The Effect of The Problem Based Learning (PBL) Learning Model on Improving Students' Learning Motivation In The Christian Religious Education Subject Of Grade XII

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Abstract

This study aims to determine the effect of the Problem-Based Learning (PBL) model on student learning motivation in Christian Religious Education (CRE) for grade XII TBSM students at SMK Swasta Imelda Medan. The background of this study stems from the low learning motivation of students due to the dominance of conventional methods that tend to make students passive. Therefore, the implementation of an innovative learning model that encourages active participation, critical thinking, and problem-solving is necessary. The research method used was quantitative descriptive with a survey design. The study population was all grade XII TBSM students, and the sample size was 21 students. The data collection instrument was a learning motivation questionnaire that had undergone validity and reliability tests. Data analysis techniques were simple regression, correlation coefficient, coefficient of determination, and significance tests. The results showed a positive and significant effect between the implementation of the PBL model and student learning motivation. This is evidenced by the correlation coefficient of 0.59 indicating a strong relationship, and the calculated t (3.185) > t (2.093) at the 0.05 significance level. Thus, the implementation of PBL can increase student learning motivation in Christian Religious Education at Imelda Private Vocational School, Medan. The coefficient of determination is 34.81%, which shows that Problem Based Learning (PBL) has an influence on students' learning motivation of 34.81% .

Keywords: Problem-Based Learning, Learning Motivation, Christian Religious Education.

INTRODUCTION

Talking about the world of education means discussing the most important thing: learning. The effectiveness of a learning process is greatly influenced by the appropriateness of the strategy or model used. In the learning process, educators play a crucial role in its success. They are the ones who develop the learning design, implement the learning model, and then assess the learning outcomes. Therefore, educators need to first design the learning model to be used, making it easier for students to understand the learning delivered, thus motivating them to learn and increasing their engagement in the learning process.

Priansa (Padang et al., 2023) states that motivation plays a role in encouraging students to act, determine the direction of their actions, select actions, and encourage effort and achievement. Student learning motivation is crucial and must be possessed in the learning process. Learning motivation is anything that can motivate students or individuals to learn. Having high learning motivation can lead to successful and meaningful learning.

Learning motivation can also increase students' interest in the lessons provided by teachers. This interest can also improve student learning outcomes. Learning motivation can influence students' interest in the lessons provided by teachers, giving them the energy to learn and focusing on the learning objectives themselves (Nurcahyani, Wicaksono, & Fauzan, 2022).

Education is one of the factors that requires special attention in national development, namely the effort to educate the nation's life, because education will improve the quality of human resources that are the main capital for implementing development. Education that is able to support future development is education that is able to own and solve educational problems it faces. Education must touch the potential of conscience and the potential competence of students. The concept of education feels increasingly important when someone must enter society and the world of work, because the person concerned must be able to apply what is learned in school to face *problems* faced in everyday life, now and in the future (Djonomiarjo, 2019) . To improve the quality of education, the role of a teacher is very important, teachers as the main pillar in the world of education, that is why professional, creative, and innovative teachers are needed.

(Isma et al., 2021) explain that being a creative, professional, and engaging teacher requires the ability to develop approaches and select effective learning models. This is crucial, especially for creating a conducive and enjoyable learning environment. The way a teacher conducts a learning activity may require a different approach and model from other learning environments. A creative educator is not only one who is able to present material as well as possible but also must be able to channel that material to students in various ways, one of which is by using learning models. Learning models are manipulative variables, where educators have the freedom to choose learning models according to the characteristics of the learning material.

Learning in the 21st century requires individuals to have good thinking skills in making decisions and processing information. Therefore, critical thinking skills are a very important skill in learning and need to be instilled from an early age, especially at the elementary level. One of the skills that students need to master in 21st-century learning is critical thinking skills (Aprina et al., 2024) . Critical thinking is also the act of analyzing to make it more detailed by selecting, identifying, evaluating, and developing it to perfection. That is why using the *Problem-Based Learning* (PBL) learning model aims to improve students' thinking patterns so that they think critically and can also increase their interest in learning.

Problem Based Learning) learning model according to Aris Shoimin in (Tahir, 2020) has several advantages, namely, students are encouraged to have the ability to solve problems in real situations, students have the ability to build their own knowledge through learning activities, learning focuses on problems, so that unrelated material does not need to be learned by students, scientific activities occur in students through group work, students are accustomed to using sources of knowledge, students have the ability to assess their own learning progress, students have the ability to carry out scientific communication in discussion activities or presentations of their work results, and individual student learning

difficulties can be overcome through group work (Jumiarti, Dimpudus, & Haeruddin, 2021)..

Problem-Based Learning is believed to foster students' creativity, both individually and in groups, because each step demands student involvement. The success of the *Problem-Based Learning model* depends heavily on the availability of learning resources for students, tools for testing answers and assumptions. It requires practical equipment, requires sufficient time, especially since data must be obtained from the field, and the teacher's ability to identify and formulate problems.

According to (Hotimah, 2020) the implementation of the *problem based learning* model consists of 5 process stages, namely:

1. The first stage is the process of orienting students to the problem. In this stage, the teacher explains the learning objectives, explains the necessary logistics, motivates students to engage in problem-solving activities, and poses the problem.
2. Organizing students. At this stage, the teacher divides students into groups and helps them define and organize learning tasks related to the problem.
3. Guiding individual and group investigations. At this stage, the teacher encourages students to gather necessary information, conduct experiments, and investigate to obtain explanations and solve problems.
4. Developing and presenting results. At this stage, the teacher assists students in planning and preparing reports, documentation, or models, and helps them share assignments with their peers.
5. Analyze and evaluate the problem-solving process and results. At this stage, the teacher helps students reflect on or evaluate the process and results of their investigations.

Figure 1. Problem Based Learning Model

Vocational High Schools (SMK) are a continuation of junior high school education that has the main goal of preparing skilled, professional, and highly disciplined workers in accordance with the demands of the world of work. This goal is stated in the National Education System Law, Article 15, which states that the specific goal of SMK is to prepare students to become productive individuals, able to work independently, fill job vacancies

in the business world and the industrial world as middle-level workers according to the competencies in their chosen expertise program (Lisnawati, Suroyo, & Pribadi, 2022). One effort to achieve this is to improve the quality of learning. Learning is a process of interaction between teachers and students and the elements contained therein (Wulandari & Surjono, 2023).

Good quality learning will certainly produce good learning outcomes. Achieving good learning outcomes requires structured learning, which teachers can implement through the learning models used during learning. This is especially true for vocational high school students who will immediately enter the workforce. The outcomes they will use in the workforce are the understanding they gained during their vocational high school studies. Therefore, students need to be equipped with an understanding of critical thinking so they can be careful when absorbing all information and making decisions about problems. According to Johnson (in Nadiyah & Tirtoni, 2023), critical thinking is directed thinking used to solve problems and make decisions. A directed process means a well-structured and concrete process.

SMKS Imelda Medan is a private school located at Jalan Bilal No. 24, Pulo Brayan Darat, East Medan District, Medan City. It provides educational facilities for students who want to increase their knowledge of vocational education in the world of work. The current learning, especially Christian Religious Education, uses a *teacher-centered learning model* . This is a learning model that focuses on the teacher, placing the teacher in the primary position as a source of knowledge. Teachers deliver learning through lectures, presentations, and direct instruction.

Christian religious education at SMKS Imelda Medan plays an important role in shaping students' character and morals. However, in recent years, student learning outcomes in Christian religious education subjects have shown a decline. This may be caused by several factors, including the learning model used and the need for interaction to find out important things such as what is needed in the school environment, as stated by Idi in (Saragih et al., 2025). Educational interaction involves the active participation of various elements in the education system such as teachers, administrative staff, and students who together realize the importance of creating a conducive learning environment.

Student cases show that many students feel bored and disengaged from the learning process because the learning model used is uninteresting. They prefer playing games or using social media to paying attention in class. Students' low motivation in this subject is due to the unengaging learning model. This results in them not understanding the material well and ultimately having low motivation to learn. There are several ways to motivate students in the case of Christian religious education:

1. Make learning materials more relevant to students' daily lives.
2. Using interactive and interesting learning models, such as discussions, games, or projects.
3. Provide opportunities for students to actively participate in the learning process.
4. Provide positive and constructive feedback to increase student confidence.
5. Create learning objectives that are clear and achievable by students.
6. Using technology to increase student engagement in learning.
7. Make learning more contextual and problem-based.

By using these strategies, teachers can increase students' learning motivation and make learning more effective.

Teacher cases show that many teachers still use traditional learning models, such as lectures and memorization, which are no longer effective in increasing student motivation. They lack the knowledge and skills to use more innovative and effective learning models. This prevents them from meeting the diverse learning needs of students. Teachers must also have the ability to collect and utilize information about their students' characteristics to support the learning process (Napitupulu et al., 2025).

The case of school equipment demonstrates that school facilities and infrastructure do not fully support effective learning processes. Existing information technology facilities are not being optimally utilized to support the learning process. Furthermore, school policies do not fully support teachers in developing innovative and effective learning models (Simamora, 2018)..

Bandura's social learning theory (Siregar et al., 2024) states that humans learn through observation and direct experience with their environment, so that adolescent involvement in social action will help them internalize the values of togetherness, cooperation, and concern for others. In this context, the *Problem Based Learning* (PBL) learning model can be one solution to increase student learning motivation in Christian religious education subjects. The *Problem Based Learning learning model* can help students understand the subject matter better and improve their problem-solving abilities. Therefore, this study aims to determine the effect of the *problem based learning model* in increasing student learning motivation in Christian religious education subjects at SMKS Imelda Medan.

METHOD

The research method is closely related to the method used in the research. The research method that will be used in this research is a descriptive quantitative research method with a survey design (Sumiantari, Suardana, & Selamet, 2019). The descriptive method is a fact-finding method with appropriate interpretation, descriptive research studies problems in society, as well as procedures that apply in society and certain situations, including the relationship between activities, attitudes, views, and ongoing processes and the influence of a phenomenon, descriptive research is a research method that attempts to describe the object or subject being studied according to what it is (Syahrizal & Jailani, 2023).

This research was conducted at SMKS IMELDA MEDAN, Jl. Bilal No. 24, Pulo Brayan Darat I, Medan Tim. District, Medan City, North Sumatra. This research activity was carried out in the even semester of the 2024/2025 academic year. The population in a study is a crucial element, referring to all units of analysis that share identical characteristics or have a meaningful relationship within the study. A population is the entirety of subjects or objects that share certain characteristics (Mutakinati, Anwari, & Kumano, 2018). The population determines the validity of the data obtained from a study. In this case, the population used in this study was all 21 12th-grade Christian students at SMKS IMELDA MEDAN.

A sample can be defined as a portion of a population selected to represent the entire population in a study. A sample consists of elements of a group or unit of analysis selected from a specific population. Sample selection is carried out carefully so that the data obtained can be reliable and to describe the conditions or phenomena that apply in the population in general. This study uses a *non-probability sampling technique* , which does not guarantee an equal opportunity for each element of the population to be selected as a sample. The sampling technique used in this study is a saturated sampling technique where all members

of the population are used as research samples if the population size is less than 100. The sample used was 21 students of SMKS IMELDA MEDAN, so the entire population was used as a sample in this study (Setiana, Rahayu, & , 2019).

The technique used to process the research data was quantitative data analysis. The collected data was presented quantitatively using a Likert scale. Data analysis was conducted using descriptive and inferential techniques to draw conclusions through statistical analysis. Furthermore, to test whether the hypothesis was accepted or not, a normality test was performed (Amin, Saputra, & Maryati, 2023).

RESULTS AND DISCUSSION

Research result

The data analysis in this study used a statistical approach. The statistical methods used are quantitative and are divided into two types: descriptive statistics and inferential statistics. Descriptive statistics serve to provide a clearer picture of the data obtained. They are usually presented in the form of tables, diagrams, or measures of data distribution. Meanwhile, inferential statistics are used to draw conclusions or make generalizations to a broader population based on the research results. One important aspect of inferential statistics is hypothesis testing. The hypothesis used consists of the null hypothesis (H0), which states that there is no significant difference or relationship (Rahayu, Zuhri, Ariyanto, & Wibawa, 2025).

Data analysis

1. General Data Analysis on the Influence of the *Problem Based* Learning Model)

Based on the results of the data analysis obtained from the research field at Imelda Private Vocational School, the score was 3.920. When these results are included in the testing criteria, it can be found that the *Problem-Based Learning Model has a significant influence* on increasing student learning motivation at Imelda Private Vocational School.

2. General Data Analysis on Student Learning Motivation

Based on the results of the data analysis obtained from the research field at Imelda Private Vocational School, the result was 4.118. When these results are included in the testing criteria, it can be found that the *Problem-Based Learning Model has a significant influence* on increasing student learning motivation at Imelda Private Vocational School.

3. Data Analysis Specifically Regarding the Problem Based Learning Model

3.1. Determining Problems in the *Problem Based Learning Model*

Based on the data analysis, the indicators for determining problems in *The problem-based* learning model showed a score of 4.0. If these results are included in the assessment criteria, it can be concluded that the problem-solving indicator significantly influences student learning motivation at Imelda Private Vocational School.

3.2. Analysis of Learning Problems and Issues in the *Problem Based Learning Model*

Based on data analysis, the indicators of the analysis of learning problems and issues in *The problem-based* learning model showed a score of 3.935. If these results are included in the

assessment criteria, it can be concluded that the problem-solving indicator significantly influences student learning motivation at Imelda Private Vocational School.

3.3. Findings and Reports in the *Problem Based Learning Model*

Based on data analysis, the indicators of the findings and reports in *The problem-based* learning model showed a score of 3.911. If these results are included in the assessment criteria, it can be concluded that the problem-solving indicator significantly influences student learning motivation at Imelda Private Vocational School (Priani, Manuaba, & Darsana, 2019).

3.4. Presentation of Solutions and Reflection

Based on data analysis, the indicators of solution presentation and reflection in *The problem-based* learning model showed a score of 3.833. If these results are included in the assessment criteria, it can be concluded that the problem-solving indicator significantly influences student learning motivation at Imelda Private Vocational School.

4. Data Analysis Specifically Regarding Student Learning Motivation

4.1. Interest and Interest in the *Problem Based Learning Model*

Based on data analysis, the interest and attraction indicator showed a score of 4.250. If these results are included in the assessment criteria, it can be said that the interest and attraction indicator is very good for increasing student learning motivation at Imelda Private Vocational School.

4.2. Confidence in the *Problem Based Learning Model*

Based on data analysis, the self-confidence indicator showed a score of 3.940. If this result is included in the assessment criteria, it can be concluded that the self-confidence indicator is very effective in increasing student learning motivation at Imelda Private Vocational School.

4.3 Persistence in the *Problem Based Learning Model*

Based on data analysis, the perseverance indicator showed a score of 3.976. If these results are included in the assessment criteria, it can be concluded that the perseverance indicator is very effective in improving student learning motivation at Imelda Private Vocational School.

4.4. Clear Objectives in the *Problem Based Learning Model*

Based on data analysis, the clear objectives indicator showed a score of 4.032. If these results are included in the assessment criteria, it can be concluded that the clear objectives indicator is very effective in improving student learning motivation at Imelda Private Vocational School.

Validity Test

This validity test was conducted to determine whether the research instrument used was valid. Research is considered valid if the instrument used can measure what is desired and can accurately reveal data from each variable studied. The validity test used in this study consisted of forty-five items completed by twenty-one students. The results of the validity test can show that all 45 items are considered valid because the calculated r value is greater

than the table r value. The table shows that the r value is 0.59 (Malahayati, Corebima, & Zubaidah, 2015).

D. Reliability Test

Reliability is a method used to measure the consistency and stability of an instrument's measurement results. High reliability indicates that the instrument is reliable and produces consistent and reliable data. This reliability test was conducted to determine the reliability of the data. The research instrument used in this study consisted of three forty-five items completed by twenty-one (Noervadila & Astidari, 2019).

Data Normality Test

To determine whether the data obtained can be analyzed using statistical calculations, it is analyzed by testing for normality. Based on the calculations and the work table in the appendix, the following results are obtained:

1. Data Normality Test X (The Effect of *Project Based* Learning Model)

Based on the results of the data analysis, the calculated χ^2 value was 4.16, while the table χ^2 value at a significance level of 5% with dk = (k–1) = (5–1) = 4 was 9.488. Because the calculated χ^2 value was smaller than the table χ^2 value (4.16 < 9.488), then based on the testing criteria it can be concluded that the data for variable X is normally distributed. (Contained in Appendix 9 table 23).

2. Normality Test of Y Data (Student Collaboration Ability)

Based on the results of the analysis of the normality test data for variable Y, the calculated χ^2 value was 2.761. This value was then compared with the χ^2 table at a significance level of 5% with degrees of freedom (df = k – 1 = 5 – 1 = 4), which was 9.488. Because the calculated χ^2 was smaller than the χ^2 table (2.761 < 9.488), then based on the testing criteria it can be concluded that the data for variable Y is normally distributed (Fauzia, 2018).

Hypothesis Testing

1. Correlation Coefficient

From the results of the calculations carried out, namely the correlation coefficient between the influence of the *Problem Based Learning learning model* on the learning motivation of students at Imelda Medan Private Vocational School, it was obtained: n = 21; X = 81.701; Y = 41.497; X² = 322.359; Y² = 84.275; XY = 163.350. Based on the data, the correlation coefficient can be calculated using the formula stated in chapter III, then "r" = 0.59 is obtained. Through the qualification criteria for the correlation coefficient level, it can be classified as strong. (Contained in Appendix 11 part a)

2. Correlation Significance Test

To see whether there is a significant relationship between the influence of the *Problem Based Learning learning model* on the learning motivation of students at Imelda Medan Private Vocational School, a statistical correlation test was conducted, namely "t". From the calculation results, the price was obtained = 3.185; = 0.05, dk = n-2 (21-2) = 19, so that it was obtained = 2.093 Thus $t_{hit} > t_{tab}$, this shows that the influence of the *Problem Based Learning learning model* on the learning motivation of students at Imelda Medan Private Vocational

School in the Christian Religious Education subject in class XII TBSM exists and is significant. (Contained in Appendix 11 part b)

3. Test of the Coefficient of Determination

To what extent does variable X influence variable Y, the coefficient of determination is used to obtain: $r^2.100\% = (0.59).(0.59).100\% = 34.81\%$

Conclusion: The effect of the *Problem Based Learning model* on the learning motivation of students at Imelda Medan Private Vocational School in the subject of Christian Religious Education in grade XII TBSM has a value of 34.81%. (Contained in Appendix 11, section c)

4. Simple Linear Regression Test

The simple linear regression equation tested is $Y = a + bx$. From the calculation results obtained the value of $a = -0.00488$; $b = 0.508$. Thus the regression equation of Y on X is $Y = (-0.00488) + 0.508X$. Based on the calculation it turns out that these numbers show the influence of an independent variable on the dependent variable (Primadoniati, 2020). The function of Y is to state that Y is obtained from regression and is distinguished from Y results. The coefficient "b" is called the linear regression direction coefficient and shows the average change in variable Y for a change in variable X of one (Elita, Habibi, Putra, & Ulandari, 2019). From the results of the regression calculation above, it shows that if the *Problem Based Learning learning model* has a better influence, the higher the results obtained in relation to the ability to collaborate of students in class XII TBSM Imelda Medan. (Contained in Appendix 11 section d).

5. Independent Test

Based on the calculations that have been carried out, it is obtained = 0.029. Thus, the independent test criteria are declared to be appropriate. Therefore, the calculation results show that variable Y is independent of variable X in a linear sense. (Contained in Appendix 11, section e) (Pasandín & Pérez, 2021).

Research limitations

Realizing the imperfections of this research, it is suggested to prospective Christian Religious Education teachers who wish to follow up on this research to provide improvements to further research by collecting data on both independent and dependent variables in more detail so that valid data will be obtained (Puspita, Slameto, & Setyaningtyas, 2018).

Discussion

Based on the results of the research that have been presented, it can be seen that there is an influence of the *Problem Based Learning learning model* on the learning motivation of class XII students of SMK Swasta Imelda Medan. From the results of the correlation test obtained (r) 0.59 with a determination test of 34.81% and to determine whether the correlation coefficient is significant or not at the level (a) = 0.05, a "t" test is conducted with the testing criteria if the calculated t obtained from the calculation is greater (>) than the t_table at a significance level of 1-0.05 with dk = n-2 then the hypothesis is accepted and in other cases it is rejected. From the test results obtained $t_{hit} > t_{tab}$, (3.185>2.093), then the hypothesis is accepted (Utari, Barlian, & Deskoni, 2018).

After implementing Christian Religious Education (PAK) learning using the *Problem Based Learning model* , students' motivation to solve real-world problems, collaborate, contribute, and take responsibility increased. This made students more enthusiastic, passionate, and creative in exploring the material and increased their learning motivation in learning activities. This is evident in the results achieved, both in terms of academic grades and student attitudes towards diversity.

CONCLUSION

Based on the theoretical description and data analysis and hypothesis testing, conclusions and suggestions are put forward which are considered important and in accordance with the research objectives.

1. In General

Based on the results of the research that has been conducted, it can be concluded that the application of *problem based learning* (PBL) has a positive and significant influence on students' learning motivation in Christian religious education subjects in class XII TBSM SMKS Imelda Medan.

PBL has been proven to create an active, challenging, and student-centered learning environment. The learning process, which begins with the formulation of a real-life problem, encourages students to participate actively, fosters curiosity, and encourages them to strive for solutions. This model transforms students into little researchers who learn through experience, not merely as recipients of information.

The positive impact of PBL implementation is seen in the increase in students' interest, attention, self-confidence, and responsibility in participating in Christian religious education learning. Thus, it can be said that PBL not only influences the cognitive aspect, but also influences the affective aspect (motivation, attitude, and interest) which is very important for successful learning.

2. Specifically

In more detail, the increase in students' learning motivation can be seen in the following indicators:

1. Identifying problems: Students are able to identify issues relevant to everyday life and the context of Christian religious education. At this stage, students demonstrate high enthusiasm because they feel directly involved in formulating the direction of learning.

2. Analyzing learning problems and issues trains students to think critically, examine issues from multiple perspectives, and discuss alternative solutions with peers. This activity fosters curiosity, strengthens social interactions, and increases learning motivation because students feel their opinions are valued.

3. Through the process of data discovery, information gathering, and report preparation, students learn independently and collaboratively. Motivation to learn increases as they see the tangible results of their efforts reflected in a report that can

be accounted for. This process also fosters discipline, responsibility, and a passion for completing tasks.

4. Presenting solutions and reflecting at the final stage, students demonstrated higher motivation through the presentation of the solutions they found. Reflection activities provided an opportunity to evaluate the learning process, identify strengths and weaknesses, and formulate future improvements. This increased self-confidence, satisfaction, and enthusiasm for further learning.

Thus, all indicators show that PBL is an appropriate learning model for increasing students' learning motivation, especially in Christian religious education learning.

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