



Integration of PjBL Models with Inclusive Teaching Styles To Improve Underhand Service Volleyball Skills

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Abstract

Studi purpose. This study aimed to prove that the integration of the PjBL models with the inclusive teaching style could improve underhand service volleyball skills.

Materials and methods. The research used classroom action research methods. The research design was the model from Kemmis and Mc. Taggart which consists of 4 stages, namely 1.) Planning, 2.) Implementation of action, 3.) Observation and 4.) Reflection. The research subjects were students of class X A SMA Negeri 1 Salam Babaris with a total of 27 people consisting of 13 boys and 14 girls.

Results. Collecting data using quantitative and qualitative techniques. The results of the observation data stated that there was an increase through two cycles. Preliminary observation data shows that 37.04% complete and 68.96% incomplete, then cycle I observation data shows that 59.26% complete and 40.74% incomplete, followed by cycle II observation data shows that 85.18% complete and 14.82% incomplete and had achieved the minimum completeness criteria, namely 80% with KKM 75.

Conclusions. It can be proven that the integration of the PjBL models with the inclusive teaching style can improve undehand service volleyball skills.

Keywords: Integration; PjBL Models; Inclusive Teaching Style; Underhand service Volleyball Skills

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Introduction

Material on physical education in schools, especially at the high school level, includes several types of sports. One of them is the volleyball game in which several basic techniques can be mastered by students. Mukholid stated that the game of volleyball is a game that uses a ball bouncing in the air and over the net, the aim is to be able to drop the ball in the opponent's field area to seek victory. The basic technique of playing volleyball consists of serving, passing, smashing, and blocking (Gazali, 2016). One of the techniques is said to be serving. The type of service Yunus says consists of the under serve and the over serve in volleyball (La Kamadi, 2020). The purpose of the self-serve is to start a volleyball game that is carried out by one player

in the service area position. The ball is bounced and then hit with one hand or one of the arms (La Kamadi, 2020). Utomo (2020) said that in volleyball games, serves can be used to produce points or scores (Hiskya et al., 2023). Good mastery of the underserved will help the process of attacking in volleyball (Hidayat & Iskandar, 2019). This requires a good learning model, patience, perseverance, courage, and high concentration in a relatively long period. Therefore the role of the researcher is required to apply an effective and efficient learning model so that it can support the learning process of underhand service volleyball skills.

In the process, students often face obstacles in mastering these skills. Mastery of a skill that will be conveyed to students depends on the preparation factors and the selection of strategies that will be carried out by educators. One of these strategies is the selection of the right learning model. Proposed by Joyce et al that the learning model is a learning model With this model educators can help students to obtain or obtain information, ideas, skills, ways of thinking, and expressing ideas themselves (Tayeb, 2017). In the observations of researchers in the field, there are still many physical education educators who use old-style learning models or teaching styles. The teaching style that is still popular, especially in physical education subjects, is the Command Style. Where educators are the main source of information obtained by students. It is felt that this will hinder the development of their creativity and mindset because they are never allowed to do so. Mostton and Ashwoth said that the implementation of command-style learning is only centered on educators, so students will be passive and are not allowed to have initiative (Fauzi et al., 2021). The learning model that is often used is only teacher-centered. Whereas professionally, an educator is required to be able to understand and have adequate skills in developing various effective, creative, and fun learning models. A deep and thorough understanding of the concept alone is not enough to be able to teach physical education effectively. Educators must also understand the learning model. As defined by Bruce and Marsa "learning model is an organizational environment that can lead students to interact and learn how to learn. Because each student is unique and has a variety of ways of learning according to his development and historical learning background, the learning models that develop are very diverse" (Gustiawati et al., 2014).

Mashud explained, "21st-century learning is more dominantly centered on students and educators only act as facilitators and condition so that students are active in thinking, analyzing and producing conclusions from the material being studied" (Mashud et al., 2022). Another opinion was expressed by Masdul (2018): the impact of interaction in learning will produce students who learn actively and can change their behavior through their experiences (Hardinata et al., 2023). Project Based Learning (PjBL) is an active learning method implemented using a two-way learning system. In addition, PjBL learning also places students as learning resources (compared to teacher learning centers) (Marheni et al., 2020). This learning model provides space for students to try to open their minds more in solving the problems they face during the learning process. Carrio Pastor with Skorezynska (2015) said project work makes students intentionally involved in language learning so they can learn it in an authentic context. In the collaboration process carried out, students will improve their communication skills, which in turn can open up opportunities for them to exchange information, negotiate ideas, and improve their decision-making abilities (Sari & Prasetyo, 2021). So that this learning model is felt to be appropriate, especially in accordance with the independent curriculum that is being used by the Indonesian research system. In addition, Martiani stated that project-based learning can improve the ability to think creatively by involving students in real or simulated experiences and becoming autonomous and independent learners (Martiani, 2021). Utami et al. in their research concluded that the project-based learning model has a significant influence on student creativity in learning physical education (Utami et al., 2022). In other research, it was also found that the implementation of project-based learning can improve learning outcomes in big ball game material (Made et al., 2022).

Based on the above, researchers still feel the need for additional stages in the PjBL learning model so that it is more in line with the expected model. These stages are contained in the Inclusive teaching style. Aris Pajar said that the inclusion style aims to make it easier for students to learn movement and creative skills, students are given the freedom to choose and decide to start a movement at their level of difficulty (Rohman & Wibowo, 2019). Moston said that the inclusion method is a learning method that provides opportunities for students to choose the type of activity that suits their abilities, based on the level of difficulty of the learning material provided (Sara & Mashud, 2016). The inclusion method also means involving all students without exception in the learning process. In principle, the style of inclusion or coverage is to provide the same form of assignments with different levels of difficulty (Zen & Ardiansyah, 2016). Bobby and Winata stated in their research that there was an increase in basketball learning outcomes through the application of an inclusive teaching style (Bobby & Winata, 2017). In another research, Ferawati et al stated that the inclusion style can improve the ability to underhand service volleyball (Ferawati et al., 2022). The specificity of the inclusive teaching style can be used as a researcher's choice in using learning strategies and can also be developed as a complement to the PjBL learning model. So it is necessary to combine or integrate the two models so as to create a new learning model with a better level of complexity of stages or learning syntax.

The results of observations from researchers together with colleagues which were carried out in May 2023, obtained data that the underserved skills of class X A students of SMA Negeri 1 Salam Babaris had not yet reached the completeness criteria. Only 37.04% of the total 27 students met the completeness criteria with a KKM limit of 75 (based on data from initial/pre-cycle observations). This data illustrates that most students still have not mastered volleyball service skills according to the correct rules or stages. The use of the integration of the PjBL learning model with the inclusive teaching style was expected to improve the ability of students, especially for the ability to underhand service volleyball so that the targeted completeness criteria could be achieved. Besides that, the researcher also believes that the integration of these two learning models has never been used by educators during learning at school so it can be used as the latest solution in improving the quality of learning, especially in physical education subjects. Suganda and Suharjana state that the form of variation in teaching methods applied by educators will improve the physical education learning process (Samsudin & Eva, 2021).

The purpose of this research was to develop students' abilities in problem-solving through innovative integration of learning models in which the stages and patterns have been arranged and structured. Problems or obstacles found during learning will be easily detected regarding the causes and solutions to be used as well as follow-up as part of the solution itself.

Materials and methods

Study participants

The subjects in the research were 27 students in class X A SMA Negeri 1 Salam Babaris, consisting of 13 male students and 14 female students.

Study organization.

This study used a class action research method by using the model from Kemmis and Mc. Taggart (1992) which consisted of 4 stages, namely 1.) Planning, 2.) Implementation of action, 3.) Observation and 4.) Reflection (Mashud, 2023).

The research was conducted from May to June 2023. The research was conducted at Salam Babaris 1 Public High School, Tapin Regency, South Kalimantan. The research instrument used an instrument to assess the volleyball's underhand serve ability. The assessment instrument was the development of researchers based on material from bottom serve ability in

the form of blanks/observation sheets. Agus Dudung said that assessment instruments could be in the form of written or oral tests, observation sheets, interview guidelines, homework assignments, and so on (Dudung, 2018). The scoring indicators were based on the concept of underhand service volleyball skills collected during practice and poured through data.

The assessment in this study was in the form of the underhand service volleyball skills which was carried out by students. The skills assessment was carried out after giving motion assignments according to the level of difficulty to complete the given project and according to the agreed schedule in the learning process using the integration of the PjBL learning model with the inclusive teaching style which was carried out in each cycle. The syntax or stages for integrating the learning model could be explained in the following table:

Table 1. Syntax (Learning Model Stages)

Project-Based Learning Models (Coyne et al., 2016)	Inclusive Teaching Style (Ferawati et al., 2022)	Innovation Models
		Assessment diagnostic
Determine the basic questions	Assessment diagnostic	
Designing product plans	Determine learning objectives	Defining objectives and designing product plans
Arrange product production schedule	Designing a variety of difficulties of learning materials	Designing a variety of difficulties of learning materials
Monitoring the activity and progress of the project	Demonstration and practice of learning	Arrange product production schedule
Test the results	Feedback on the learning process	Practice and monitor the progress of the project
	Feedback on learning outcomes	Feedback on the learning process
Evaluate the learning experience		Evaluate the learning experience

In this research, the students carried out the application in the form of the following stages :

1. Assessment diagnostic

At this stage, the researcher provided initial observations of students' abilities. The test instrument used relates to the material for the underhand service volleyball. The results of this initial observation were used as a determinant of which level students carried out first.

2. Defining objectives and designing product plans

Researchers determine the objectives of learning and design products that would be produced. The product should have been by the material to be conveyed.

3. Designing a variety of difficulties in in-learning materials

In this step, the researcher prepares motion cards that will be used by students as a reference for the instructions to be carried out. The motion cards contain several levels of

movement (in this study there were 3 levels) which will later be selected according to the results of the students' initial test abilities. The level of movement was advanced, meaning that if the previous level had been met, the student would continue to a higher level.

4. Arrange product production schedule

The preparation of the schedule was carried out jointly by the researcher and the students so that an agreement was produced on the time from start to end of the project being undertaken.

5. Practice and monitor the progress of the project

Students carried out motion tasks according to the instructions and their respective levels and proceeded to the next level based on the schedule that had been made. Researchers as facilitators helped students monitor project progress and recorded obstacles that students had not been able to find a solution for.

6. Feedback on the learning process

The researcher provided feedback on the progress of the project that has been implemented

7. Evaluate the learning experience

In the final stage, students and researchers carried out an evaluation of the results of the products that had been produced and arranged follow-ups on further activities (the cycle was continued or it was felt that it was sufficient based on the Minimum Completeness Criteria (KKM) standard of 75 and the achievement limit of 80% of students who met KKM.

Statistical analysis.

This research was conducted in 2 (two) cycles with 2 (two) meetings each with a meeting duration of 3 x 45 minutes. At the first meeting and at the beginning of the second meeting, students were directed to carry out learning while at the end of the second meeting, an evaluation was carried out. The procedure for this research was carried out as stated by Suyadi (2012) in stages, namely: 1.) The initial observation/pre-cycle phase as the initial research data, 2.) Conducting planning for learning activities, 3.) Carrying out actions by working between cycles until learning mastery was achieved, 4.) Observation of the results of implementing actions in learning (cycles). The results of the observations were given follow-up with evaluation as well as notes for improvement in the next cycle, 5.) Preparation of reflection as follow-up material in the next cycle (Mashud & Ihwanto, 2022). Analysis of the assessment data as stated by Purwanto (2011), namely in the pre-cycle and class action research cycle stages, uses quantitative and qualitative techniques (Mashud & Ihwanto, 2022). Quantitative data uses a percentage formula and qualitative data uses simple qualitative techniques by Creswell (2010) which includes the following stages: 1.) Data collection, 2.) Summarizing descriptions, 3.) Providing categories and conclusions (Mashud & Ihwanto, 2022). Data analysis using descriptive percentages and calculation are assisted by the Microsoft Excel 2019 software.

Results

Exposure to Observation Data Before Action Research

Based on the results of initial observations of underhand service volleyball learning in class X A students, the observation data was obtained as contained in the following table:

Table 2. Preliminary observation data of underhand service underserved skills

No	Total Students	Percentage	Category
1	10	37.04	Achieved
2	17	68.96	Not Achieved

The initial observation data for underhand volleyball service skills can also be seen in the following graph:

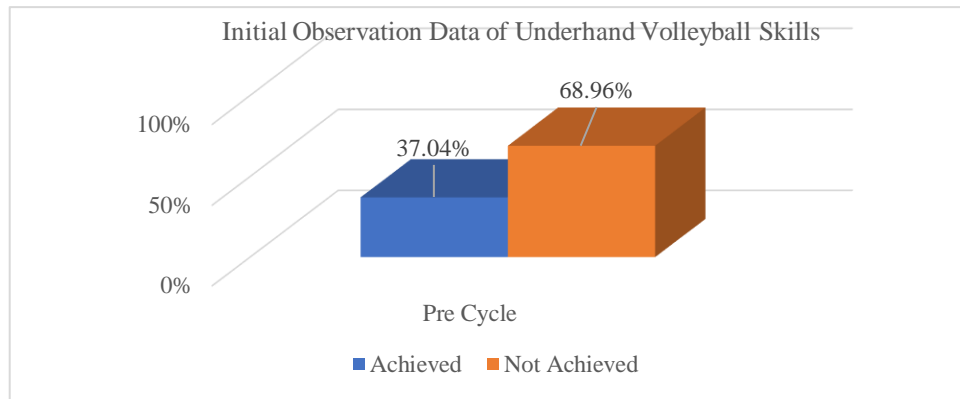


Figure 1. Graph of initial observation results of underhand service volleyball skills

Description of Cycle I Data

In the first cycle of the research, two learning meetings were carried out, at the first meeting the researcher began to provide and inform learning using the integration of the PjBL learning model with an inclusive teaching style by presenting levels or levels of difficulty to fulfill a predetermined project. The learning process began with warming up for 15 minutes (static and dynamic warming up). Furthermore, at the core of learning, researchers applied the integration of the PjBL learning model with an inclusive teaching style based on levels of difficulty. In this process, the researcher provided 3 different levels of difficulty. Level I (low difficulty), Students hit the ball at a distance of 3 meters from the net. Level II (medium difficulty), Students hit the ball with a distance of 6 meters from the net. Level III (high difficulty), Students hit the ball 9 meters from the net. Each level uses a net height of 2 meters. The lesson was closed by doing a cool-down movement, followed by evaluating the motion assignments that had been carried out by the students, asking questions and making conclusions and the researcher delivered follow-ups for the next meeting (second meeting). Then in the first cycle of the second meeting, the researcher made another observation by evaluating the underhand service volleyball skills. The results of the first cycle of observations can be seen in the following table:

Table 3. Observation data for the first cycle of underhand service volleyball skills

No	Total Students	Percentage	Category
1	16	59.26	Achieved
2	11	40.74	Not Achieved

Observation data for the first cycle of underhand service volleyball skills can also be seen in the following graph:

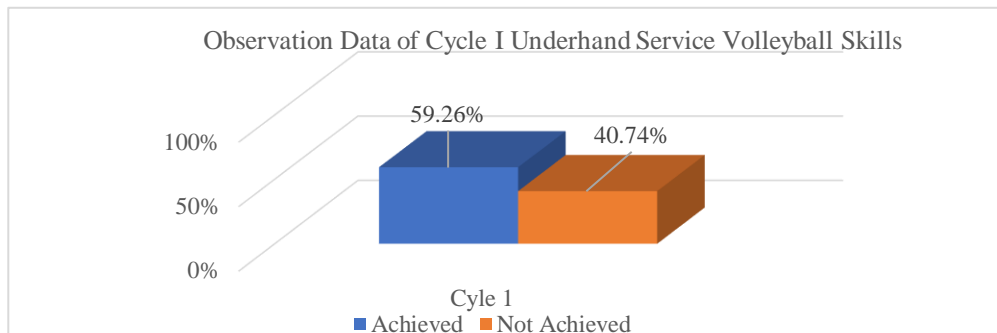


Figure 2. Graph of observation of cycle I underhand service volleyball skills

Based on the observation data of the first cycle by assessing underhand service volleyball skills, results were obtained that did not meet the minimum completeness criteria (KKM) of 75 and the 80% completeness standard set by the researchers. From the results of observations in cycle I, it can be seen that the results of qualitative data were obtained at the first meeting and the second meeting. The results of observations of students in cycle I are: 1.) There were still some students who did not understand the level of difficulty, 2.) Students paid less attention when providing information and instructions, 3.) Students carried out motion tasks still haphazardly. The results of observations of educators in cycle I are: 1.) Educators were still unclear in providing information and directions about the difficulty level, 2.) Educators were still adapting to the learning stages. From the data above, the researcher made notes and evaluated the next learning plan. Further improvement in learning focused on delivering clearer and more detailed information and instructions on movement tasks, making movement tasks more structured and also simpler, Educators were more focused on learning and giving students to explore their abilities through the delivery of opinions or solutions found during learning. Thus, based on the evaluation and conclusions above, classroom action research was continued in cycle II, and a reflection was prepared by applying the learning improvements as mentioned above and continuing to make devices for use in cycle II.

Description of Cycle II Data

In cycle II the researcher returned to implementing the learning in two meetings. Learning was carried out based on improvements to the findings in the first cycle both in the observations of educators and students. At the first meeting, the researchers made a difference with the meetings in cycle I, especially on the planning and core activities. In planning cycle I, the researcher still made motion assignments that were less structured and rather complicated for students to understand. In this second cycle, the researcher tried to provide more structured and simpler motion assignments so that they were easier for students to carry out. Furthermore, in the core activities, researchers made improvements by changing the height of the net according to their respective levels. In the first cycle, the researcher set a net height of 2 meters. In cycle II, the motion assignments given by the researchers were: Level I (low difficulty), students hit the ball 3 meters from the net with a height of 1.5 meters. Level II (medium difficulty), students hit the ball 6 meters from the net with a height of 1.75 meters. Level III (high difficulty), students hit the ball 9 meters from the net with a height of 2 meters. Furthermore, observations were made at the second meeting. The results of cycle II observations can be seen in the following table:

Table 4. Observation data for the second cycle of underhand service volleyball skills

No	Total students	Percentage	Category
1	23	85.18	Achieved
2	4	14.82	Not Achieved

Observation data for the second cycle of underhand service volleyball skills can also be seen in the following graph:

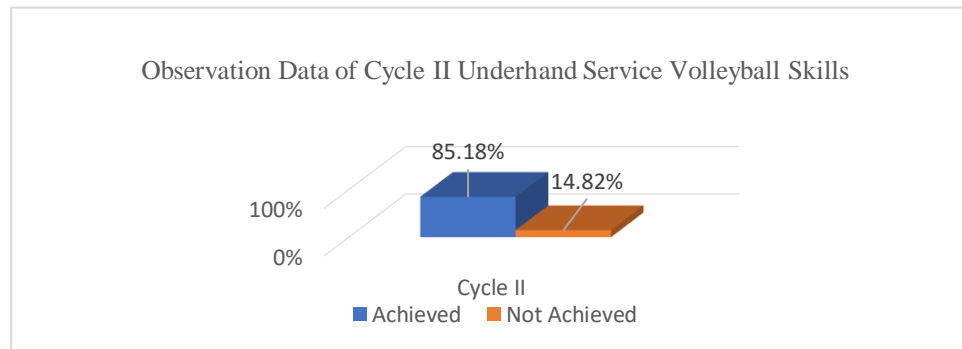


Figure 3. Graph of observation of cycle II underhand service volleyball skills

Based on the results of cycle II observations, volleyball underhand service skills experienced a significant increase beyond the predetermined standard of completeness, which was 80%. The results of learning observations in cycle II obtained qualitative data obtained at the first and second meetings. The results of observations of students in cycle II were: 1.) The students understood the level of difficulty, 2.) The students focused more on learning, 3.) The students carried out motion tasks seriously. The results of observations of educators in cycle II are: 1.) Educators conveyed information and instructions very clearly, 2.) Educators were able to understand and apply the stages of learning well.

Comparison between the observation data between Cycle I and Cycle II can be seen in the following table:

Table 5. Comparison of observation data for cycle i and cycle ii

No	Observation	Total Student	Percentage	Category	Improvement
1	Cycle I	16	59.26	Achieved	25.92
		11	40.74	Not Achieved	
2	Cycle II	23	85.18	Achieved	
		4	14.82	Not Achieved	

Comparison of the observation data of cycle I and cycle II can be seen in the following graph:

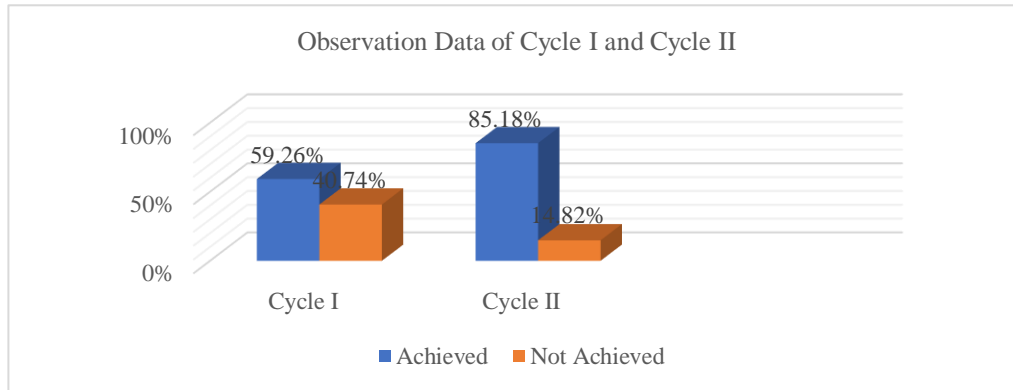


Figure 4. Graph of comparison of observation data cycle I and cycle II

Meanwhile, the overall observation data (Pre-Cycle, Cycle I and Cycle II) can be seen in the following data table:

Table 6. Observation data of pre-cycle, cycle I and cycle II

No	Observation	Total Students	Percentage	Category
1	Pre- Cycle	10	37.04	Achieved
		17	68.96	Not Achieved
2	Cycle I	16	59.26	Achieved
		11	40.74	Not Achieved
3	Cycle II	23	85.18	Achieved
		4	14.82	Not Achieved

The overall observation data can be seen in the following graph:

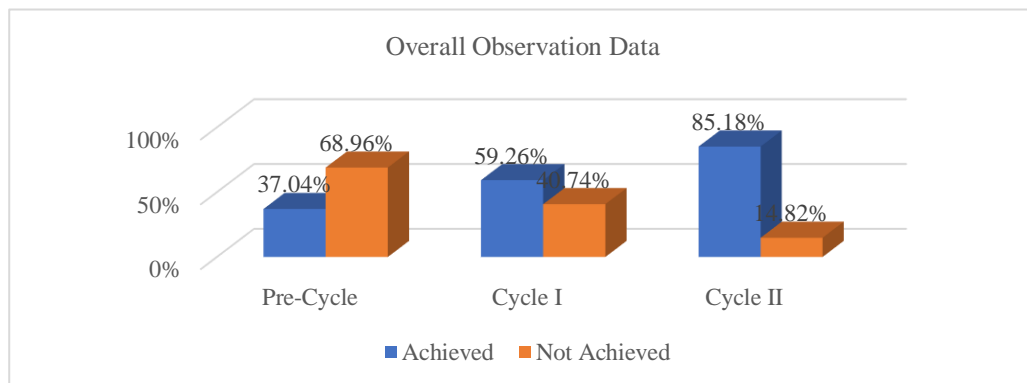


Figure 5. Graph of overall observation data

Based on the comparison of observational data between cycles and qualitative observation of data, the researcher determined that in the second cycle of class action research, the specified criteria of completeness had been achieved. It can be seen in the results of volleyball's underhand serve ability in cycle II and the researchers concluded that learning using the integration of the PjBL learning model with inclusive teaching style was considered successful. Thus the research did not need to be continued to the next cycle.

Discussion

In terms of the research results, it was stated that the results of the integration of the PjBL learning model with the inclusive teaching style to improve volleyball underhand skills for two cycles were successful and there was an increase in students' abilities, especially in volleyball underhand serve. A comparison of the results of observations of quantitative data and qualitative data from pre-cycle activities followed by cycle I and cycle II showed an increase in skills and met the minimum criteria of completeness. Some of the problems and constraints during implementation had found solutions and solutions. Integration or merging of the two learning models was indeed something new that educators still needed to adapt and deeper understanding.

Other relevant research that is in line with this research includes research conducted by Aldi Firman Pangestu and Ega Trisna Rahayu (2023) with the title "*Efektifitas Project Based Learning Model Dalam Kurikulum Merdeka Terhadap Kedisiplinan Siswa Pada Pembelajaran Bola Voli*". The results of the research turned out to state that the effectiveness of the project-based learning learning model was successfully used in school learning. This study used a quantitative descriptive analysis technique. The results of the initial analysis stated that the level of discipline of students was 5.6% (very poor), 50% (enough), 38.9% (good) and 5.6% (very good). After the treatment was carried out, there was an increase in the good and very good categories, which was evidenced by the post-test results with the Ngain test with a score of 74.2981. Research only presents quantitative data so qualitative data on the application of project-based learning cannot be known (Pangestu & Rahayu, 2023). Another research, namely classroom action research conducted by I Gusti Made Feri Suwardika et al. (2022) with the research title "*Implementasi Model Pembelajaran Project Based Learning untuk Meningkatkan Hasil Belajar pada Materi Permainan Bola Besar (Sepak Bola-Teknik Dasar Passing)*" which the results stated that the implementation of the project-based learning learning model was successfully applied to physical education learning. Preliminary observation results showed only 27.8% of students were in the complete category. Furthermore, there was an increase after applying the project-based learning learning model with a percentage in cycle I of 52.8% of students in the achieved category and continued in cycle II with a percentage of 94.4% of students in the achieved category. The overall results showed that PjBL could help students improve cognitive, psychomotor, and affective aspects in learning physical education, especially in big ball material (Made et al., 2022). Researchers also add other research as a reference, namely research by Utami et al. (2022). This research stated that there was an increase in student creativity after being given the project-based learning model treatment with proven data through the normality test with pre-test data $0.112 > 0.05$ and post-test data $0.094 > 0.05$. The results showed that the data were normally distributed, then through the calculation of the homogeneity test which showed a sig value of $0.738 > 0.05$, indicating that the data from the pre-test and post-test results were homogeneous, and through the calculation of the T-test, the value of Sig. (two-tailed) $0.001 < 0.05$ which shows that there is a significant difference between the results before and after being given treatment (Utami et al., 2022).

In addition to the application of the inclusive teaching style, Ferawati in the classroom action research study stated that the inclusion style can improve the ability to learn the specific motions of the underhand service volleyball. Data analysis showed that the results of the first cycle of observations were 44.44% in the complete category, then in cycle II there was an increase to 81.48% in the complete category and met the minimum completeness criteria (Ferawati et al., 2022). Another classroom action research using the inclusive teaching style was by Bobby Helmi and Devi Catur Winata, where the results of the study stated that the inclusive teaching style was able to improve dribble learning outcomes in basketball games. This is evidenced by an increase in the results of observations carried out. In the first cycle of

observations, it showed 65.7% achieved completeness, and continued in the second cycle of observations showed 88.57% achieved completeness (Boby & Winata, 2017).

Based on the results of other relevant research studies, namely the use of the PjBL learning model and the application of an inclusive teaching style, especially in physical education subjects, to the results of this study, the researcher found something new, namely the combination of two learning models by implementing the integration of the PjBL learning model with the inclusive teaching style in physical education learning in schools could be described as a project as the goal of project-based learning (PjBL) (Boby & Winata, 2017), could go through stages of difficulty levels (by Moston stated that the hallmark of an inclusive teaching style is the determination of the level of difficulty (Sara & Mashud, 2016). Students were easier and more active in carrying out the motion assignment instructions given. Besides that, in the process, students will be interested in trying a higher level than the level they have passed according to the level determined by the educator, namely the easy level, medium level, and difficult level.

The easy level would be chosen by students who were only able to hit the ball at a distance of 3 meters from the net and with a height of 1.5 meters. Furthermore, for students who choose the medium level, it means that they were able to hit the ball at a distance of 6 meters from the net with a height of 1.75 meters. At the highest level, students were able to hit the ball at a distance of 9 meters from the net and with a height of 2 meters. Through these levels of difficulty, all students were expected to be able to reach the level of completeness targeted when carrying out the underhand service volleyball. The innovative model in the form of integration of the PjBL learning model with an inclusive teaching style would encourage students to be able to complete the project they were currently carrying out based on the level of difficulty to encourage the final result of their abilities. In the process, the skills of students could not be stated the same. Some students could carry out their movement tasks easily, but some students had to do repetition and in-depth understanding gradually to achieve the given motion assignments. With this innovation model, educators provide opportunities for students to further develop what was within themselves related to abilities and be used as a solution to solving the problems they face.

The integration of the PjBL learning model with the inclusive teaching style could be used by educators in the learning process they carry out. Of course with careful planning and mastery of the material. Planning would lead to more effective learning (Pill & SueSee, 2017). For this reason, researchers have implications for educators, especially in physical education subjects, to always make preparations in the form of planning, in this case the use of learning models that will be used in learning so that goals can be achieved properly. The application of the integration of the PjBL learning model with an inclusive teaching style has been proven to be able to improve underhand service volleyball skills and have a positive impact on the results of learning assessments.

Conclusions

Based on the results of the research and discussion, it can be concluded that the integration of the PjBL learning model with the inclusive teaching style could improve the ability to serve volleyball properly and was carried out in two cycles, two meetings each in each cycle. The results of the data show that in cycle I there was an increase with a percentage of 59.26% which succeeded in achieving completeness and in cycle II there was an increase again with a percentage of 85.18% who achieved completeness and according to the KKM with an achievement of 80% of the number of students.

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Conflict of interest

All of authors declare that there is no conflict of interest whatsoever in this research..

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