USE OF VIDEO LEARNING MEDIA WITH THE PROBLEM BASED LEARNING (PBL) LEARNING MODEL TO IMPROVE STUDENT LEARNING OUTCOMES AT SMK NEGERI 8 TANGERANG REGENCY

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ABSTRACT
The objective of this research is to describe the application of the Problem Based Learning (PBL) model to improve the learning outcomes of class XI Office Management (MPK) 2 students at SMK Negeri 8 Kab. The data studied consisted of 26 students. In the first cycle, the researcher compiled and prepared a Learning Implementation Plan (AJAR MODULE) referring to the Merdeka curriculum by applying a scientific approach and using the discussion learning method in the second week of September 2023 with the subject Sequences and Series, chapter on Quadratic Equations and Functions. The researcher then continued with the instruction using the cooperative learning model with the Think Pair Share (TPS) type, covering the topic of number conversion in the computer system course for the odd semester of 2023/2024. The posttest activity was carried out by 26 female students in the third week of October 2023. The classical completeness rate of 84.6%, as seen from the posttest results, indicates that 22 students scored above 76, in line with the minimum passing standard set by the researcher in this classroom action research. Twenty-two students were able to achieve scores below 76 or above the KKM set.

Keywords: problem-based learning, video learning, student learning

INTRODUCTION
Development in the education sector has high relevance to improving the quality of human resources. Both have a reciprocal relationship that influences each other. In this case, development in the education sector has a strategic role in efforts to increase human resources and vice versa. Improving the quality of human resources is an effort to achieve educational goals. Achieving educational goals in improving the quality of human resources is a necessity, in the era of globalization which greatly demands the readiness of human resources to compete. Therefore, through development in the education sector, it is necessary to improve the quality and quality of education (Aliyah & Wahjudi, 2021; Sam et al., 2018).

In line with these developments, mathematics plays a very important role in making changes in all aspects of life, including education. Curriculum changes in all subjects that continue to be refined require more qualified teachers to be able to manage the learning process so that they can motivate students to play an active role in learning activities which in the end is expected to improve student learning outcomes (Albaroka & Estidarsani, 2017).

Paying close attention to the role of mathematics, especially in everyday life, which is increasingly being taken into account, demands a maximum role from all of us in anticipating future challenges. In this case the teacher must be able to direct students to be directly involved in the learning process. However, this does not receive serious attention so that it has an impact on low student learning outcomes in class which can be seen from several indicators, for example student learning outcomes below the criteria for completeness, low student responses
during learning, and the learning process is always teacher-centered, as well as many the assumption that mathematics is a difficult and scary subject (Andriani, 2018).

Some students consider mathematics to be a very difficult subject to learn, so that the results obtained by students are still very far from what was expected. Based on the results of analysis of daily test scores Mathematics class XI OTKP 2 SMK NEGERI 8 KAB. TANGERANG in the odd semester of 2023/2024 where many students got scores below the KKM, namely 76. The learning material that students complain about is Quadratic Equations and Quadratic Functions. There are lots of student complaints regarding confusing formulas and numbers.

These low student mathematics learning outcomes are certainly influenced by several things, one of which is an inappropriate learning process. In general, the learning process that is still frequently used today is traditional learning, where the teacher is always active while the students are passive. The facts above show that the majority of students still experience difficulties in understanding mathematics subjects. Meanwhile, students' learning difficulties are caused by teachers, for example, teachers in the learning process do not involve students in active learning, students are only told to memorize formulas, accept existing concepts without doing it themselves. So the results are less meaningful and are not recorded well in the students' brains (Anggraini, 2017; Putra et al., 2021).

Meanwhile, mathematics is one of the most important subjects which is included in the national exam, so all existing competencies must be mastered by students, so that the learning outcomes obtained by students reach the predetermined Graduate Completion Standards (SKL). Therefore, efforts must be made to overcome the mathematics learning difficulties faced by students with a learning model. The learning model currently used is still one-way and lacks variety, giving a monotonous impression. On the other hand, learning activities are still dominated by teachers where the teacher explains the material then students listen and take notes on the material that has been presented. Rusman (2012: 132) said "The use of teacher-centered approaches leads to direct learning strategies. So that the difficulties faced by students can be overcome and reasoning abilities can be improved, of course a learning method is needed that is able to provide meaningful learning for students (Rahayu & Prayitno, 2020).

According to Dick and Carey (in Mintasih, 2022) a learning strategy is a set of learning materials and procedures that are used together to produce learning outcomes for students. One learning model that is suitable to help improve abilities students' reasoning, namely the Problem Based Learning (PBL) learning model. According to Ismail et al. (2022), the Problem Based Learning (PBL) learning model is learning that results from a problem solving process that is presented at the beginning of learning and students learn from real problems in everyday life, organizing, planning and deciding what to do. studied in small groups (Nasirun et al., 2021; Nurgiansah, 2021).

Based on the problems above, the aim of this research is to describe the application of the Problem Based Learning (PBL) model to improve the learning outcomes of class XI OTKP 2 students at SMK Negeri 8 Kab. Tangerang Material for Quadratic Equations and Quadratic Functions for the 2023/2024 Academic Year.

**METHOD**

This research is a type of Classroom Action Research (CAR), also known as Classroom Action Research (CAR). According to Wardani (2015), classroom action research is research
carried out by teachers in their own classes through self-reflection, with the aim of improving their performance as teachers so that student learning outcomes can be improved. Purwadadi (in Sukidin et al, 2010: 10) defines classroom action research as a form of research carried out by teachers to solve problems faced in carrying out their main tasks, namely managing the implementation of teaching and learning activities in a broad sense.

Junpahira & Pahlevi (2023) also believes that classroom action research is the efforts of teachers or practitioners in the form of various activities carried out to improve and/or improve the quality of learning in the classroom. Suherman et al. (2023) explains that classroom action research is a form of research that is reflective, in which teachers carry out certain actions in order to improve or increase learning practices in the classroom in a more professional manner. From these various opinions, it can be concluded that classroom action research is research carried out by teachers in the classroom with the aim of improving or increasing their performance through self-reflection, which in the end is expected to increase students' understanding of learning concepts and their learning achievements.

In this classroom action research, the research subjects were class X students majoring in Office Management (MPK 2) for the 2023/2024 academic year, totaling 26 children. The reason the researcher chose class Researchers took learning outcomes using learning outcomes tests which were carried out at each meeting with a standard target of the classical Minimum Completeness Criteria (KKM) of 75% of the number of students and with an individual standard of 76.

The data collection technique used in this research uses 2 techniques, namely test and non-test in the form of documentation.

a. Test
Arikunto (2019) states that a test as a data collection instrument is a series of questions or exercises used to measure knowledge skills, intelligence, abilities or talents possessed by individuals or groups. In line with the statement according to Arikunto (In Iskandar and Narsim, 2015: 48) a test is a series of questions or exercises as well as other tools used to measure skills, knowledge, intelligence, abilities or talents possessed by individuals or groups.

b. Non test (documentation)
Arikunto (2010) states that in implementing the documentation method, researchers investigate written objects such as books, magazines, documents, regulations, meeting minutes, diaries, and so on. Ridwan (in Iskandar and Narsim, 2015: 51) said that documentation is intended to obtain data directly from the research site, including relevant books, regulations, activity reports, photographs, documentary films, and data that is relevant to the research." Based on the opinions of experts, the author draws the conclusion that, documentation is the acquisition of data directly from the research site, either in the form of photo documentation or archival documentation relevant to the research. In this research, researchers use documentation by collecting documents originating from archives such as class lists, lists grades, test results and others.

RESULTS AND DISCUSSION
The data obtained by researchers from the results of this research includes the findings of students' written test results after the action was carried out. The results of this research consist
of two cycles where in each cycle several aspects are described, namely: Learning Planning, Learning Implementation which consists of preliminary activities, core activities and closing activities, learning outcomes and reflection. Furthermore, the discussion describes several aspects, including: learning planning, learning implementation, and learning outcomes. This research was carried out in two cycles, each cycle requiring one meeting or 2x45 minutes or 90 minutes. The data studied were class XI OTKP 2 students at SMK Negeri 8 Kab. Tangerang Tuban with 26 students.

Discussion of Cycle I

Learning planning is the initial activity of classroom action research. In the first cycle, the researcher compiled and prepared a Learning Implementation Plan (AJAR MODULE) referring to the Merdeka curriculum by applying a scientific approach and using the discussion learning method in the second week of September 2023 with the subject Sequences and Series, chapter on Quadratic Equations and Quadratic Functions.

The learning implementation in class XI OTKP 2 lasts for 2 JP or 2 x 45 minutes. The material taught is number conversion. Implementation of cycle I actions is in accordance with the TEACHING MODULE which was prepared according to XI OTKP 2. Learning in cycle I was attended by 100% of students in class XI OTKP 2.

The final stage in this classroom action research is the reflection stage. Reflection is carried out to evaluate the results of actions that have been taken, namely by assessing the processes that occur, problems that arise, and everything related to the actions taken. If the actions given can improve the learning outcomes of class XI OTKP 2 students, they include the following:

a. Many students are not ready for the learning materials used using the new learning model, they are used to using the old learning model, namely lectures.

b. Many students protested because of the pretest or impromptu test.

Based on the results of reflection in cycle I, it was concluded that the implementation of actions in cycle I needed to be improved. Corrective actions will be implemented in cycle II.

Discussion of Cycle II

In cycle II, the planning stage in class Researchers prepare learning materials more carefully in the subjects of the Quadratic Equations and Quadratic Functions chapters. Researchers too prepare the pretest and posttest using the same questions in cycle I. The beginning of the lesson was filled with greetings from the researcher as well as opening the teaching and learning activities for the day. This was followed by the activity of praying together according to their respective religions and beliefs, led by the head of class XI OTKP 2. Continued by the researcher who took attendance of class Continue to convey the learning objectives and continue to carry out a pretest by answering 10 descriptive questions.

The teacher delivers the main material for learning number conversions. Students ask (think), then students think and read the learning material for some time. Followed by organizing students into learning teams (pairs) and continuing with distributing LKPD and providing explanations. After that, supervise each group and help them if they experience difficulties. Each group is required to share the results of their discussion within their group to be presented in front of the class (share). And ask other students or groups to respond. The
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teacher who acts as a researcher also provides feedback or appreciation for the display of each group.

The teacher, who is also the researcher, summarizes the learning and then gives students a posttest in the form of 10 essay questions containing questions about number conversion material. Followed by closing with prayers and greetings. Researchers carry out evaluations of data and actions and determine decisions regarding research in class XI OTKP 2.

Data analysis and discussion in Cycle I

Pretest cycle I

In this class of XI OTKP 2, consisting of 26 students, a pretest was conducted with the aim of assessing the students' initial abilities related to the upcoming material. In the classroom action research for XI OTKP 2 in Cycle I, the average score on the pretest for all 26 students was as follows:

Average score = The sum of all score /The number of students

Average score = 670/26

= 25.7

![Graph 1. Pretest scores for class XI OTKP 2 cycle I](image)

Based on the graph above, it shows that no one got a score more than 76, which is the minimum passing standard set by researchers. There were 2 students each who got a score of 10 and 40. And there were 11 students each who got a score of 20 and 30. The average obtained by students in class XI OTKP 2 in the pretest of cycle I was 25.7. In the pretest of the first cycle, class XI OTKP 2 showed that none of the students obtained a score of 76 as the minimum passing standard. This indicates that the students in that class did not understand the learning material, which is the topic of number conversion. Classical completeness can be calculated by:
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Classical completeness = number of students who completed/the total number of students
Classical completeness = (0/26)100%
Classical completeness = 0%

Posttest Cycle I
After the researcher conducted a pretest assessment in class XI OTKP 2, the researcher then continued with the instruction using the cooperative learning model, Think Pair Share, covering the topic of number conversion in the computer system course for the odd semester of 2023/2024. This posttest activity was carried out by 26 female students in the third week of September 2023.

The graph in Figure 2 displays the posttest scores of students in Class XI OTKP 2 during Cycle I. One student received the lowest score of 50 in the posttest. Four students achieved a score of 60. Five students received a score of 70. Thirteen students obtained a score of 80, and three students scored 90. To calculate the average score, it is as follows:

\[
\text{Average score} = \frac{\text{The sum of all score}}{\text{The number of students}}
\]

\[
\text{Average score} = \frac{1950}{26}
\]

\[
\text{Average score} = 75
\]

The average score of student learning outcomes in the posttest for Class XI OTKP 2 in Cycle I is 75. However, the minimum passing score (KKM) set by the researcher is 76. As for classical completeness in Class XI OTKP 2, it is as follows:

Classical completeness = number of students who completed/the total number of students
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Classical completeness = (16/26)100%
Classical completeness = 61.5%

The classical completeness achieved by Class XI OTKP 2 is 61.5%, which is still far below the minimum passing rate set by the researcher, which is 75%.

**Cycle I Discussion**

Class XI OTKP 2 received treatment in the form of using the Think Pair Share learning model with the topic of number conversion. In this cycle, the 26 female students in Class XI OTKP 2 conducted Cycle I in the third week of October. It started with the researcher administering a pretest with the aim of assessing the students’ knowledge regarding the topic of number conversion. Furthermore, the researcher applied the treatment by implementing the Problem Based Learning (PBL) model, which was applied to the subject matter of class X, specifically Quadratic Equations and Quadratic Functions. Subsequently, the researcher conducted a posttest for the class, which consisted of 26 students. The table below provides a comparison of student learning outcomes in the pretest and posttest during Cycle I.

<table>
<thead>
<tr>
<th>Score</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>2</td>
<td>11</td>
<td>11</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Postest</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>13</td>
<td>3</td>
</tr>
</tbody>
</table>

The table above shows a significant comparison between the results of the pretest and posttest scores for Class XI OTKP 2. The pretest was conducted before the students were exposed to the Think Pair Share learning model. The posttest scores were obtained after the students had applied this learning model to the topic of number conversion.

Table 1, which compares the pretest and posttest scores in Cycle I for Class XI OTKP 2, indicates that the lowest score obtained by students in the pretest was 10, with 2 students achieving this score. In the posttest, the lowest score obtained by a student was 50, with 1 student achieving this score. There were 11 students who scored 20 and 30 on the pretest in Cycle I. Additionally, 4 students received a score of 60, and 5 students scored 70. The highest pretest score was 40, achieved by 2 students. Thirteen students received a score of 80, and in the posttest, 3 students achieved the highest score of 90.

**Data Analysis and Discussion of Cycle II**

**Pretest in Cycle II**

Cycle II was conducted in the third week of September 2023 during the first semester of the 2023/2024 academic year. Class XI OTKP 2, which was used for the pretest in Cycle II, consisted of 26 female students. The average result of the pretest for the students in Class XI OTKP 2 can be seen in the calculation below:

- Average score = The sum of all score / The number of students
- Average score = 1760/26
- Average score = 67.7
The graph above illustrates that the scores of Class XI OTKP 2 in the pretest for Cycle II have increased compared to Cycle I. This is evident by the number of students who scored above 76, which is 11 students. Four students received a score of 50, six students scored 60, and five students scored 70. Out of the 26 students, the class's average score is 67.7. The average score obtained in Class XI OTKP 2 is still below the Minimum Passing Grade (KKM) of 76. Classical completeness can be calculated as follows:

Classical completeness = number of students who completed/the total number of students
Classical completeness = (11/26)100%
Classical completeness = 42.3%

It can be concluded that in Class XI OTKP 2 in the pretest for Cycle II, the students have not yet reached a level where 50% of them are capable of achieving scores above the KKM.

Posttest in Cycle II

In this classroom action research, not only was a pretest conducted but also a posttest. The posttest was carried out by the researcher along with the students after a teaching and learning activity using the cooperative learning model called Think Pair Share (TPS) on the same topic as in Cycle I, which is number conversion. The results of the posttest for Class XI OTKP 2 can be seen in the graph below.
The teaching and learning activities in Cycle II were attended by 26 male and female students from Class XI OTKP 2. Two students each scored 60 and 70, and these four students still scored below the Minimum Passing Grade (KKM) of 76. However, 11 students achieved a score of 80, and 11 students achieved a score of 90. Based on the data above, there are 22 students who scored above the KKM. To calculate the average score:

\[
\text{Average score} = \frac{\text{The sum of all score}}{\text{The number of students}}
\]

\[
\text{Average score} = \frac{2300}{26}
\]

\[
\text{Average score} = 88.4
\]

The average score obtained by the students of Class XI OTKP 2 in the posttest for Cycle II is 88.4, while the minimum passing criteria for students is 76. To measure classical completeness:

Classical completeness = \(\frac{\text{number of students who completed}}{\text{the total number of students}}\)

\[
\text{Classical completeness} = \frac{22}{26}100% \\
\text{Classical completeness} = 84.6%
\]

The classical completeness rate of 84.6%, as seen from the posttest results, indicates that 22 students scored above 76, in line with the minimum passing standard set by the researcher in this classroom action research.

**Discussion of Cycle II**

Cycle II, conducted in the third week of September 2023, yielded satisfactory results. Twenty-two students were able to achieve scores above 76 or above the KKM set by the researcher for this study. There is a significant comparison when looking at the results of the pretest and posttest in Cycle I and comparing them with Cycle II. The comparison of scores obtained by Class XI OTKP 2 can be easily observed in the following table.
Table 2. Comparison of Pretest and Posttest Scores for Class XI OTKP 2 in Cycle II

<table>
<thead>
<tr>
<th>Score</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Postest</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>11</td>
<td>11</td>
<td>-</td>
</tr>
</tbody>
</table>

The table above shows a significant difference between the pretest and posttest scores in Cycle II. In the pretest, 4 students scored 50. In Cycle II, 6 students achieved a score of 60, 5 students scored 70, and 11 students scored the highest, which is 80 in the pretest of Cycle II. The posttest activity was also conducted in the third week of September 2023 by 26 female students. Class XI OTKP 2 obtained satisfactory scores, with 22 students scoring above 76. This includes 11 students who scored 80 and another 11 students who achieved the highest score of 90. Additionally, 2 students received a score of 60, and 2 students scored 70.

CONCLUSION

The research results were obtained through data processing collected by the researcher from their study in Class XI OTKP 2, which comprised 26 students at SMK Negeri 8 Kab. Tangerang Tuban for the academic year 2023/2024 in the first semester. Each cycle consisted of four stages: (1) planning, (2) action implementation, (3) observation, and (4) reflection. Based on the discussion and research findings, the following conclusions can be drawn:

Mathematics instruction with the subject matter of Quadratic Equations and Quadratic Functions in Class XI OTKP 2, using the cooperative learning model with the Think Pair Share (TPS) type, was able to enhance student learning outcomes. This is evident from the number of students who completed the course and achieved scores above the Minimum Passing Grade (KKM) set by the researcher, which is 76.

In Cycle I of this study, which was conducted in the third week of September 2023, pretest data showed an average class score of 25.7 and a classical completeness rate of 0%. However, in the posttest for Cycle I, the average class score increased to 75, and the classical completeness rate was 61.5%. In Cycle II, at the beginning of the activities, the pretest for Class XI OTKP 2 on the same subject matter resulted in an average class score of 67 and a classical completeness rate of 42.3%. Subsequently, in the posttest, the average class score increased to 88.4, and the classical completeness rate reached 84.6%.

REFERENCES


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