

Problem-Based Learning: As an Effort to Improve Volleyball Activity & Learning Outcomes



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ABSTRACT: This study aims to improve learning activity and learning outcomes through a problem-based learning (PBL) learning model approach. This research is a Classroom Action Research (CAR) which was carried out in three cycles. The research subjects were students of class VIID SMP Negeri 2 Mlati totaling 32 students. The research instruments, namely: observation guidelines, learning activity observation sheets, observation sheets for assessing the process and results of volleyball. Indicators of success, namely active learning and learning outcomes of at least 85% of the total students completed (KKM 75). The data analysis technique used in this research is descriptive qualitative and quantitative. The results showed that the PBL learning model could effectively improve learning activity and volleyball learning outcomes. This is indicated by the increasing data after going through the third cycle, including the cognitive aspect of 100% or 32 students completed, the active learning aspect of 93.75% 30 students completed and the psychomotor aspect 87.50% or 28 students completed. Based on the results of the study, it can be concluded that there is classical completeness with a problem-based learning model.

KEYWORDS: Volleyball, Learning Activity, Learning Outcomes

INTRODUCTION

PJOK is an integral part of the 2013 curriculum that must be given to students in schools. The learning model on the basis of learning should be carried out in an interactive, inspiring, fun, challenging way, motivating teaching participants to be actively involved, and providing sufficient space for productivity, and independence similar to the ability, attention, and physical and intellectual progress of teaching participants (Permendikbud, 2016). Fisetete & Wuest (2018) explains that PJOK is a learning method that uses physical activity as a tool to help people gain skills, freshness, insight, and actions that contribute to maximum progress.

According to preliminary research data carried out on 32 samples of class VIID students at SMP Negeri 2 Mlati, it was found that the student's learning activity was on average 67.5 or 46.88% (15 students) completed and as many as 53.12% (17 students) had not. The results of this initial study also show that learning is focused on the teacher, teaching participants only do what the teacher tells them to do, and have not learned the skills and insights they have. The level of activeness of class VIID students is still low, this has an impact on low learning outcomes. This fact can be seen in the results of the assessment, there are still many students who get scores below the KKM are 75. The results of the daily cognitive test scores for class VIID are above the KKM as many as 20 students (62.50%), scores below the KKM are 12 (37.5%). while those who get psychomotor daily test scores above the KKM are 19 students (59.38%), scores below the KKM are 13 (40.62%).

Efforts can be made by teachers so that targets in a learning process can be obtained by providing the use of learning activity models that are able to stimulate and generate learning activity and are able to improve student learning outcomes. Fisetete & Wuest, (2018: 337) explain that an effective teacher is a teacher who uses a variety of pedagogical approaches, skills and strategies to ensure that their students are appropriately engaged in learning activities. (Sgrò et al, 2020) mention that the selection of models and the use of teaching strategies based on games and sports features support the development of motivation involving tasks.

(Retscher, 2022). states that to overcome difficulties the teacher can simplify the exercise or reduce the speed or demand for precision. Several studies state that the PBL learning model is for improving cognitive, affective and psychomotor aspects (Schöllhorn, 2022); (Kusumatuty et al, 2018). The PBL learning model is a design about the details of how the interaction activities between teaching participants, teachers, modules, and the preparation of learning areas so that there is a way of

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learning that creates changes towards better progress (Suherman et al, 2015). This PBL learning model was chosen because it was considered suitable and in accordance with the volleyball material. (Astuti et al, 2022), found that the use of the PBL model was able to improve the learning outcomes of passing down volleyball in volleyball. Muhajir (2017: 53), explaining problem-based learning has advantages, namely: (1) active learners because learning is centered on the learners themselves; (2) students are able to improve their communication and social interaction skills; (3) students are encouraged to learn better and are able to master problem solving skills. (Nurenberg et al, 2022: 33) stated that the emphasis on student-centered PBL learning is that there is hope for students to take an active part in planning, organizing, and implementing their own learning within a group framework. Based on these problems, to find out for sure whether the PBL model can increase the activity and learning outcomes of students, it is necessary to study it more deeply with the CAR entitled "Application of the PBL Model for Improving Volleyball Activity and Learning Outcomes"

METHODS

This study uses the type of CAR research, the CAR design is in the form of a spiral. Kurt Lewin in Arikunto (2019: 42) states that each cycle has 4 steps, namely planning, action, observation, and reflection. This research was conducted on students of class VII D at SMP Negeri 2 Mlati. With the place of research, namely; (1) The researcher is a PJOK teacher at SMP Negeri 2 Mlati; (2) SMP Negeri 2 Mlati already has PJOK educators with an S1 (Strata 1) certificate so that they can carry out learning effectively. The CAR was carried out in three cycles and each cycle consisted of two meetings in semester 2 of the 2020 Academic Year. The sample of this study was class VII D students at SMP Negeri 2 Mlati as many as 32 people with details of 18 boys and 14 girls determined by random sampling. The instruments used in this study were a self-assessment questionnaire on student activities, a written test for assessing the knowledge aspect and a volleyball performance test for the process and product skills aspect. The lesson plans, teacher and student observation sheets, knowledge and skill assessment instruments were validated or expert judgment first by two experts who were lecturers of PJOK Postgraduate Study Program, Yogyakarta State University. This study uses a descriptive percentage analysis technique with success criteria: (1) Mastery of classical learning outcomes is marked by an increase in the number of students who achieve KKM scores at the end of the cycle and (2) Student learning activity is said to increase if during learning activities there is an increase in activeness. learn as many students.

RESEARCH RESULTS

Research result

Action research at SMP Negeri 2 Mlati was conducted on class VIID students. Researchers and collaborators carried out observations on PJOK learning activities to increase the activity and learning outcomes of volleyball material through the PBL learning model which was carried out for 3 cycles. In each cycle, 2 meetings are given. The method of observation is tried at each meeting while learning is in progress. After the lesson ended, the researcher conducted a dialogue with colleagues to reflect and plan for the next activity.

Pre Action

The initial data assessment was carried out according to the hours of learning activities at school by involving 32 class VIID students. Preliminary data shows that the activeness and learning outcomes of cognitive and psychomotor aspects of fundamental motion material, namely bottom passing, top passing and bottom service are still low. The results of the initial data on the volleyball abilities of class VIID students are presented in table 1.

Table 1. Pre-Action Data Activity and Learning Outcomes of Class VIID Volleyball

Information	Pre-Cognitive Action	Pre Action Learning Activity	Pre-Psychomotor Action
The number of students	32	32	32
Average	77	67.5	78
Complete	62.5% (20 students)	46.88% (15 students)	59.38% (19 students)
Not Completed	37.5% (12 students)	53.12% (17 students)	40.62% (13 students)

From these data, it shows that the activity and learning outcomes of volleyball at the pre-action stage of cognitive aspects are still low, there are 62.5% (20 students completed) and 37.5% (12 students have not completed). Aspects of active learning there are 46.88% (15 students completed) and 53.12% (17 students have not completed). There are 59.38% of psychomotor aspects (19 students completed) and 40.62% (13 students have not completed).

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Cycle I

Observation of Teacher

Observations made by collaborators on teachers in conducting learning with the PBL model are presented in table 2.

Table 2. Class Observation Results on Teachers in Cycle I

Aspect	Meeting	
	Number 1	2nd
Total score	20 (80%)	22 (88%)
Rating Category	Well	Very good

From these data, it shows that the results of classroom observations of teachers in the first cycle of the first meeting were in the good category and increased at the second meeting in the very good category.

The results of observing student learning activities

Collaborator observations on aspects of activity in participating in learning, asking questions, answering questions, discussions and performance in volleyball learning have increased as follows:

Table 3. Data Result of Assessment of Activity Aspects of Pre-Action Stage and Cycle I

Information	Pre Action Activity	Cycle I
The number of students	32	32
Average	67.5	74.5
Complete	46.88% (15 students)	71.88% (23 students)
Not Completed	53.12% (17 students)	28.12% (9 students)

From these data, it is known that the average of the first cycle in the aspect of activity showed an increase to 71.88% or (23 students completed). Furthermore, the results of the learning activity questionnaire filled out through student self-assessment obtained the following results:

Table 4. Data on the results of self-assessment of the learning activity aspect of Cycle I

Percentage	Criteria	Cycle I	Percentage
75% - 100%	Very high	0	0
50% - 74.99%	Tall	24	75
25% - 49.99%	Currently	8	25
0% - 24.99%	Low	0	0
Amount		32	100

Based on these data, it is known that the average of the first cycle in the aspect of activity through the self-assessment questionnaire can be seen that as many as 25% (8 students) are in the medium category and 75% (24 students) are in the high category. Based on the average value of 39 or 54% of students stated that their learning activity was in the high category.

Student Knowledge Test Results

The results of multiple choice tests conducted on the knowledge or cognitive aspects are as follows.

Table 5. Data from the Cognitive Aspect Assessment in the Pre-Action Stage and Cycle I

Information	Pre-Cognitive Action	Cycle I
The number of students	32	32
Average	77	79
Complete	62.5% (20 students)	75% (24 students)
Not Completed	37.5% (12 students)	25% (8 students)

From the data in the first cycle of volleyball learning with the Problem Based Learning model, there was an increase even though it was not maximal. 75% complete students (24 students) while 25% have not completed (8 students)

Student Skill Test Results

The results of the observation of skills tests for passing down, passing over and serving under volleyball are shown as follows:

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Table 6. Data on the Results of the Psychomotor Aspects of the Pre-Action Stage and Cycle I

Information	Pre-Psychomotor Action	Cycle I
The number of students	32	32
Average	76	77
Complete	59.38% (19 students)	71.88% (23 students)
Not Completed	40.62% (13 students)	28.12% (9 students)

From the data in the first cycle of volleyball learning through the PBL model, it can be said that there is a good improvement. The ability of students to process and produce volleyball skills increased with an average value before being given action 76 or 59.38% of students who completed increasing to 77 or 71.88% of students who completed, even though these results have not succeeded in achieving the classical criteria. to be achieved, which is 85%, so that it continues to cycle II.

Reflection Cycle I

After the implementation of the 2 meetings of the first cycle, the observer and 2 colleagues discussed the results of implementing the action. Each party conveys his opinion and thoughts as long as the action is given. In reviewing and assessing learning outcomes, it appears that there is an effort by the teacher to improve the process and learning outcomes. There are also reflection results in cycle I, including:

- 1) Collaborator 1's observations on class observations of teachers showed that all indicators of teacher activity observed in carrying out the desired process appeared so that it could be concluded that teacher activities in learning were very good. For this reason, teacher activities in the learning process need to be maintained or improved.
- 2) In the aspect of student activity, it is still not successful because it has only reached an average value of 74.5 or 71.88% (23 students completed). Furthermore, the results of student self-assessment with an average value of 39 or 54% are stated in the high category.
- 3) In the cognitive aspect, it has not yet achieved classical mastery because the results of the completed grades have only reached an average of 79 or 75% (24 students).
- 4) In the psychomotor aspect, classical completeness has not been achieved because the average value is still 77 or 71.88% (23 students completed).

From the results of the reflection, it was concluded that it was necessary to carry out cycle II to prove how the PBL learning model was able to increase the activeness and learning outcomes of volleyball students in class VIID at SMP Negeri 2 Mlati.

Cycle II

Observation of the teacher

According to observations made by collaborators on teachers in conducting learning with the PBL model in the first cycle, it can be seen in table 7.

Table 7. Class Observation Results on Teachers in Cycle II

Aspect	Meeting	
	Number 1	2nd
Total score	25 (100%)	25 (100%)
Rating Category	Very good	Very good

From these data it shows that the results of class observations of teachers in the first and second cycles of the second meeting are in the very good category. This shows that the learning method provided by the teacher can run very well.

The results of observing student learning activities

Collaborator observations on aspects of activity in participating in learning, asking questions, answering questions, discussions and performance in volleyball learning have increased as follows:

Table 8. Data on the results of the assessment of the learning activity aspect of Cycle I and Cycle II

Information	Cycle I	Cycle II
The number of students	32	32
Average	74.5	80
Complete	71.88% (23 students)	81.25% (26 students)
Not Completed	28.12% (9 students)	18.75% (6 students)

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The data shows that in the second cycle there was an increase to 81.25% (26 students completed). Furthermore, the results of the learning activity questionnaire filled out through student self-assessment obtained the following results:

Table 9. Data on Self-Assessment Results of Cycle II Learning Active Aspects

Percentage	Criteria	Cycle II	Percentage
75% - 100%	Very high	1	3.13
50% - 74.99%	Tall	29	90.62
25% - 49.99%	Currently	2	6.25
0% - 24.99%	Low	0	0
Amount		32	100

From these data, it can be seen that the average of the second cycle in the aspect of learning activity through the self-assessment questionnaire is known to be 6.25% (2 students) in the medium category, 90.62% (29 students) in the high category and 3.13% (1 student) in the very high category. Based on the average score of 44 or 61%, it was stated that the learning activities involved in learning, asking questions, answering questions, discussing and performing in volleyball learning were in the high category.

Student Knowledge Test Results

The results of multiple-choice tests conducted on the knowledge or cognitive aspects, namely.

Table 10. Data from the Cognitive Aspect Assessment Phase I and Cycle II

Information	Cycle I	Cycle II
Number of Students	32	32
Average	79	85
Complete	75% (24 students)	84.37% (27 students)
Not Completed	25% (8 students)	15.63% (5 students)

From the data in the second cycle of volleyball learning with the PBL model there was an increase of 84.37% (27 students completed) while 15.63% (5 students had not completed).

Student Skills Test Results

The results of the observation of skills tests for passing down, passing over and serving under volleyball are shown.

Table 11. Data on the Result of Psychomotor Aspects of Cycle I and II

Information	Cycle I	Cycle II
Number of Students	32	32
Average	77	83
Complete	71.88% (23 students)	81.25% (26 students)
Not Completed	28.12% (9 students)	18.75% (6 students)

From the data in the second cycle of volleyball learning through the PBL learning model there was a good improvement. The ability of students to process and produce volleyball skills has increased the average value before being given action 77 (71.88% of Completed students) increased to 83 (81.25% of Completed students) in the second cycle, although these results have not been successful achieve the classical criteria to be achieved, which is 85% so that it continues to cycle III

Cycle II Reflection

After completing the implementation of 2 meetings of cycle II, the observer and 2 colleagues discussed the results of implementing the action. Each party conveys his opinion and thoughts as long as the action is given. In reviewing and assessing the learning outcomes of volleyball material with the PBL learning model during the second cycle, it appears the teacher's efforts to improve the learning process and results. The results of the reflection in the second cycle are:

- 1) Collaborator 1's observations on class observations of teachers showed that all indicators of teacher activity observed in carrying out the desired process appeared so that it could be concluded that teacher activities in learning were very good, so learning needed to be maintained, especially in evaluation and problem solving.
- 2) In the aspect of learning activity, students have shown an increase with an average score of 80 or 81.25% (26 students completed). Furthermore, the results of student self-assessment with an average value of 44 or 61% in the high category. In order to maximize the number of balls in the group, it becomes 1 ball for 1 student.

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- 3) In the cognitive aspect, it is close to classical completeness with the results of the complete student scores reaching 81.25% (26 students).
- 4) In the psychomotor aspect, it is close to classical completeness with an average student score of 85 or 84.37% (27 students).

From the results of the reflection, it was concluded that it was necessary to carry out cycle III to prove whether the PBL model was able to increase the activeness and learning outcomes of volleyball students in class VIID at SMP Negeri 2 Mlati could achieve the classical completeness criteria of 85%.

Cycle III

Observation of Teacher

Observations made by collaborators on teachers who carry out learning with the PBL model in cycle III can be seen in table 12.

Table 12. Class Observation Results on Teachers in Cycle III

Aspect	Meeting	
	Number 1	2nd
Total score	25 (100%)	25 (100%)
Rating Category	Very good	Very good

From these data, it shows that the results of classroom observations of teachers in cycle III of the first and second meetings are in the very good category. This means that the learning carried out by the teacher in cycle III has been going very well.

Results of Observation of Student Learning Activities

Collaborator observations on aspects of activeness in participating in learning, asking questions, answering questions, discussions and performance in volleyball learning have increased, namely:

Table 13. Data on the Results of the Assessment of Learning Activity Aspects in Cycle II and Cycle III

Information	Cycle II	Cycle III
The number of students	32	32
Average	80	86
Complete	81.25% (26 students)	93.75% (30 students)
Not Completed	18.75% (6 students)	6.25% (2 students)

From the data, it is known that the average cycle III in the aspect of learning activity shows an increase of 93.75% (30 students complete). Furthermore, the results of the learning activity questionnaire filled out through student self-assessment obtained the following results:

Table 14. Data on the Results of Cycle III Learning Activity Assessment

Percentage	Criteria	Cycle III	Percentage
75% - 100%	Very high	4	12.5
50% - 74.99%	Tall	27	84.37
25% - 49.99%	Currently	1	3.13
0% - 24.99%	Low	0	0
Amount		32	100

From these data, it is known that the average of the third cycle in the aspect of activity through the self-assessment questionnaire is 3.13% (1 student) in the medium category, 84.37% (27 students) in the high category and 12.5% (4 students) in the very high category. Based on the average score of 48 or 67%, it is stated that the active learning of students in participating in learning, asking questions, answering questions, discussions and performance in volleyball learning is in the high category.

Student Knowledge Test Results

The results of the knowledge or cognitive assessment using the multiple choice question technique are as follows.

Table 15. Data on Cognitive Aspect Assessment Phase II and Cycle III

Information	Cycle II	Cycle III
The number of students	32	32
Average	85	90
Complete	84.37% (27 students)	100% (32 students)
Not Completed	15.63% (5 students)	0% (0 students)

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From the data in the third cycle of volleyball learning with the PBL model, it can be said that there was a maximum increase with 100% of students who completed (32 students) while 0% of those who had not completed (0 students). Based on the average value and completeness of the calcical has been met, the cycle is stopped in cycle III.

Student Skills Test Results

Based on the results of the observation of the skill test for passing down, passing over and serving under volleyball, the following results are shown:

Table 16. Data on the Results of the Psychomotor Aspects of Cycle II and Cycle III Penilaian

Information	Cycle II	Cycle III
The number of students	32	32
Average	83	88
Complete	81.25% (26 students)	87.50% (28 students)
Not Completed	18.75% (6 students)	12.5% (4 students)

From the data from the third cycle of volleyball learning through the PBL model, it showed a good improvement. The ability of students to carry out processes and products of volleyball skills has increased with an average score of 88 (87.5% of students completed). During the learning process there are no shortages that affect the activity and learning outcomes. According to the results of the reflection in cycle III, the research was ended because it had met the classical completeness criteria of more than 85% specified.

Reflection Cycle III

After the end of the implementation of the 2 meetings of cycle III, the researcher and 2 colleagues discussed the results of implementing the action. Each party conveys his opinion and thoughts as long as the action is given. In reviewing and assessing the learning outcomes of volleyball material using the PBL model, it appears the teacher's efforts to improve the process and learning outcomes. The results of the reflection in cycle III are:

- 1) Collaborator 1's observations on class observations of teachers showed that all indicators of teacher activity observed in carrying out the desired process appeared so that it could be concluded that teacher activities in learning were very good. For this reason, teacher activities in the teaching and learning process need to be maintained.
- 2) In the aspect of learning activity, students have succeeded in achieving an average score of 86 or 93.75% (30 students completed). Furthermore, based on the results of the student self-assessment, it was stated that the average score was 48 or 67% in the high category
- 3) In the cognitive aspect, it has fulfilled the classical completion with the average score reaching 90 or 100% (32 students completed).
- 4) In the psychomotor aspect, classical completeness has been achieved with an average score of 88 or 87.5% (28 students completed).

From the reflection results, it is concluded that learning using the PBL model can increase learning activity and volleyball learning outcomes for class VIID students at SMP Negeri 2 Mlati and can achieve the classical completeness criteria of 85%.

DISCUSSION

Based on the results of reflection and analysis of information in each cycle, the results of the action study prove that the results in cycle III have shown a significant increase compared to cycles I and II. In cycle III, the goal of learning volleyball games has been successful, it can be seen that in general students have achieved above 85% of the Minimum Completeness Criteria. Thus the action of the learning process on activity and learning outcomes through the PBL learning method given to class VIID students of SMP Negeri 2 Mlati, can be said to be successful.

Classical completeness about the activity and learning outcomes of students on volleyball material are described as follows:

Table 17. Activity Development Data and Learning Outcomes of Class VIID Students

Aspect	Pre Action	Cycle I	Cycle II	Cycle III
Cognitive	62.5% (20 students)	75% (24 students)	84.37% (27 students)	100% (32 students)
Learning Activity	46.88% (15 students)	71.88% (23 students)	81.25% (26 students)	93.75% (30 students)
Psychomotor	59.38% (19 students)	71.88% (23 students)	81.25% (26 students)	87.50% (28 students)

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From the table data, the data on the development of student activity and learning outcomes can be presented in the following figure:



Image 1..Data on the Development of Learning Activities and Learning Outcomes of Class VIID Students

After trying to assess the category actions that have been carried out throughout 3 cycles, it can be informed about aspects of the research that can achieve the desired goals and other aspects that are considered less fulfilling expectations. Actions that have proven results match expectations can be used as reference material for the next learning method. On the other hand, actions that are less successful are expected to be used as material for analysis for changes and improvements.

The PBL model has an impact on increasing volleyball learning activities in class VIID

Volleyball learning through the PBL model increases learning activity. This can be seen from the average pre-action development of 67 or 15 students completed, then in the first cycle there was an increase in results with an average of 74 or 23 students completed, for the second cycle there was an increase again to an average of 80 or 26 students completed and for the third cycle, it increased again to 86 or 30 students completed. Based on the increase that occurred in participating in learning, asking questions, answering questions, in discussions and performance in implementing volleyball learning increased with the PBL learning model.

The learning model with PBL is a learning model that is carried out in a student-centred manner or referred to as student-centered and the teacher acts as a facilitator who provides opportunities for students to solve problems using critical thinking strategies individually or in groups. This learning model has advantages that will make students able to arrange problem solving steps individually or in groups. These results are in line with Kawuri's research, (2019: 105) that the application of the PBL learning model has a significant influence on the learning activity of students, this is reflected in the syntax of the PBL learning model which encourages students to be more active in the learning process and outcomes.

Furthermore (Jayul et al, 2020) stated that the material in physical education develops personal and social responsibility and social behavior. Another opinion from Anderson & Glover (2017: 85) in their book states that the increase in student character in learning is caused by planting and developing through the learning process carried out by the teacher. Planting and developing active student involvement in the learning process (Pahliwandari, 2016: 154). Furthermore, by developing their character, they will realize there are opportunities to learn and develop. These results prove that the PBL model has a positive role in increasing student learning activity in volleyball lessons. Students seem to understand the concept better, are active.

The PBL model has an impact on improving volleyball learning outcomes for class VIID students

Volleyball learning through the PBL model improves learning outcomes. This can be seen from the pre-action development in the cognitive aspect of 62.5% or (20 students completed), then in the first cycle there was an increase to 75% or (24 students completed), in the second cycle it increased again to 84.37% or (27 students completed) and in the third cycle increased again to 100% or (32 students completed). Then from the Psychomotor Aspect also showed development, starting from the pre-action stage on the psychomotor aspect 59.38% or (19 students completed), then in the first cycle there was an increase to 71.88% or (23 students completed), in the second cycle it increased again as much as 81.25% or (26 students completed) and in the third cycle increased again to 87.50% or (28 students completed).

The PBL learning model is very appropriate to be applied in supporting learning targets in schools. This is because it will support the thinking ability of students individually and in groups in doing the assignments from the teacher. The Problem Based Learning learning model can be applied in volleyball learning activities for class VIID students at SMP Negeri 2 Mlati Sleman. Djaeng, (2020) Problem-based learning is a form of learning that uses problems as a focus to improve problem-solving skills, modules, and self-regulation.(Djaeng, 2020). (Bean et al, 2021). explains that the PBL method has advantages including: students master the given design because they create the design themselves, Connect students actively in solving problems and demand

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greater student thinking and thinking skills, insight is embedded in schemata. owned by students, as a result learning is more meaningful, students can enjoy the results of learning activities, because the problems that are solved are directly related to real life.

This can increase students' encouragement and interest in the material they are studying. The conditioning of students in group learning is related to the learner and their friends, as a result, the achievement of students' practice of mastery can be expected. The PBL model is believed to be able to develop students' creative skills, either individually or in groups, because almost every stage requires student activity.

Problem-based learning syntax can stimulate students' understanding of how to find problem-related information and improve their thinking skills (Nurlaily et al, 2019). States that PBL in improving students' perceptions of learning because it allows them to encourage knowledge transfer (Wicaksono et al, 2019). PBL is effective compared to other pedagogical approaches because it facilitates students' critical thinking and problem solving skills since students are able to apply theory into practice. (Zhou et al, 2013) concluded that task-based learning improves students' analytical skills and the ability to personalize learning. Students are able to evaluate and conclude the content learned while making reasonable conclusions.

The results of this study are in line with (Mustaji et al, 2022). which states that student learning outcomes are higher using the PBL learning model compared to the demonstration model. Furthermore, Sukarini, (2020: 271) conveyed the results of his research that the PBL model effectively improves learning outcomes for physical education, sports and health. Research (Kusumatuty, et al, 2018) and Qomariyah, (2019: 217) show that the application of problem-based learning effectively improves student learning outcomes in the experimental class compared to the control class using conventional learning models. Problem-based learning models are relevant to everyday life. and problem solving skills of students and build their motivation, so that this model effectively improves student learning outcomes and motivation (Argaw et al, 2016). Aidoo, Boateng, Kissi, Ofori (2016: 103) added that the problem-based learning model effectively improves critical thinking skills in accordance with the objectives of the 2013 curriculum. students get an increase in health by carrying out physical activity.

The results of this study provide a positive picture of an increase in classical mastery of more than 85% in class VIID students at SMP Negeri 2 Mlati. The application of the learning model is able to increase the activity and learning outcomes of volleyball. According to Laforce, (2017: 4), the application of the PBL model will be observed in 3 ways, namely (1). The teacher uses a problem-solving-based learning model as a strategy in the daily learning process, (2). Students complete a series of tasks to produce a final product, and (3). Students complete the task rooted in the problem to be solved. Ediger & Lee, (2017: 108) added that the PBL process will improve student learning outcomes with more active learning, so that it has a positive impact on teachers and students getting satisfaction with the learning process and results.

The application of the PBL Model in the learning process to improve learning activity and volleyball learning outcomes for class VIID students

The application of the PBL model was chosen as a solution in this PTK because it has advantages that lead to solving problems faced in class VIID volleyball learning, namely student-centered learning, developing control, developing problem solving, developing social skills, integrating theory and practice. The application in the learning process in this CAR is in accordance with the PBL model syntax which consists of 5 stages of the learning process including: problem orientation stage, learning organization stage, individual or group tracking stage, development stage and presentation of problem solving results, as well as analysis and assessment stages. how to handle problems.

Kawuri, (2019: 105) explains that the application of the PBL learning model has a significant influence on the learning activities of students, this is reflected in the syntax of the PBL learning model which encourages students to be more active in the learning process and outcomes. Sujarwo, Suharjana, Rachman, Ardha, (2021: 29) in their research and development stated that the development of volleyball learning models effectively improves student character such as discipline, cooperation, and hard work.

CONCLUSIONS

The conclusion in this study is that learning using the PBL learning model can increase the activity and learning outcomes of volleyball in class VIID students of SMPN 2 Mlati with the final result of classical completeness criteria of more than 85% having reached the Minimum Completeness Criteria (1)PBL learning model is able to increase the learning activity of students, by the average pre-action development was 67 or 46.88% (15 students completed), then in the first cycle there was an average increase of 74 or 71.88% (23 students completed), in the second cycle it increased again to an average of 80 or 81.25% (26 students completed) and in the third cycle increased again to 86 or 93.75% (30 students completed) (2) Learning activities using the PBL model can improve student learning outcomes with pre-action development on cognitive aspects an average of 77.5 or

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62.50% (20 students completed), then in the first cycle there was an average increase to 79 or 75% (24 students completed, in the second cycle the average increased again to 85 or 84, 37% (27 students completed) and in the third cycle the average increased again to 90 or 100% (32 students completed), then progress, starting from the pre-action stage on the psychomotor aspect an average of 78 or 59.38% (19 students who completed), then in the first cycle there was an average increase to 77 or 71.88% (23 students completed), in the second cycle increased again by an average of 83 or 81.25% (26 students completed) and in the third cycle the average increased again to 88 or 87.50% (28 students completed) (3) Volleyball learning with the PBL model is implemented in learning with 5 stages and is carried out in 3 cycles to effectively increase student activity and learning outcomes.

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