in the learning process.

Initially, most students fell into the "adequate" and "good" categories but had not yet reached the "very good" category, indicating that their self-esteem still needed improvement. This was evident in the fact that some students were still hesitant to express their opinions, indecisive when making decisions, and lacked confidence in actively participating during lessons. Self-esteem itself is an individual's evaluation of themselves, shaped by personal experiences and interactions with their social environment. According to (Coopersmith, 1965), self-esteem develops based on how an individual views themselves and how they are accepted by their surroundings. Therefore, learning strategies are needed that can create positive experiences for students so that their self-esteem can develop optimally.

Following the implementation of the Jigsaw learning model in Cycle I, an increase in students' self-esteem began to emerge, although it was not yet optimal. Students began to show more confidence in participating in group discussions, were more active in asking and answering questions, and started to feel a sense of responsibility toward the tasks assigned to their groups. The clear individual roles within the Jigsaw learning structure provide an opportunity for every student to contribute, so that they feel they play an important role in the group's success. This has led to a gradual increase in students' self-confidence. According to (Slavin, 1996), active involvement and individual responsibility in cooperative learning can boost self-esteem because students feel valued and recognized for their contributions.

The increase in self-esteem became more significant in Cycle II, during which students were able to interact more positively with their groupmates. They did not merely focus on understanding the material but also began to demonstrate mutual respect, support, and cooperation in completing tasks. Students appeared more confident in expressing their opinions, accepting feedback, and providing constructive feedback to their peers. This positive social interaction was a key factor in boosting students' self-esteem, as they felt accepted and valued within the group. This aligns with the findings of (Shakerian et al., 2020), who noted that positive social interaction in cooperative learning can enhance students' self-esteem through supportive and collaborative learning experiences.

Overall, the increase in students' self-esteem indicates that the Jigsaw learning model is effective in creating a positive and conducive learning environment. A collaborative, participatory, and supportive learning environment helps students develop self-confidence and learn to value themselves and others. Furthermore, a learning atmosphere that provides equal opportunities

for every student to participate also contributes to building better self-esteem. This is supported by the theory proposed by (Johnson & Johnson, 2009), which asserts that cooperative learning can improve interpersonal relationships, self-confidence, and students' overall learning outcomes through positive interactions within the group.

## CONCLUSION

The implementation of the jigsaw learning model, carried out over four sessions across two cycles, proved effective in improving the basic basketball skills and self-esteem of students in Class VC at Elementary School 178 Gegerkalong KPAD. The results of the students' basic basketball skill tests showed a significant relevant improvement from the pre-cycle results to the fourth action of Cycle II. This indicates that movement-based game activities packaged as educational games, along with a step-by-step approach to basketball skill components, are effective in enhancing basic basketball skills in an enjoyable and meaningful way. Self-esteem also showed an increase from the pre-cycle results to the results of the fourth intervention in Cycle II. Learning activities designed around games that emphasize group cooperation, active discussion, and collaborative mission completion can encourage students to speak up actively and facilitate the development of their self-esteem.

Thus, it can be concluded that the findings of this study align with previous research, which confirms the effectiveness of cooperative learning in enhancing both the cognitive and affective aspects of students. The learning approach implemented through the Jigsaw model has proven capable of encouraging students to communicate more actively, engage in discussions, and collaborate in groups in a structured and meaningful manner. Through these interactions, students not only gain a better understanding of the material but also experience development in social-emotional aspects, such as increased self-confidence, the courage to express opinions, and the ability to respect others' perspectives. The ongoing collaborative process also provides a positive learning experience, thereby indirectly strengthening students' self-esteem and affective aspects during learning activities. Thus, this learning model can serve as an effective alternative in creating a learning environment that is more active, participatory, and supportive of students' holistic development.

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