The Influence of the Problem Based Learning (PBL) Model on Student Learning Motivation

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ABSTRACT

This study aims to determine the effect of implementing the Problem-Based Learning (PBL) model on the learning motivation of seventh-grade students at SMP Negeri 2 Cilongok. This quantitative study uses a quasi-experimental design involving two groups, namely the experimental group that implements PBL and the control group that uses conventional learning. Learning motivation data were collected through pre-tests and post-tests. The results showed no significant difference in initial learning motivation between the two groups. However, after implementing PBL, there was a significant increase in learning motivation among students in the experimental group compared to the control group. The average learning motivation of the experimental group increased to 98.46, while the control group reached 82.53. The statistical test results (t-count = 6.953 > t-table = 1.67) confirmed a significant difference. These findings indicate that PBL is effective in increasing students' learning motivation, supported by the characteristics of PBL that actively involve students in problem-solving, group work, and the development of critical thinking skills. Based on the research results, it is recommended that PBL be used as a learning strategy to increase students' learning motivation.

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1. INTRODUCTION

Problem-Based Learning (PBL) is an educational approach that uses problems as a starting point in the learning process, encouraging students to actively seek solutions independently and collaboratively. This topic is closely related to the field of education, particularly in the development of effective teaching methods to improve the quality of learning and student learning outcomes.

Problem-based learning is a learning model that challenges students to learn 'how to learn,' working in groups to find solutions to real-world problems (Abriyanti, 2022). The primary objective of Problem-Based Learning (PBL) is not to impart a large amount of knowledge to students but to develop their critical thinking and problem-solving skills while simultaneously fostering their ability to actively construct their own knowledge (Saputra, 2021).

The problem addressed in this study is the low motivation of students to learn, which remains a challenge in many schools, including SMPN 2 Cilongok. Conventional learning models often fail to motivate students to be active and independent in their learning, which has a negative impact on their learning outcomes. Therefore, it is important to evaluate whether the implementation of the PBL model can be an effective solution to this problem.

Learning motivation is a non-intellectual psychological factor. Motivation can be stimulated by external factors, but it grows within an individual (Sardiman, 2007). Students with strong motivation will have abundant energy for learning activities.

Dimyati (2006) states that "there are three main components of motivation: needs, drives, and goals. Needs arise when an individual feels there is an imbalance between what they have and what they expect." Drive is the mental force oriented toward fulfilling expectations or achieving goals. Goals are what an individual aims to achieve. Motivation is crucial in the learning process; learning outcomes will be optimal if motivation is present. According to Hamalik (2008), there are three functions of motivation, as follows:

1. Motivating the emergence of behaviour or action. Without motivation, actions such as learning will not occur.
2. Motivation as a guide, meaning directing actions towards the achievement of desired goals.
3. Motivation as a driving force. It functions like an engine for a car. The level of motivation determines how quickly or slowly a task is completed.

According to Uno (2007), "motivation is the fundamental driving force that prompts someone to act. Motivation and learning are two things that influence each other." Learning motivation can arise due to intrinsic factors such as desire and the urge to succeed, the drive to learn, and aspirations for future goals. Additionally, there are extrinsic factors such as rewards, a conducive learning environment, and engaging learning activities.

Intrinsic factors arise from the individual themselves without coercion from others. Extrinsic factors arise due to stimuli or influences from outside the individual. In the learning process, extrinsic factors are useful for the emergence of intrinsic factors in students. Therefore, in learning activities, teachers must be able to understand the conditions of their students and be able to apply methods that can increase student motivation to learn.

From the above definitions of learning motivation, it can be concluded that motivation is a driving force that prompts someone to behave in a certain way, which can arise due to intrinsic and extrinsic factors. The motivation in this study is intrinsic and extrinsic motivation in students.

The urgency of this research arises from the need to improve the quality of learning in the modern education era, which requires students not only to memorise material but also to be able to think critically and solve problems creatively. By implementing PBL, it is hoped that students' learning motivation will increase so that learning outcomes can be more optimal.

Theoretically, this study refers to several constructivist learning theories and learning motivation theories which state that learning that places students at the centre of learning activities can increase student engagement and learning achievement. Previous studies have also shown that PBL can develop critical thinking skills, independence, and cooperation among students, which contribute to increased motivation and learning outcomes.

Several previous studies have examined the influence of the Problem-Based Learning (PBL) model on student motivation and learning outcomes at various educational levels and in different subjects. A study by Iyar Windi Yanti et al. (2017) found a positive influence of the PBL learning model on student learning motivation in History at SMA Negeri 1 Krui. This study used an experimental design with a Posttest-Only Control Design and showed that the implementation of PBL significantly increased students' learning motivation with a correlation coefficient of Theta of 0.50625. This is because PBL actively involves students in the learning process through discussion and problem-solving, thereby stimulating curiosity and higher student engagement.

Rizki Wahyuningtyas and Firosalia Kristin (2021) in their meta-analysis study found that the use of the PBL model can increase student motivation in primary schools, with varying percentages of increase ranging from 7.1% to 52.69%. The analysis results indicate that the PBL model not only boosts motivation but also provides students with a different learning experience, encouraging them to actively engage in solving problems they encounter. Additionally, Acep Roni Hamdani and colleagues (2021) emphasise that low student learning motivation is often caused by conventional teaching methods that are less engaging. They noted that the implementation of the PBL model can enhance students' learning motivation, as evidenced by better test results in classes that applied PBL compared to those using conventional methods. Both studies underscore the importance of innovation in teaching methods to improve students' motivation and engagement in the learning process. Thus, the implementation of the PBL model can serve as an effective solution to address the issue of low learning motivation among students.

In general, the findings from previous studies indicate that the PBL learning model has the potential to improve student learning outcomes, particularly in terms of critical thinking skills, cooperation, and mastery of subject matter. However, its impact on student learning motivation still shows varied results and is often influenced by the implementation context, student characteristics, and integration with other learning methods.

The primary objective of this study is to determine the impact of the Problem-Based Learning model on student learning motivation at SMPN 2 Cilongok. Thus, this study is expected to provide a clear picture of the effectiveness of PBL in the context of learning at the junior high school level.

2. METHOD OF THE RESEARCH

This study used a quasi-experimental design quantitative approach involving two classes, namely an experimental class and a control class, which received different treatments. The experimental class was given a Problem Based Learning model, while the control class used conventional learning (lecture method). To measure student learning motivation after applying the learning model, pretest and posttest were conducted. The subjects of this study were seventh-grade students at SMP Negeri 2 Cilongok, with the research object being class VII A as the experimental class and class VII B as the control class. Sampling was conducted using purposive sampling technique.

3. RESULT AND DISCUSSION

A. Analysis of Initial Student Learning Motivation Data
  1) Descriptive Initial Student Learning Motivation Data
      Based on the analysis results of 32 students in the experimental group, the average initial learning motivation reached 81.65, while that of 32 students in the control group reached 81.24. The average initial learning motivation of both groups was not significantly different.
  2) Normality Test of Initial Learning Motivation Data
      Based on the test results, the calculated x^2 value for the experimental group was 3.1284 and for the control group 3.5276. Both values are less than the x^2 table value at a 5% error rate with df = 3, which is 7.81, meaning that both data sets are normally distributed and meet the requirements for analysis using parametric statistics.
  3) Test of Equality of Two Variances of Initial Data on Student Learning Motivation
      Based on the test results, $F_{count} = 1.036 < F_{table} = 2.06$ at a 5% error rate with df (31:31), which means that the two groups have no difference in variance or that the data on student learning motivation from the two groups are homogeneous.
  4) Test of Equality of Means of Initial Student Learning Motivation Data
      Based on the test results, $t_{count} = -1.346 > t_{table} = 2.00$ at a 5% error rate with df 63, which means that there is no significant difference between the initial Student Learning Motivation data in the experimental group and the Student Learning Motivation data in the control group.

B. Final Data Analysis of Student Learning Motivation
  1) 2.1. Descriptive Final Data on Student Learning Motivation
      Based on the analysis, the average learning motivation after instruction for the 32 students in the experimental group reached 98.46, while for the 32 students in the control group it reached 82.53. The average learning motivation after instruction in the experimental group was higher than the average learning motivation in the control group.
  2) 2.2. Normality Test of Final Learning Motivation Data
      Based on the test results, the calculated chi-square value for the experimental group was 3.4188 and for the control group was 2.5948. Both values are less than the chi-square table value at a 5% significance level with df = 3, which is 7.81, indicating that both data sets are normally distributed.
  3) 2.3. Test of Equality of Two Variances of Student Learning Motivation Data
      Based on the test results, the calculated F value was $1.027 < F$ table = 2.06 at a 5% significance level with df (31:31), indicating that the two groups have equal variances or that the student learning motivation data from both groups are homogeneous.
  4) 2.4. Test for Difference in Mean of Final Student Learning Motivation Data
      Based on the test results, t-calculated = $6.953 > $ t-table = 1.67 at a 5% error rate with df 63, which means that there is a significant difference between the learning motivation data of the experimental group and the control group. The average learning motivation of the experimental group reached 98.46, which is greater than that of the control group, which reached 82.53. Thus, it can be explained that the PBL learning model is more effective in increasing the learning motivation of seventh-grade students at SMP Negeri 2 Cilongok.

Analysis of the initial learning motivation data showed that there was no significant difference between the experimental group (PBL) and the control group. The average initial learning motivation of both groups was relatively the same, namely 81.65 for the experimental group and 81.24 for the control group. The results of the normality test and the test of equality of variances confirm that the initial data of both groups are normally distributed and homogeneous, thus meeting the requirements for further analysis. The test of equality of means also confirms that at the beginning of the study, both groups had similar levels of learning motivation. This is

important to ensure that the differences in learning outcomes at the end of the study are truly caused by the PBL learning model intervention.

After implementing the PBL learning model in the experimental group, there was a significant increase in student learning motivation. Analysis of the final data showed that the average learning motivation of the experimental group reached 98.46, much higher than the control group, which only reached 82.53. Normality and variance equality tests on the final data also showed that the data from both groups met the necessary statistical assumptions. The significant difference between the two groups, supported by the results of the mean difference test (t-count = 6.953 > t-table = 1.67), indicates that the PBL learning model has a positive impact on increasing student learning motivation.

The increase in learning motivation in the experimental group can be explained by the characteristics of the PBL model, which actively involves students in the learning process. PBL encourages students to solve real-world problems, work together in groups, and develop critical thinking skills. This creates a more engaging and relevant learning environment for students, thereby increasing their curiosity, involvement, and ultimately, learning motivation. Meanwhile, the control group, which may have used conventional learning methods, tended to involve students less actively, resulting in their learning motivation not increasing significantly.

The results of this study are in line with previous theories and research showing the effectiveness of PBL in increasing student learning motivation. This increase in learning motivation is also expected to have a positive impact on students' overall learning outcomes. These findings provide an important contribution to education practitioners, especially teachers, to consider using the PBL model as an effective learning strategy in increasing student motivation and learning quality.

4. CONCLUSION

Based on the results of data analysis, it can be concluded that the implementation of the Problem-Based Learning (PBL) model is effective in increasing the learning motivation of seventh-grade students at SMP Negeri 2 Cilongok. This is evident from the significant increase in the average learning motivation of the experimental group using PBL compared to the control group. This study indicates that PBL is capable of creating a more engaging and relevant learning environment, which in turn enhances students' learning motivation. Therefore, the PBL learning model can be recommended as one of the effective learning strategies to improve students' learning motivation.

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