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PROJECT-BASED LEARNING (PBL) METHODS ARE ABLE TO IMPROVE PMKR LEARNING ACHIEVEMENTS LEVEL XII KRIAN 2 SIDOARJO VOCATIONAL SECONDARY SCHOOL

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Abstract

Starting from an anxiety I have as an educator in a private school, namely at SMK KRIAN 2 SIDOARJO that students are currently experiencing a decrease in learning outcomes and interest in learning. This result occurs because the teacher still provides a conventional learning model where the teacher just explains in the workshop and students immediately carry out the practice so that students do not understand in detail even though they have been given job sheets or are active in practice. This type of research is Classroom Action Research (PTK) proposed by Kemmis & Taggart. This research model includes four steps, namely planning, implementation, observation, and evaluation through a number of periods. The results of period 1 show known student learning achievements whose average pretest score in cycle 1 reached 39.58, with a number of students successfully achieving or exceeding KKM scores. And in cycle 2, the average pretest score reached 50.00, with only 14.81% of the number of students who managed to reach or exceed the average KKM score. The posttest score reached 88.19%

Keywords: PBL, Learning Outcomes, PMKR

INTRODUCTION

Education at Vocational Secondary Education Institutions (SMK) has the main aim of preparing students who are ready to work. Among the productive subjects that are the main focus are automotive subjects. Implementing Project-Based Learning (PBL) in automotive subjects is a very important step to ensure students not only have theoretical understanding, but are also able to implement their knowledge in real-world situations.

It started with my concern as an educator at one of the private schools, namely at SMK KRIAN 2 SIDOARJO, that students are currently experiencing a decline in their learning outcomes and interest in learning, but for this research we will discuss learning outcomes which can be seen from the UTS results for the odd semester of the year. teachings 2023/2024. From the students' UTS scores in the ONKLAS exam application, it can be seen that there were no students who got the minimum standard scores that had been determined at SMK KRIAN 2. The following are the KKM or KKTP scores used at SMK KRIAN 2

Figure 1. KKM or KKTP value at SMK KRIAN 2

This result occurs because the teacher still provides a conventional learning model where the teacher just explains in the workshop and students immediately carry out engine tune up practice so that students do not understand in detail even though they have been given a job sheet or students are told to be active in practice. From the problem above Finally, I took the initiative to use a learning model that was suitable for practical material in the workshop. The strategy that I use and that I will discuss this time is the PBL (Problem Based Learning) learning method.

A research that is relevant to the topic of implementing PBL in productive vocational school subjects was conducted by Sari, et al. (2020) entitled "Implementation of the Problem Based

Learning (PBL) Model in PMKR SMK Subjects". This research aims to understand the effectiveness of using the PBL model in achieving student learning achievement in PMKR subjects in SMK. This research makes an important contribution to the development of learning in productive vocational schools, especially in implementing the PBL model. It is hoped that this research can be a reference for productive vocational school educators in improving the quality of learning.

This research focuses on implementing the Problem Based Learning (PBL) method with the hope of increasing PMKR Level XII learning achievement at SMK KRIAN 2 for the 2023/2024 academic year.

Vocational education is a form of specialist education where the program or teaching materials are designed for anyone who is interested in preparing themselves to work independently or as part of a work group (Soeharto, 1988:2). Thomas, as expressed in Soeharto's writings (1988:2), also describes vocational education as structured education that is directly related to an individual's readiness for a career with or without a salary, or additional preparation for certain careers that require special skills. According to the provisions of the National Education System Law, namely Law Number 20 of 2003, The implementation of education in Indonesia is carried out through various channels, levels and variations in types of education. Duch's statement (1995) quoted by Aris Shoimin (2014: 130) states that the definition of a model (PBL) is: is a teaching that emphasizes the use of concrete problem situations as a background for students to develop critical understanding, problem solving skills, and mastery of knowledge. Light vehicle engine maintenance is part of the curriculum that students must follow who takes the field of light vehicle automotive engineering expertise. In light vehicle engine maintenance lessons, students are taught to look for information related to how to carry out vehicle engine maintenance. The success of this learning can be measured through the achievement of student learning outcomes which are assessed through basic theoretical competency tests and exams basic practical competencies. Yuswono (2014: 173) explains that a person's competence can be observed through knowledge, skills and attitudes in completing work in accordance with predetermined performance standards. Educational achievement is measured through learning outcomes which assess the extent to which educational goals have been achieved.

RESEARCH METHODS

The research with the title "This research, which is entitled "PBL learning can increase the learning achievement of PMKR Class In this series of research, there are four main phases, namely planning, implementation, observation and reflection, which are carried out through a series of cycles as in the following picture:

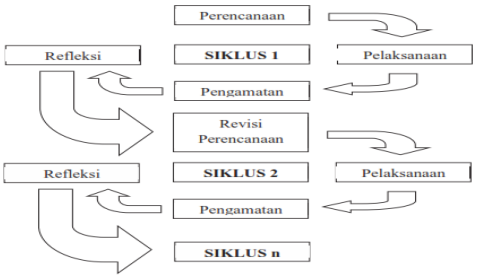

Figure 2. PTK cycle according to the Kemmis & Taggert concept (Kusumah, 2010: 21)

The research took place over a period of two months, namely from September 2023 to October 2023. The research location was at SMK KRIAN 2 SIDOARJO which is located on Jalan Raya Sidoarjo – Krian, Sidoarjo Regency, East Java Province. The research participants consisted of class XII students at SMK KRIAN 2 SIDOARJO. Within the framework of this research, the application of learning is carried out through several rounds, including:

1. Cycle I and cycle II
a. Planning
b. Implementation
c. Observation
d. Evaluation

To obtain data regarding students' understanding of vehicle engine maintenance, it was studied through a data collection method in the form of an exam. The exam applied is in the form of a written test with multiple choice questions.

In its implementation, students are given an instrument in the form of a test and asked to answer the questions on the answer sheet provided. This exam was held 4 times over 2 cycles, with each cycle consisting of a pretest and posttest. The pretest was carried out to evaluate students' initial understanding regarding the material to be studied, especially regarding PMKR with a focus on maintenance of the injection pump diesel fuel system. Meanwhile, the posttest was carried out to assess student learning outcomes after following the learning process. The data analysis method applied in this research is quantitative descriptive data analysis. In this analysis, a comparison will be made between the average motivation and average student learning outcomes before and after participating in learning using the Problem Based Learning model. The initial stage in analyzing learning achievement data is to calculate the learning achievement scores for each student.

Evaluation of multiple choice questions is carried out by dividing the number of correct answers by the total questions, then multiplying the result by 100. The mean (average) of the scores of all respondents is calculated by adding up the student scores and then dividing by the number of students. After getting the mean of student learning achievement, the next step is to compare the mean learning achievement scores in each cycle.

FINDINGS AND ANALYSIS

A. Research Findings

1. Cycle 1

Based on the procedures for implementing classroom action research proposed by Kemmis and Taggart, the implementation of this first cycle consists of a series of steps as follows:

a. Planning

This planning step is carried out to ensure the smooth implementation of the next stages.

b. Implementation

The implementation of the problem-based learning method in the first cycle is scheduled for Thursday, September 29 2023, 07.00 - 10.00 WIB in workshop room

c. Observation

At the observation stage, the learning process is carried out, starting from the beginning of class time. This observation is carried out simultaneously with the action stage during the implementation of learning.

d. Evaluation

In this phase, an analysis of the success of learning implementation is carried out by referring to the information obtained during the observation stage. This analysis aims to evaluate the extent of achievement in implementing learning using the PBL model. The results of the analysis will also be the basis for improvements for the next cycle if the achievements do not meet the criteria for learning success. Achievements from implementing the first learning cycle involve the following aspects: 1) The results of measuring student learning achievement show that the average pretest score in cycle 1 is 39.58, with only 3.70% of the 34 students achieving the KKM score. Meanwhile, the average posttest score was 82.96, where 62.96% of the 34 students were able to achieve the KKM score, namely 17 students.

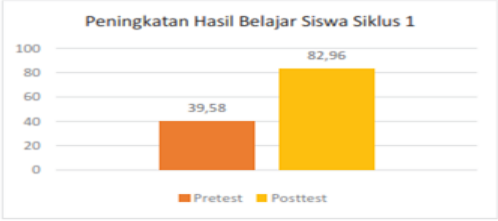

Figure 3. Progress of Student Learning Achievement in the First Cycle

Based on the evaluation of learning outcomes, although there has been an increase compared to the previous period, from the measurement data it was found that only 17 out of 34 students or around 62.96% were able to achieve the KKM score. From the analysis of student learning achievements in cycle 1, it can be concluded that learning in this cycle has not reached the minimum standard, because the number of students who achieve the KKM score is still below 75%. Therefore, improvements are needed in the next cycle.

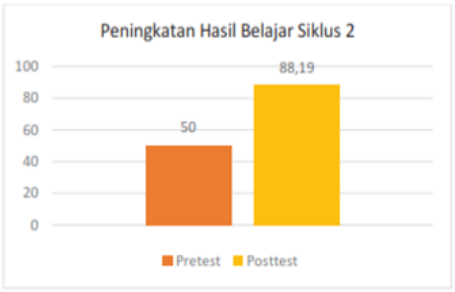

Figure 4. Improvements in Learning Achievement in Each Cycle

From observation data in cycle 2, the average pretest score reached 50.00 with around 14.81% of students achieving the KKM score. Meanwhile, the average posttest score reached 88.19, with around 88.88% of students achieving the KKM score. Apart from that, there was a significant increase in student learning achievement when compared to the previous cycle's posttest, where the average student posttest score in the previous cycle was 82.96.

B. Discussion

1. Learning Outcomes

The subject results for class

Siklus	Rata - Rata	Peningkatan
Pra Siklus 1	39.58	-
Siklus 1	82.96	109%
Pra Siklus 2	50.00	-
Siklus 2	88,19	76.38%

Table 1. Data on Student Learning Process Results

From the table data above, it can be seen that after teaching using a model using problem based learning, student learning outcomes increase. Comparisons were made between the learning outcomes of students who received learning

through the problem based learning model and previous learning methods. Demonstrating the use of conventional learning models, it can be seen that there is an increase in the results of learning information as shown in the following table:

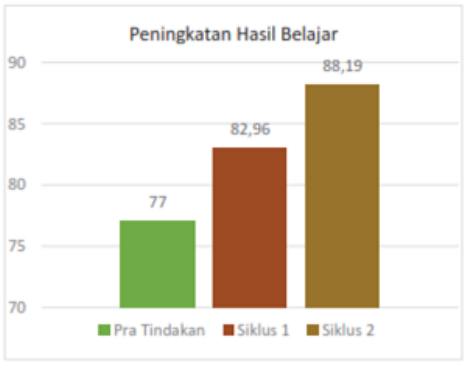

Figure 5 . Increasing Student Learning Achievement

From the illustration above, it can be seen that there has been an increase in the achievement of learning outcomes after applying the problem based learning method to students. Details of increasing student learning achievement can be explained further in the following table:

Siklus	Rata - Rata	Peningkatan
Pra Tindakan	77	-
Siklus 1	82.96	7.74%
Siklus 2	88,19	6.30%

Table 2 . Improved Student Learning

From the research conducted, several things were found related to the implementation of the PBL model which was carried out to increase student motivation and learning achievement class XII TKR 1 SMK KRIAN 2, the findings include:

1. In implementing the PBL model , there are several things that must be considered to ensure that learning is implemented according to expectations. Several aspects that must be considered include:

a. Selection of learning materials or educational media

proper learning

b. Supervision of learning implementation.

2. In implementing the problem based learning model, the role of the teacher or lecturer is still very necessary, teachers need to be able to manage the implementation of learning so that it runs smoothly, especially in discussion activities where teachers are expected to be able to actively direct students to remain focused on the learning material .

3. Implementation of the PBL method can increase the motivation and learning achievement of class XII TKR 1 SMK KRIAN 2 students in the subject of light vehicle engine maintenance.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The findings of this study make it possible to conclude that:

1. The application of the problem based learning model has proven successful in increasing the learning achievements of class XII TKR 1 SMK KRIAN 2 students in the subject of light vehicle engine maintenance. There was an increase in learning outcomes in cycle 1, from 77 to 82.96, with 62.96% of students achieving the KKM score (75). Apart from that, there was an increase in learning achievement in cycle 2, from 82.96 to 88.19, with 88.88% of students achieving the KKM score (75).

Suggestion

By considering research findings related to application, taking into account that the problem based learning model has been proven to be effective in increasing the motivation and learning achievement of class XII TKR 1 SMK KRIAN 2 students, the recommendations that can be proposed from the results of this research are:

1. For Teachers
   a. Teachers can integrate the PBL model in learning design as a strategy to increase student learning achievement.
   b. Teachers must be aware; Even though the PBL learning model is student-centered, the role of the teacher is still important, especially in supervising the learning process and ensuring optimal dynamics.
2. For Schools
   Because implementing the PBL model requires more learning resources compared to conventional learning methods, educational institutions should allocate allocations greater funding to facilitate this need. This aims to ensure that the implementation of the problem-based learning model can run optimally, by providing examples of facilities that can be provided, such as increasing the number of learning resources.

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