



## The Effectiveness of Project Based Learning (PJBL) in Improving Volleyball Upper Passing: A Case Study at SMP Negeri 3 Satu Atap

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### Abstract

This study aims to analyze or determine whether the provision of project based learning (PJBL) model can improve student learning outcomes. The research method used is Classroom Action Research. The subjects of this study were grade VII students at SMP Negeri 3 Satu Atap Aek Natas with a total of 34 students, consisting of 14 male students and 20 female students. Based on the research conducted, the results of the study in cycle I were 20 students with a converted score of (58.82%) who had achieved the level of learning completion, while 14 students (41.18%) had not achieved the level of learning completion, with an overall average score of 69.83, while in cycle II, data was obtained from 30 students with a converted score of (88.24%) who had achieved completion in learning, while 4 students (11.76%) were still incomplete, with an average learning outcome score of 78.68. Based on the results of the test, there was an increase in the number of students who had achieved learning completion and met the Classical Completion Criteria, namely 85%. Based on the results of the data analysis, it can be concluded that the application of the Project Based Learning (PJBL) Learning model given by researchers to teachers and students has a positive impact and can improve the learning outcomes of volleyball passing at SMP Negeri 3 Satu Atap Aek Natas.

**Keywords:** Project Based Learning (PJBL) Learning Model, Learning Outcomes, Upper Pass and Volleyball

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#### Artikel Info:

Submitted: 08/05/2025

Revised: 15/05/2025

Accepted: 22/05/2025

Published: 26/05/2025

**How to Cite:** Nasution, M, A, H., Riza, A, R. (2025). The Effectiveness of Project Based Learning (PJBL) in Improving Volleyball Upper Passing: A Case Study at SMP Negeri 3 Satu Atap. *Journal Coaching Education Sports*, 6(1), 48-59. <https://doi.org/10.31599/jces.v6x1.3831>

**Author's Contribution:** a) Desain Penelitian; b) Pengumpulan Data; c) Analisis Statistik; d) Penyusunan Naskah; e) Pengumpulan Dana



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## A. Introduction

The process of implementing PJOK learning is very necessary to use a learning model that can improve learning outcomes. The learning model is a framework that provides a systematic description for carrying out learning in order to help students learn in certain goals to be achieved. This means that the learning model is a general description but still focuses on specific goals.

Project-based learning is a learning model that uses projects or activities as media. According to Kemdikbud (2013), learners conduct exploration, assessment, interpretation, synthesis, and information to produce various forms of learning outcomes. Project Based Learning is a learning method that uses problems as the first step in collecting and integrating new knowledge based on their experience in real activities.

Physical education sports and health is an educational process that involves interaction between students and their environment, which is managed with physical activities systematically towards the formation of a whole human being. With physical education we can train body movements to be more flexible in doing physical activities and can improve mental and emotional quality. Education is a learning process for every student to be able to understand, understand, and make students more critical in thinking and solving problems that exist around. The scope of PJOK subject matter for junior high school / MTs according to Permendikbud number 59 of 2014 consists of big ball and small ball game activities, martial arts activities, athletic activities, physical fitness development activities, gymnastic activities (floor gymnastics), rhythmic movement activities, water activities, personal safety and health. When I made observations, teachers and students carried out learning material for big ball games, namely volleyball games, volleyball game material consists of several basic techniques such as service, passing, smash

and blocking. Here I as a researcher want to examine 1 basic technique, namely upper passing in volleyball games.

Volleyball game is one of the materials taught in class VIII PJOK subject at SMP Negeri 3 Satu Atap Aek Natas, which is part of the material is upper passing. From the results of observations made by researchers to 34 students on volleyball game material, especially the upper passing sub-material, 25 students (73%) were declared incomplete or did not meet the KKM and 9 students (27%) were declared complete or met the KKM. Therefore, it can be concluded that individual student activeness is also still low, this can be seen where the opportunities provided by the teacher in learning are not distributed thoroughly, where students who have high activeness tend to continuously get more opportunities, so that inactive students tend to have fewer opportunities. This gap causes students' participation and engagement in learning to be low. At the end of the lesson, this gap has an impact on the learning outcomes of volleyball upper passes in students at SMP Negeri 3 Satu Atap Aek Natas not meeting the standard KKM criteria.

Volleyball game is a team game consisting of two groups that will compete with each other, where each group consists of 6 people who occupy their respective plot fields which are limited by a net, each group must try to hit the ball over the net and will get 1 point if the ball manages to fall into the opponent's plot (rally point), the game is finished when one team reaches 25. In a 24-24 position, the game continues until a difference of 2 (two) points is reached. In a volleyball game we must understand the basic techniques consisting of passing, serving, smashing and blocking.

Passing over (taking the ball over the shoulder) the preparatory attitude takes a normal attitude, the body must be in a state of unstable balance one foot is in front of the other, the knees are bent, the body leans slightly forward with the hands ready in front of the chest. At the time of passing

immediately place yourself under the ball and hands raised upwards approximately at forehead level, the fingers of the hand as a whole form a circle, the fingers are stretched slightly one to another, and the two thumbs form an angle " .

From the above background, it is necessary to solve the problem. Therefore, it is necessary to solve a problem that is simple and can be done by the teacher. Seeing the above problems, one thought that arises is the need for an appropriate learning model in the learning process for basic upper passing techniques in volleyball games. From the problems mentioned above, the authors determine the title of this class action research "The Effectiveness of the Project Based Learning Model (PJBL) on Volleyball Upper Passing Learning Outcomes at SMP Negeri 3 One Roof Aek Natas".

## B. Methods

The method that is considered appropriate to the problem to be studied is using the Classroom Action Research method. In accordance with this type of research, namely classroom action assessment (PTK), this research was carried out into 2 cycles. The research was conducted in April 2025 for 2 meetings in accordance with the teaching materials available at SMP Negeri 3 Satu Atap Aek Natas. The population in this study were VIII grade students at SMP Negeri 3 One Roof Aek Natas school, totaling 34 students. Sampling in this study was carried out by total sampling. VIII grade students at SMP Negeri 3 One Roof Aek Natas school totaling 34 people were taken all to be the sample.

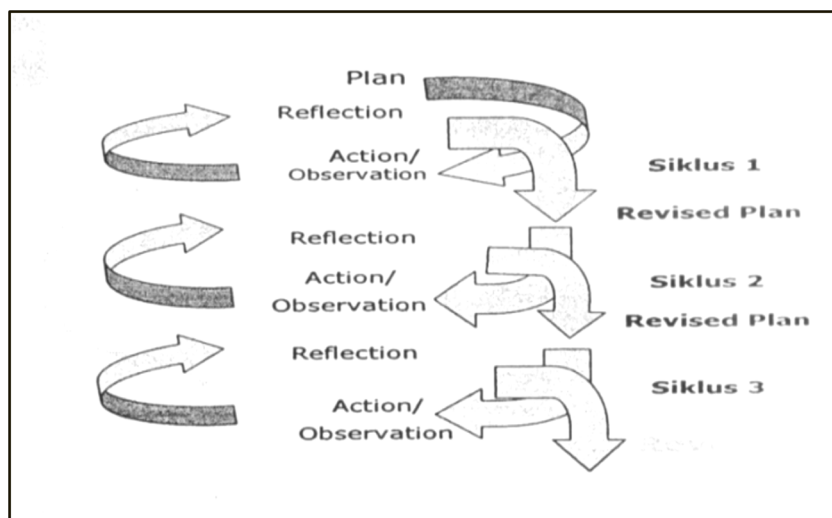


Figure 1. Cycle Scheme in Classroom Action Research  
Source Arikunto, et al (2009:16)

The research instruments used in this study are process assessment with portfolios and assessment of the results of the basic skills of volleyball top passing. The learning outcomes test aims to determine whether the learning outcomes of passing over volleyball games in students will increase after being given learning with the project-based learning model given by

researchers. Data analysis consists of data reduction and data exposure,

## C. Result and Discussion

### Result

#### 1. Statistic Descriptive

Based on the results of research on the effectiveness of the Project Based Learning (PJBL) model on the learning outcomes of volleyball upper passes at SMP Negeri 3 Satu Atap Aek Natas.

**Tabel 4.1 Deskripsi Data Hasil Belajar *Passing* Atas Bola Voli**

No	Test Type	Indicator	Score	Average Score	Avarage Total
1	Observation	Starting Stance	110	3,24	65,65
		Execution Stance	88	2,59	
		Final Stance	69	2,03	
2	Cycle I	Starting Stance	116	3,42	69,83
		Execution Stance	94	2,77	
		Final Stance	75	2,21	
3	CycleII	Starting Stance	125	3,68	78,68
		Execution Stance	110	3,23	
		Final Stance	87	3,56	

From the table above it can be seen that in the observation data the score of the overall student's initial attitude indicator is 110 with an average score of 3.24, in the implementation attitude it is 188 with an average score of 2.59, the final attitude is 69 with an average score of 2.03, with an average value on observation of 65.65. Cycle I the number of scores of the overall student starting attitude indicator was 116 with an average score of 3.42, in the attitude of implementation amounted to 94 with an average score of 2.77, the final attitude amounted to 75 with an average score of 2.21, and the overall average score of students was 69.83. Whereas in cycle II the number of initial attitude indicator scores was 125 with an average score of 3.68, for the attitude of implementation amounted to 110 with an average score of 3.23, in the final attitude amounted to 87 with an average score of 3.36, and the overall average score of students was 78.68.

## 2. Result

### a. Implementation of Cycle I

#### 1) Organization

Before planning the research, a learning scenario was made which contained the steps of activities using the Project Based Learning (PJBL) model to improve learning outcomes for volleyball upper passes at SMP Negeri 3 Satu Atap Aek Natas. Planning includes: 1) preparation of student rosters, 2) preparation of lesson plans as a solution to problems

in cycle I, 3) increasing student interest through explaining the upper passing material in detail from the initial attitude to the end, and 4) preparation of learning outcomes tests.

#### 2) Action Implementation

Furthermore, in this activity, the implementation is carried out by researchers together with PE teachers in applying the Project Based Learning (PJBL) model of volleyball top passing material. In order to improve student learning outcomes, in this activity the research is carried out by observation/observation of teachers and students during learning, so that by observing students the researcher is able to carry out learning properly and still. At the end of the cycle a test was conducted to see the learning outcomes obtained by students at the end of cycle I.

#### 3) Observation

Observations of the learning process show that PE teachers have a very good appearance according to criteria such as neat and charismatic. However, in opening the lesson, the teacher only conducts orientation and apperception without any effort to motivate students, so it gets a fair rating. Class management is also adequate, because teachers only discipline students and arrange physical arrangements without actively involving students or dealing with problematic behavior.

Presentation of material is very good, with mastery of material and systematic delivery, but without material enrichment. Teacher interaction with students was open and objective, but less assertive and less serious. In the application of the PJBL model, the teacher received a good rating because he carried out the stages of the model and divided the groups accordingly, although he was less skilled in using it. The utilization of PJBL was well done, while the provision of feedback received a fair score because there was only limited question and answer. Learning time management was quite appropriate in starting and presenting the material, but less appropriate during evaluation and closing, which ended with a good assessment at the closing of the material even without giving assignments.

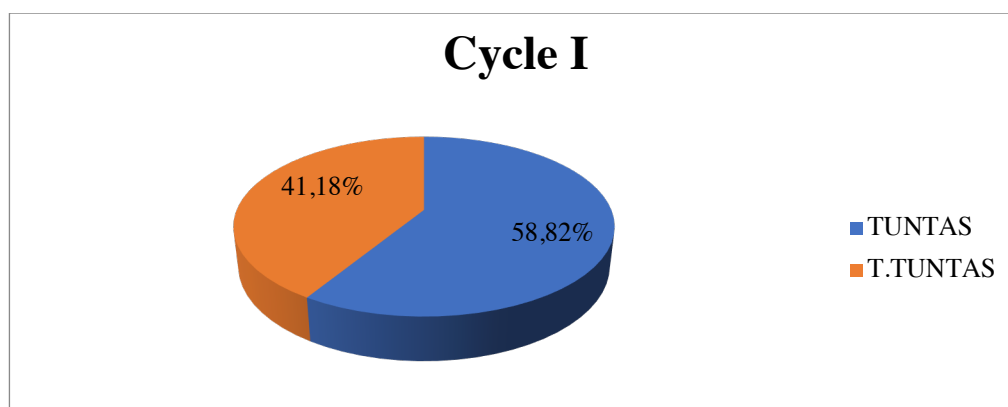
Meanwhile, students' understanding of the material received a fair rating because they only showed curiosity and did not need repeated explanations. Student activeness was also adequate, as seen from the response and enthusiasm for group learning, but lacking in feedback, motivation, and cooperation. Students' ability to ask questions is also limited, they often ask their friends rather than the teacher. However, students overall received good ratings in listening, paying attention, and focusing on the learning process.

Portfolio sheet observations

showed that students' initial attitudes scored well with the majority of scores of 3 and 4. Implementation attitudes were moderate with most scores of 2 and 3. Students' final attitudes were also moderately rated, with a distribution of scores of 1 to 3 and no students scoring the highest.

#### 4) Reflection

The results of the first cycle analysis showed that student learning outcomes in the first test were still relatively low. Although the Project Based Learning (PJBL) model with assignments was applied in cycle I, learning outcomes did not meet expectations so it was necessary to continue with cycle II with the same assignments but the level of difficulty was adjusted based on the obstacles that arose. The obstacles found include the lack of teacher motivation and involvement, assertiveness in learning, and the teacher's skills in using PJBL which are still lacking. Students were also less active and still shy to ask questions because it was their first time experiencing this learning model. From the portfolio aspect, many students have not mastered the upper passing technique, especially in the final attitude. In the first cycle post-test, 58.82% of students had achieved learning completeness with an average score of 69.83, but had not yet reached classical completeness so that cycle II needed to be implemented to improve learning outcomes.



**Figure 2. Comparison of Learning Completeness in Cycle I**

## **b. Implementation of Cycle II**

### **1) Organization**

Before research planning, a learning scenario was made which contained steps to improve learning outcomes for volleyball top passing through the Project Based Learning (PJBL) model. Planning includes compiling a list of students, making lesson plans to overcome cycle I obstacles, explaining the upper passing material in detail from the initial attitude to the end, preparing learning outcomes tests, and repeating PJBL so that students better understand the material. The action taken is the application of PPA in learning volleyball top passing to improve the learning completeness of VIII grade students at SMP Negeri 3 Satu Atap Aek Natas. Cycle II starts from planning, implementation, observation, to reflection with a focus on overcoming student difficulties, especially in the implementation and final attitudes, especially for students with low scores.

### **2) Action Implementation**

Furthermore, in this activity, the implementation is carried out by researchers together with PE teachers in applying the Project Based Learning (PJBL) model on volleyball top passing material. In order to improve student learning outcomes, in this activity research is carried out by observation / observation of teachers and students during learning,

so that by observing students the researcher is able to carry out learning properly and still. At the end of the cycle, a test was conducted to see the learning outcomes obtained by students at the end of cycle II.

The provision of action II is carried out based on the results of the reflection from cycle I in cycle II, students are directed to better understand the series of Project Based Learning (PJBL) models on volleyball top passing so that student learning outcomes increase.

### **3) Observation**

The observation results showed an increase in students' abilities after the application of the Project Based Learning (PJBL) model with tasks that were adjusted to the level of difficulty based on the first cycle experience. Observations of the teacher showed excellent performance, the opening of learning and class management were considered good, with a systematic presentation of material and clear mastery of the material. The teacher's interaction with students was open, firm, and objective, and the utilization of PJBL was carried out very well, including the division of groups and the implementation of the learning process. The teacher also provides feedback and good time management, although the evaluation is less precise, and closes the lesson briefly without giving assignments.

Students showed quick understanding of the material, good activeness and enthusiasm in group learning, improved ability to ask and answer questions, and full focus during learning with excellent attitudes. Portfolio assessment showed that the start and execution attitudes were mostly good to very good, while the final attitudes were still varied with most students scoring fair to good.

**4) Reflection**

From the results of the data analysis of cycle II, it can be

Table 2. Description of Cycle II Volleyball Upper Passing Results

No	Hasil Tes	Jumlah Siswa	Persentase	Keterangan
1	Siklus II	4	11,76 %	Tidak Tuntas
		30	88,24 %	Tuntas

Description of Cycle II Results Volleyball Upper Passing Based on the table description of the results of post-test II above, it can be seen that the learning outcomes of students in learning volleyball upper passing are quite good. Of the 34 students who were the subjects in the study, it turned out that there were 30 students (88.24%) who had learning completeness, only 4 students (11.76%) still did not have learning

concluded that student learning outcomes from learning outcomes test I to student learning outcomes II have increased. Learning using the Project Based Learning (PJBL) model in such a way has been given a task in cycle II, it is in accordance with what is expected and student learning outcomes have also increased so there is no need to do the next stage of learning. At the end of the cycle, a post-test was conducted to see the learning outcomes obtained by students as in the description table below.

completeness. The class average score obtained in cycle II reached 78.68. The information of 4 students who did not complete was because the treatment of the attitude of implementation and the final attitude was not achieved or not fulfilled, therefore the teacher concluded that the 4 students were not complete. To make it easier to see student learning outcomes from the cycle visually as follows:

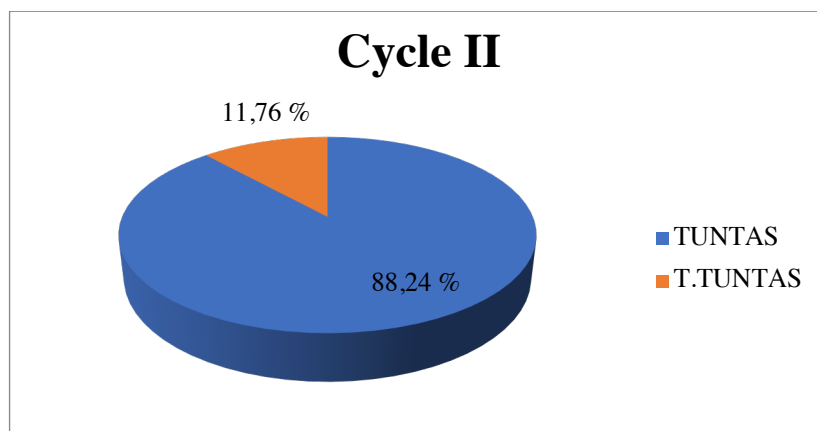


Figure 3. Comparison of Learning Completeness in Cycle II

Comparison of Learning Completeness in Cycle I The following can be seen the

average value of student learning outcomes from the initial action, cycle I, cycle II is as follows:

Tabel 4.7 Average Value of Cycle I and Cycle II

No	Test Results	Average Score	Description
1	Cycle I	69,83	Not Completed
2	Cycle II	78,9	Completed

In cycle II, the teaching and learning process went better when compared to cycle I, from the learning data of cycle II obtained, it can be seen that students' ability to do the learning outcomes test classically increased. Out of 34 students there were 30

students (88.24%) who had reached learning completeness, while 4 students (11.76%) had not reached learning completeness. In this cycle the teaching and learning process went well when compared to the first cycle. If in cycle I the overall learner activity was only 20 students (58.82%) who were complete while in cycle II it increased to 30 students (88.24%).

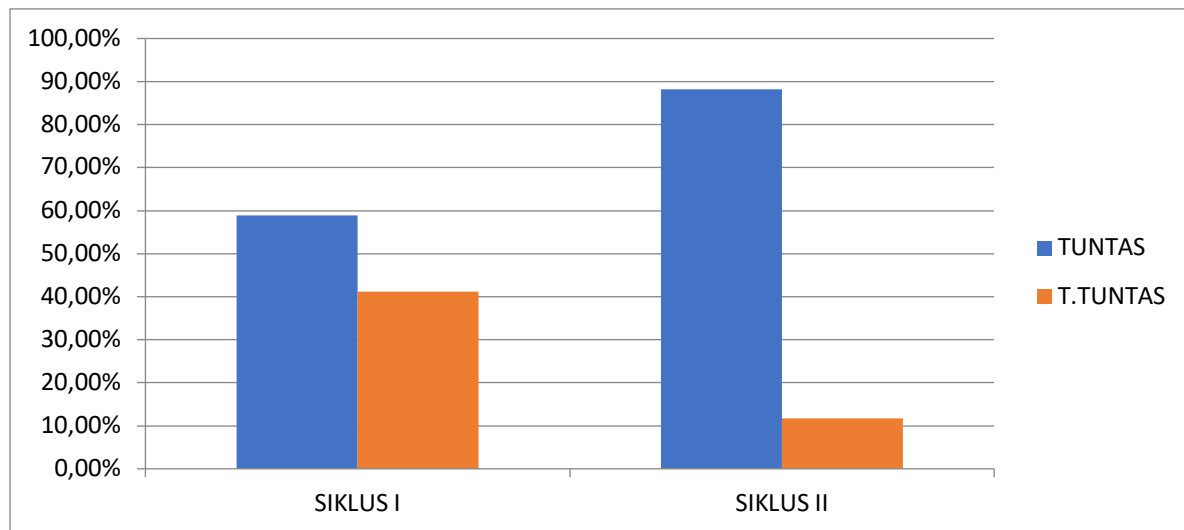


Figure 4. Comparison of Student Learning Outcomes of Each Cycle

It can be concluded that learning volleyball top passing through the Project Based Learning (PJBL) model which is contained in the results and learning process I and II has increased learning outcomes and increased learning completeness both individually and classically and reached the predetermined completeness of at least 85% of students who have reached the assessment percentage. For more details can be seen in the picture below.

### Discussion

Based on the results of the first cycle, the learning outcomes of students in the upper pass volleyball technique through the Project Based Learning (PJBL) model showed that 20 students (58.82%) had completed the learning, while 14 students (41.18%) had not yet achieved mastery in the passing technique.

The teacher's observation sheet in cycle I revealed several aspects rated as "Sufficient," including indicator 2 (lesson opening) in descriptors 3 and 4 (efforts by



the teacher to motivate students and provide guidance), indicator 3 (class management) in descriptors 2 and 3 (teacher's efforts to involve students and handle problematic behavior), indicator 5 (interaction process) in descriptors 2 and 4 (teacher's firmness and seriousness), indicator 8 in descriptors 1 and 4 (teacher listens to student objections and collaborates in solving misunderstood problems), and indicator 9 in descriptors 3 and 4 (timeliness of evaluation and lesson closure). Based on the observations, the overall teacher assessment in cycle I was "Sufficient."

From the student observation sheet in cycle I, several aspects also received a "Sufficient" rating, including understanding of the material in descriptors 1 and 4 (quickly grasping the material and curiosity for upcoming material), and activeness during learning in descriptors 2 and 4 (student feedback to the teacher and motivation and cooperation during the lesson). Based on the observations, the overall student assessment in cycle I was "Sufficient."

Of the 14 students who did not achieve mastery according to the portfolio in cycle I, most errors occurred in the execution attitude. Specifically, descriptor 1 (correct ball position above, both hands slightly bent at elbows and wrists) involved 3 students; descriptor 2 (hands slightly above forehead, ball contact on fingertips, especially thumb, index, and middle finger pushing the ball) involved 6 students; and in the final attitude, descriptor 1 (ball directed accurately) involved 3 students, and descriptor 2 (hands straight above with fingers spread) involved 2 students. Overall, 14 students did not meet the Minimum Competency Criteria (KKM).

The data indicate that many students had not yet mastered the material, and the classical completeness percentage in cycle I was only 58.82%. According to Suryosubroto (2007:129), learning is considered complete if at least 85% of students meet the KKM (70).

Recognizing this, improvements were made for cycle II. The solution focused on emphasizing the upper pass volleyball technique, especially in execution and final attitudes, and increasing teacher efforts to motivate students to be more active in practicing the upper pass using the PJBL model.

Based on the results of cycle II, 30 students (88.24%) completed the learning while 4 students (11.76%) did not. Teacher observations showed improvement from a "Sufficient" rating in cycle I to a "Good" rating in cycle II. Similarly, student observations improved from "Insufficient" in cycle I to "Good" in cycle II. Portfolio assessments revealed only 4 students who did not complete the learning, with errors mainly in descriptor 1 and 4 of the final attitude (accurate ball direction and feet and body standing upright). Overall, only 4 students did not meet the KKM, so the learning was deemed successful and did not require further cycles.

The data confirm an increase in upper pass volleyball learning outcomes through the PJBL model, meeting the KKM with a classical completeness percentage of 88.24%. According to Suryosubroto (2007:129), learning is considered successful if at least 85% of students achieve the KKM.

Thus, it can be concluded that the PJBL model applied by the teacher and researcher ended at cycle II. The learning outcomes of the upper pass volleyball technique improved significantly from 58.82% to 88.24%, showing that the PJBL model is more effective in achieving mastery learning.

#### **D. Conclusion**

Based on the above research findings, it can be concluded that the implementation of the Project Based Learning (PJBL) model applied by the researcher to teachers and students has a positive impact and can improve the learning outcomes of the upper pass volleyball technique at SMP Negeri 3 Satu Atap Aek Natas. Therefore, the

researcher suggests that: 1) the PJBL model is an effective teaching method to enhance students' learning outcomes, especially in volleyball passing techniques; 2) teachers and prospective teachers, particularly physical education instructors, should utilize appropriate teaching models tailored to student characteristics to continuously improve learning outcomes; 3) the principal of SMP Negeri 3 Satu Atap Aek Natas is encouraged to provide adequate facilities and infrastructure to support physical education activities; 4) students who have not yet achieved mastery in the volleyball passing material should persistently study and practice the variations provided by the teacher to improve their skills and achieve passing grades; 5) these findings serve as valuable input for future researchers conducting related studies; and 6) this research can be used as a reference for students and other researchers.

#### E. Acknowledgments

The researcher would like to express sincere gratitude to all those who have supported and assisted throughout this study. Special thanks to the principal, teachers, and students of SMP Negeri 3 Satu Atap Aek Natas for their cooperation and participation. Appreciation is also extended to the academic advisors and all parties who provided valuable guidance, encouragement, and resources, enabling the successful completion of this research. May this work contribute positively to the development of effective learning models in physical education.

#### F. Conflict of Interest

No conflict of interest

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