Research Article

Optimizing Volleyball Bottom Passing Skills: Unveiling the Impact of the STAD Learning Model on Learning Outcomes

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Abstract.
The study focused on improving the lower passing skills of 8th-grade female students at SMP Negeri 6 Sumedang in volleyball. Recognizing the significance of passing in enhancing team attacks and overall match performance, the researcher employed the student teams achievement division (STAD) learning model to address existing skill deficiencies. The research identified common issues in lower passing execution, including imperfect movement stages, improper ball contact in the hands, ball deviation from the intended target, and an inability to control the ball's direction. The results indicated a positive impact, with a significant increase in the lower passing skills observed during the volleyball underpassing tests. The t-test results, with T_count = 16.4 > T_table = 1.725, demonstrated a statistically significant improvement, confirming that the STAD learning model contributed to enhanced learning outcomes. In summary, the research concluded that the application of the STAD learning model positively influenced the learning outcomes related to lower passing skills in volleyball among 8th-grade female students at SMP Negeri 6 Sumedang. The findings emphasized the efficacy of employing cooperative learning strategies, such as STAD, to address specific skill challenges in sports education.

Keywords: STAD, bottom passing, volleyball

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1. Introduction

The physical education learning process for sports and health is designed to improve physical fitness, develop motor skills, knowledge and behavior for healthy and active living, sportsmanship and emotional intelligence [1]. It needs to be realized that the success of a Physical Education teaching and learning process is determined by many factors, namely the teacher, learning model, facilities and situation in the teaching and learning process. Education experts have made many breakthroughs regarding learning models that have been tried and tested [2], but up to now it is not certain which one is the most appropriate, because the learning process really depends on the conditions and situation of the students themselves.

One effort to improve the quality of education is by improving the quality of learning, including by choosing the right learning model [3]. However, in schools there are still many problems in implementing physical education, sports and health learning. Learning can be said to achieve its goals if there is a change in behavior in students, including knowledge, attitudes and especially skills. To achieve this educational goal, teachers play a very important role. Teachers must be able to use strategies and learning models according to students' circumstances, apart from that they must also be supported by good mastery of the material [4]. In addition, the lack of appreciation given to students makes students less motivated to study better. As a result, the goals of physical education, sports and health cannot be achieved properly.

Underpassing is a way of playing a ball that comes lower than the shoulders using both wrists held together. This passing is usually used to play the ball that comes either from the opponent or from team mates, which has difficult characteristics; for example, a low, fast, hard ball, or one that comes suddenly, but can still be reached by both hands. Explains downward passing as follows. Passing is a person's attitude when receiving the ball [5]. A person's ability to pass is very necessary, because by passing well a team can attack the opponent well, which in the end can win the match. Learning is defined as a process of changing behavior as a result of interactions between individuals and their environment [6]. Behavior includes aspects of knowledge, skills and attitudes [7]. Behavior can be divided into two groups, namely those that can be observed and those that cannot. Behavior that can be observed is called behavioral performance, while that which cannot be observed is called behavioral tendency. Learning is a process of effort carried out by individuals to obtain a new change in behavior as a whole as a result of the individual's own experience in interaction with the environment. Learning is a conscious human effort to make changes in behavior and behavior in a better direction". The learning outcomes were stated by Bloom, Arifin 2014 as follows. "Learning outcomes consist of three main domains, namely the cognitive domain, the affective domain and the psychomotor domain." STAD is one of the simplest cooperative learning methods, and is the best model to start with for teachers who are new to using a cooperative approach. The STAD learning model consists of five main components that need to be considered, namely class presentation, team work, quizzes, individual progress scores and team awards".

In junior high schools (SMP), especially class VIII, there is a big ball learning program, including the game of volleyball. The game of volleyball is one of the important materials in learning physical education, sports and health in junior high schools [8]. This shows that the sport of volleyball is considered worthy as a tool to achieve educational goals.

Because the game of volleyball is a means of educating children and the values contained in the game of volleyball are expected to be carried over into everyday behavior. These values include being able to live a healthy life, discipline, cooperation, self-confidence, fear and the habit of always thinking. In the game of volleyball, it includes service, passing, smash/spike, and block. Passing is one of the important lessons that students must master. To be able to master lower passing, systematic practice is needed, so that students master the learning process optimally.

Bottom passing in volleyball is a lesson that must be mastered by all students at SMP Negeri 6 Sumedang. Many students, especially female students, have not yet mastered the lesson of passing down in the game of volleyball, so they have no motivation and are still not able to make a down pass because the child still has a feeling of fear, lack of courage and pain when his hand throws the volleyball. The level of learning effectiveness in junior high schools is influenced by the teacher's ability to manage the learning process. Teachers must plan the learning atmosphere carefully so that children have the opportunity to interact optimally. In this interaction, children will form a community that allows them to enjoy the learning process. In such an interesting atmosphere, children will collaborate in a mutually cooperative manner. Considering the important role of cooperative learning, teachers must make it an inseparable part of the entire learning process at school. The application of cooperative education in learning will foster the meaningfulness of learning where students will be more interested, feel happy and motivated to learn and develop curiosity about what they are learning.

2. Method

The research method used is the experimental method. This method is in accordance with the nature of the problem to be studied, namely the influence of the STAD (Student Teams Achievement Division) learning model on learning outcomes for volleyball underpassing in class VIII female students at SMP Negeri 6 Sumedang. The research design used was a randomize pre and post test design. The population in this study was all female students in class VIII of SMP Negeri 6 Sumedang, totaling 135 students and a sample of 15% of the 135 student population, totaling 21 female students in class VIII of SMP Negeri 6 Sumedang. The research was carried out from 16 May to 4 June 2016 with the research location at SMP 6 Sumedang. The data collection technique uses a bottom passing skill test in volleyball. The data taken from the test is the number of points obtained by the testee during one minute of passing down the wall/wall that has been marked with the target for making the pass. To process data which are raw scores

from the results of the initial test and final test, statistical processing is needed. The data processing steps in this research are data normality test, significance test (improvement test) using the t test.

3. Results and Discussion

After the data from the bottom-to-wall passing test results are obtained, they are then analyzed using statistical calculations which include testing for normality and significance so that the answer to the problem formulation can be known and the hypothesis that has been proposed can be proven. Before testing the hypothesis, it is first necessary to find the average value and standard deviation of each treatment. The average value and standard deviation of each test, namely the initial test and the final test.

TABLE 1: Summary of Mean Scores and Standard Deviations.

Test Period	Volleyball Bottom Passing
Initial Test	∑X = 164 $\overline{X}$ = 7,80 S = 3,04
Final Test	∑X = 250 $\overline{X}$ = 11,90 S = 4,24
Increase	∑X = 86 $\overline{X}$ = 4,1 S = 1,19

Based on table 1, the number of differences between the initial test and the final test is obtained. After being tested, it turned out that the 12-time learning program with the STAD (Student Teams Achievement Division) learning model treatment increased students' volleyball bottom passing learning outcomes by 19.5%. This can prove that the use of the STAD (Student Teams Achievement Division) learning model can improve volleyball bottom passing learning outcomes.

TABLE 2: Initial Test Data Normality Test Results.

Test Period	n	Lo_{count}	Lo_{table}	Result
Initial Test	21	0,1302	0,193	Normal

From the list of table 2 above we can get Lo_{count} = 0,1302 with a real level of α = 0.05 and n = 21. Meanwhile, from the list of tables we can get $L\alpha_{table}$ = 0,193 which is greater than Lo_{count} = 0,1302 so the hypothesis is accepted. Thus the initial test is normally distributed.

From the list of tables 3 above we can get Lo_{count} = 0.1069 with a real level of α = 0.05 and n = 21. Meanwhile, from the list of tables we can get Lo_{table} = 0.193 which is greater

TABLE 3: Final Test Data Normality Test Results.

Test Period	n	Lo_{count}	Lo_{table}	Result
Final Test	21	0,1069	0,193	Normal

than Lo_{count} = 0.1069 so the hypothesis is accepted . Thus the initial test is normally distributed.

The test results for increasing lower passing in volleyball games can be seen in table 4 below.

TABLE 4: Improvement Test Results.

Test Period	n	Lo_{count}	Lo_{table}	Result
The difference between the initial test and the final test	21	16,4	1,725	Significant

From the test, the increase in T_{count} is outside the hypothesis acceptance area or T_{count} = 16.4 > T_{table} = 1.725 or an increase of 19.5%. Thus, the increase in volleyball underpassing learning outcomes using the STAD (Student Teams Achievement Division) learning model for female students in class VIII at SMP Negeri 6 Sumedang is significant. Based on the data processing that has been carried out and after being analyzed over a fairly short period of time, it turns out that the results of the training program over 12 meetings have had quite a big influence, namely by showing a significant increase in the learning outcomes of volleyball underpasses using the STAD (Student Teams) learning method. Achievement Division). This is proven in table 4.4, namely T_count is outside the hypothesis acceptance area or T_count = 16.4 > T_table = 1.725 or an increase in learning outcomes of 19.5%. Thus, the initial hypothesis has been proven to be true, namely that there is an increase in learning outcomes for volleyball underpasses using the STAD (Student Teams Achievement Division) learning method.

4. Discussion

The research results show that the STAD (Student Teams Achievement Division) learning model has a significant impact on improving volleyball underpassing skills in class VIII female students at SMP Negeri 6 Sumedang. During the field research, several important findings were also revealed. Students' active participation in small teams (STAD) brings a significant contribution to increasing their level of engagement and learning motivation. Through teamwork, students not only have the opportunity to actively interact with teammates, but also experience the existence of a supportive and constructive learning environment [9]. In the context of volleyball learning, for example,

students work together to achieve learning goals, such as improving bottom passing skills.

In a STAD team, each student has a clear role and responsibilities are shared equally, creating a sense of ownership and confidence in their individual contribution to the team's success [10]. This collaboration not only allows them to understand that their personal success is closely linked to the success of the team, but also encourages them to help and support each other in achieving common goals. For example, when a student is having difficulty with a down pass technique, his teammates can provide help and constructive feedback, ultimately improving the student's overall understanding and skills. Additionally, the positive atmosphere and collaboration within the STAD team helps create an inclusive learning environment, where every student feels valued and supported [11]. This is important because learning motivation is often closely related to students' sense of self-confidence and ownership of their learning. By feeling supported by teammates and teachers, students feel more motivated to be actively involved in the learning process and to continue improving their skills. Students' active participation in STAD teams not only increases their engagement in learning, but also creates a motivating and supportive learning environment. Thus, cooperative learning approaches such as STAD have great potential to improve student learning outcomes in various contexts, including in the development of sports skills such as down passes in volleyball [12].

The interactions between students in STAD teams provide a strong foundation for the formation of deep and sustainable understanding. Through structured group discussions, students have the opportunity to exchange their knowledge and experiences [13]. In the context of learning volleyball bottom passing, students can share their techniques, strategies and experiences in dealing with different game situations. For example, a student who has experience in dealing with a particular situation can share his views with team members who may not have experienced it before. These discussions allow students to relate the concepts taught in the lesson to their practical experiences, which in turn strengthens their overall understanding.

In addition, group discussions within STAD teams also provide opportunities for students to explore concepts in more depth. With a collaborative framework, students can ask each other questions, provide explanations, and try to solve problems together [14]. This process allows a more comprehensive understanding to be formed, because students not only receive information from the teacher, but also from each other. Discussions guided by the STAD structure also ensure that every team member is actively involved in the learning process, so that no student is marginalized. Through

cooperative learning within STAD teams, students not only strengthen their own understanding, but also help improve the understanding of their peers [15]. In the context of volleyball bottom passing, students can provide constructive feedback about technique or strategy to their teammates, which can help them see certain aspects of the game in a different light. This process not only deepens students' understanding of the concepts being taught, but also builds communication and cooperation skills that are important in collaborative learning.

Interactions between students in STAD teams not only facilitate the exchange of knowledge and experience, but also strengthen their understanding through in-depth group discussions and active cooperative learning [16]. This creates a dynamic and supportive learning environment, where students can effectively develop their skills in sport and increase their understanding of the concepts taught. Through the implementation of the STAD learning model, there is an increase in students' active participation in the learning process, which has a positive impact on their learning outcomes. In a learning environment that uses this approach, students are directly involved in focused and structured learning activities. Each student has a defined role within their team, which encourages individual responsibility and teamwork.

At an individual level, students have the opportunity to undertake focused practice according to their needs. This allows them to identify areas that need improvement in their volleyball passing skills. Additionally, by having an organized team, students can feel the collective support of their teammates. Internal team discussions allow them to share knowledge and experiences, which can enrich their understanding of the concepts being taught. Apart from interaction between students, the role of the teacher is also very important in this learning process. The teacher acts as a facilitator who provides direct guidance and feedback to students [17]. Through direct observation of student practice and participation in team discussions, teachers can identify individual student needs and provide specific direction to improve their techniques and strategies. The STAD learning approach creates a supportive learning environment, where students have the opportunity to be actively involved in the learning process, receive immediate feedback, and work together to achieve learning goals. This resulted in significant improvements in student learning outcomes, particularly in terms of optimizing volleyball bottom passing skills.

The results of this research not only conclude empirically that the STAD (Student Teams Achievement Division) learning model is successful in improving volleyball bottom passing skills, but also provide in-depth insight into the underlying mechanisms on

the field. These findings provide a strong foundation for expanding the use of collaborative and team-based learning approaches such as STAD in the development of sports skills in schools. In this research, it appears that students' active participation in the STAD team consistently influences their level of involvement and motivation in learning. Through intensive interaction in small groups, students not only feel more involved in the learning process but also support each other, creating a positive and supportive learning environment [18]. Discussion and collaboration between team members not only deepens their understanding of down-passing concepts and techniques, but also increases their sense of responsibility for their own and other team members' learning outcomes. Findings in the field also show that the STAD model provides opportunities for students to share knowledge and experiences directly. In this cooperative learning environment, students have the space to express their ideas, test their understanding, and refine their techniques through direct feedback from teammates and teachers. This not only improves their technical skills in volleyball passing but also enriches the learning process with diverse perspectives.

The results of this research not only demonstrate the effectiveness of the STAD learning model in the context of specific sports skills, but also reveal how this approach builds a student-centered learning community and encourages cooperation and positive interactions between them. With a deeper understanding of the mechanisms underlying the success of this learning model, it is hoped that collaborative and team-based learning approaches such as STAD can be more integrated and widely applied in the development of sports skills in schools.

5. Conclusions

This research empirically proves that the STAD (Student Teams Achievement Division) learning model has a significant impact in improving volleyball underpassing skills among female students in class VIII of SMP Negeri 6 Sumedang. These findings provide a deep understanding of the underlying mechanisms in the field. It was found that students' active participation in STAD teams consistently increased their level of engagement and learning motivation. Through collaboration in teams, students not only deepen their understanding of concepts and techniques, but also support each other, creating a positive and supportive learning environment. Interaction between students in the STAD team provides an opportunity for them to share knowledge and experience directly, which enriches the learning process with diverse perspectives. In addition, collaborative and team-based learning approaches such as STAD provide

space for students to develop deeper understanding through structured and active group discussions. These discussions not only deepen students' understanding of the concepts taught, but also strengthen their communication and collaboration skills. Field findings show that interactions between students in STAD teams not only facilitate the exchange of knowledge and experience, but also strengthen their understanding through in-depth group discussions and active cooperative learning.

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