

THE IMPLEMENTATION OF THE NUMBERED HEADS TOGETHER COOPERATIVE LEARNING MODEL TO IMPROVE STUDENTS' BASKETBALL LEARNING OUTCOMES

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Abstract

This study aimed to improve students' basketball learning outcomes through the implementation of the Numbered Head Together (NHT) cooperative learning model in class X.3 of SMA Negeri 2 Denpasar. This research employed Classroom Action Research conducted in two cycles, each consisting of planning, action, observation, and reflection stages. The research subjects were 42 students. Data were collected through observation and basketball learning achievement tests and analyzed using descriptive quantitative techniques. The results showed an improvement in students' learning outcomes after the implementation of the NHT cooperative learning model. The initial average score was 68.5 with a learning mastery percentage of 26.19%. In Cycle I, the average score increased to 74.1 with 61.9% learning mastery, and in Cycle II it further increased to 78.6 with 85.7% learning mastery. These findings indicate that the NHT cooperative learning model is effective in improving basketball learning outcomes and promoting active student participation in the learning process.

Keywords: *basketball, classroom action research, learning outcomes, Numbered Head Together, cooperative learning*

INTRODUCTION

Physical education, sports, and health education serve as a medium to encourage the development of motor skills, physical abilities, knowledge and reasoning, appreciation of values, and the habituation of a healthy lifestyle that ultimately supports the balanced growth and development of students (Depdiknas, 2003). Therefore, activities in physical education learning must be supported by appropriate didactic and methodological approaches so that learning objectives can be achieved optimally (Depdiknas, 2003). Physical education, sports, and health education serve as a medium to encourage the development of motor skills, physical abilities, knowledge and reasoning, appreciation of values, and the habituation of a healthy lifestyle that ultimately supports the balanced growth and development of students (Depdiknas, 2003). Therefore, activities in physical education learning must be supported by appropriate didactic and methodological approaches so that learning objectives can be achieved optimally (Depdiknas, 2003). Learning in Physical Education, Sports, and Health is an educational process that utilizes physical activity as the primary means of achieving educational goals. Husdarta (2011) states that physical education learning is directed at developing students' physical abilities, movement skills, intelligence, as well as character formation and social attitudes. One of the important materials in Physical Education learning at the senior high school level is basketball, which includes the mastery of basic technical skills such as chest pass, bounce pass, overhead pass, and

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dribbling. Mastery of these skills requires active student involvement, cooperation, and a student-centered learning process. In the context of physical education, the learning process cannot be separated from the concept of motor learning. Schmidt and Lee (2011) explain that motor learning is an internal process associated with practice that results in relatively permanent changes in the ability to perform motor skills. Sukintaka (2004) emphasizes that the motor learning process must consider students' developmental stages, the level of movement difficulty, and the provision of appropriate feedback. Therefore, basketball learning requires instructional models that can provide optimal practice opportunities and actively involve students in the learning process. One instructional approach that is relevant to support the motor learning process is the cooperative learning model. Slavin (2014) states that cooperative learning is effective in improving learning outcomes because it encourages positive interaction, individual accountability, and students' social skills. In physical education learning, cooperative learning models can increase student participation, teamwork, and a sense of responsibility in learning activities. The Numbered Heads Together (NHT) cooperative learning model is one of the models designed to actively involve all members of a group. According to Kagan (2009), the NHT model emphasizes assigning numbers to each group member and randomly calling numbers to answer questions, ensuring that each student has equal responsibility for understanding the material. Several empirical studies have shown that the implementation of the NHT model can improve learning outcomes, student participation, motivation, and cooperation in physical education learning. Research conducted by Rahmawati (2020) and Putra (2021), for example, reported that the NHT model was effective in improving learning outcomes and student participation in large ball game materials.

However, findings from previous studies have not fully addressed the problems of basketball learning in tenth-grade senior high school classes, particularly related to the low level of student learning mastery based on preliminary classroom observations. In addition, most previous studies have focused more on improving student participation and learning motivation and were conducted at different educational levels and school contexts. This condition indicates the existence of an empirical gap between previous research findings and the actual conditions of basketball learning in the observed class. Learning outcomes refer to the level of students' achievement after participating in the learning process, which includes aspects of knowledge, attitudes, and skills. Sudjana (2016) states that learning outcomes are behavioral changes obtained by students after engaging in learning activities. In physical education learning, learning outcomes are not only measured through cognitive aspects but also through motor skills and students' sportsmanship attitudes. Based on preliminary observations conducted by the researcher in class X.3 of SMA Negeri 2 Denpasar, the average learning outcome score was 68.5. Out of 42 students, 31 students (73.81%) had not achieved learning mastery and were required to take remedial activities, while only 11 students (26.19%) had achieved mastery. Meanwhile, the Minimum Mastery Criterion (KKM) set for the Physical Education subject is 75. Based on these conditions, this study was conducted to implement the Numbered Heads Together (NHT) cooperative learning model in basketball learning to improve the learning outcomes of students in class X.3 of SMA Negeri 2 Denpasar.

RESEARCH METHOD

Research Design

This study employed a Classroom Action Research (CAR) approach aimed at improving students' basketball learning outcomes through the implementation of the Numbered Heads Together (NHT) cooperative learning model. Classroom Action Research was chosen because it allows teachers and researchers to systematically plan, implement, observe, and reflect on instructional actions as an effort to improve the teaching and learning process as well as learning outcomes in the classroom.

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Research Subjects

The subjects of this study were 42 students of class X.3 at SMA Negeri 2 Denpasar. The study was conducted in the first semester of the 2025/2026 academic year in the subject of Physical Education, Sports, and Health, particularly in the basketball learning material which includes basic technical skills such as chest pass, bounce pass, overhead pass, and dribbling.

Research Procedure

The research procedure followed the standard cycle of Classroom Action Research, which consists of initial reflection, planning, action implementation, observation, and reflection. This study was conducted in two cycles. The initial reflection was carried out to identify learning problems related to the low learning outcomes of students in basketball learning. In Cycle I, the Numbered Heads Together cooperative learning model was implemented by dividing students into small groups, assigning numbers to each group member, and facilitating group discussions and practice of basketball skills. The reflection results from Cycle I were used as the basis for improvements in Cycle II, which focused on optimizing group collaboration, increasing student participation, and improving the mastery of basic basketball techniques.

Data Collection Techniques

The research data were collected using observation sheets and learning outcome tests. Observation sheets were used to record students' activities and participation during the learning process, while learning outcome tests were used to measure students' achievement in basketball learning at the end of each cycle.

Data Analysis Technique

The collected data were analyzed using descriptive quantitative analysis. The analysis was conducted by calculating the average score of students' learning outcomes and the percentage of learning mastery in each cycle to determine the improvement in students' learning outcomes after the implementation of the Numbered Heads Together (NHT) cooperative learning model. The criteria for the success of the action were determined when the class average score reached or exceeded the Minimum Mastery Criterion (KKM) of 75, and the percentage of students achieving learning mastery reached at least 75%.

Results and Discussion

The results of this study were obtained through the implementation of Classroom Action Research (CAR) conducted in two cycles in basketball learning for students of class X.3 at SMA Negeri 2 Denpasar. The findings are presented based on students' learning outcome data obtained in the initial condition (pre-action), Cycle I, and Cycle II. These data describe the development of students' competency achievement after the implementation of the Numbered Heads Together (NHT) cooperative learning model.

Initial Condition (Pre-Action)

Based on the results of initial observations and evaluations before the implementation of the action, it was found that students' basketball learning outcomes were still not optimal. The learning process previously implemented had not fully encouraged active student participation in learning activities. This condition affected the low achievement of students' learning outcomes in the basic basketball techniques, including chest pass, bounce pass, overhead pass, and dribbling.

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Table 1. Students' Learning Outcomes in the Pre-Action Stage

Research Stage	Average Score	Students Meeting the Criterion	Percentage (%)	Students Not Meeting the Criterion
Initial Condition	68.5	11	26.19	31

Of the 42 students who participated in the learning process, the average learning outcome score obtained was 68.5. Based on the Minimum Mastery Criterion (KKM) set at 75, only 11 students (26.19%) met the criterion, while 31 students (73.81%) did not meet the criterion and were required to participate in remedial learning. These data indicate that, classically, the level of student learning achievement was still relatively low. In the initial condition, the low learning outcomes indicated that the previous learning process had not been fully effective in actively engaging students. This finding is consistent with Depdiknas (2003), which states that physical education serves as a medium for developing motor skills, physical abilities, and value appreciation. Therefore, learning activities must be designed using appropriate didactic and methodological approaches to achieve learning objectives. When learning remains conventional and teacher-centered, students tend to be passive and have limited opportunities to practice and interact optimally.

Results of Cycle I

The action implemented in Cycle I involved the application of the Numbered Heads Together (NHT) cooperative learning model. In this cycle, students were divided into small groups, and each group member was assigned a number to foster individual responsibility in group work. Learning outcomes were evaluated at the end of Cycle I to determine the impact of the implemented action.

Table 2. Students' Learning Outcomes in Cycle I

Research Stage	Average Score	Students Meeting the Criterion	Percentage (%)	Students Not Meeting the Criterion	Percentage (%)
Cycle I	74.1	26	61.9	16	38.1

The evaluation results in Cycle I showed an improvement in students' learning outcomes compared to the initial condition. The average learning outcome score increased to 74.1. The number of students meeting the criterion increased to 26 students (61.9%), while 16 students (38.1%) did not meet the criterion. The improvement in Cycle I indicates that the implementation of the NHT cooperative learning model began to have a positive impact on the learning process and outcomes. According to Slavin (2011), cooperative learning emphasizes collaboration among students in small groups to achieve common goals, where each group member shares responsibility for the group's success. In the NHT model, assigning numbers to each group member encourages students to be more prepared, active, and responsible during the learning process. This was reflected in the increasing number of students meeting the criterion in Cycle I. However, the learning outcomes in Cycle I had not yet fully met the classical success indicators. This condition indicates that students were still in the process of adapting to the applied learning model. Kagan (1994) explains that cooperative learning requires time and habituation for students to participate optimally and understand their respective roles within the group. Therefore, improvements were made in Cycle II to optimize the implementation of the NHT model.

Results of Cycle II

The action in Cycle II was carried out by improving and refining the learning strategies based on the reflection results from Cycle I. The improvements focused on strengthening the roles of each group member, increasing the intensity of practice of basic technical skills, and optimizing interaction and cooperation among students within groups.

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Table 3. Students' Learning Outcomes in Cycle II

Research Stage	Average Score	Students Meeting the Criterion	Percentage (%)	Students Not Meeting the Criterion	Percentage (%)
Cycle II	78.6	36	85.7	6	14.3

The evaluation results in Cycle II showed a more significant improvement in learning outcomes. The average score increased to 78.6. The number of students meeting the criterion increased to 36 students (85.7%), while 6 students (14.3%) did not meet the criterion. These results indicate that, classically, the level of student learning achievement had exceeded the success indicators established in this study. The findings of Cycle II indicate that the consistent implementation of the NHT model can create a more active, participatory, and collaborative learning environment. This finding is in line with Joyce, Weil, and Calhoun (2015), who state that cooperative learning models are effective in increasing student engagement and learning outcomes through social interaction and collaboration within groups.

Recapitulation of Students' Learning Outcomes

To clarify the development of students' learning outcomes at each stage of the study, the recapitulation of students' learning outcomes is presented below.

Table 4. Recapitulation of Students' Basketball Learning Outcomes

Category	Initial Condition	Cycle I	Cycle II
Students Not Meeting the Criterion	31 students	16 students	6 students
Students Meeting the Criterion	11 students	26 students	36 students
Average Score	68.5	74.1	78.6
Percentage of Students Meeting the Criterion	26.19%	61.9%	85.7%

Based on Table 4, the implementation of the Numbered Heads Together (NHT) cooperative learning model in basketball learning showed a gradual improvement in students' learning outcomes from the initial condition to Cycle II. The number of students who did not meet the criterion decreased significantly, from 31 students in the initial condition to 16 students in Cycle I, and further decreased to 6 students in Cycle II. Conversely, the number of students meeting the criterion increased from 11 students in the initial condition to 26 students in Cycle I, and further increased to 36 students in Cycle II. In addition, the average learning outcome score increased from 68.5 in the initial condition to 74.1 in Cycle I, and further improved to 78.6 in Cycle II. The percentage of students meeting the criterion also increased significantly from 26.19% in the initial condition to 61.9% in Cycle I, and reached 85.7% in Cycle II. These findings strengthen previous empirical studies. Research conducted by Rahmawati (2020) and Putra (2021) reported that the NHT cooperative learning model can improve students' learning outcomes and participation in physical education learning. The results of this study confirm those findings, particularly in basketball learning, and demonstrate that the NHT model is effective when applied to senior high school students. Overall, the implementation of the Numbered Heads Together (NHT) cooperative learning model not only improves students' learning outcomes but also enhances the quality of the physical education learning process through collaboration, individual responsibility, and active student participation.

Conclusion

Based on the results of the research and discussion, it can be concluded that the implementation of the Numbered Heads Together (NHT) cooperative learning model in Physical Education, Sports, and Health learning was able to improve the learning outcomes of students in class X.3 of SMA Negeri 2 Denpasar in the 2025/2026 academic year.

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The improvement in learning outcomes was consistently observed from the comparison of the initial data, Cycle I, and Cycle II. The number of students who obtained scores below the Minimum Mastery Criterion (KKM) of 75 decreased from 31 students in the initial condition to 16 students in Cycle I, and further decreased to 6 students in Cycle II. In addition, the average score of students' learning outcomes increased from 68.5 in the initial condition to 74.1 in Cycle I, and further increased to 78.6 in Cycle II. The percentage of students meeting the criterion also showed a significant improvement, increasing from 26.19% in the initial condition to 61.9% in Cycle I, and reaching 85.7% in Cycle II. Therefore, the results of this study indicate that the Numbered Heads Together (NHT) cooperative learning model is effective in physical education learning to improve students' learning outcomes at the class level.

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