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Application Of Problem-Based Learning (PBL)

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Abstract

This study aims to identify the impact of implementing Problem-Based Learning (PBL) techniques on the learning outcomes in economics for vocational high school (SMK) students. This research is based on the low level of student engagement in economics learning, which is still dominated by conventional methods, which impacts learning outcomes. The method used is a quantitative approach with a pre-test and post-test design in two groups: an experimental class using PBL and a control class using conventional learning.The subjects of the study were 10th-grade students of the Economics and Business program at SMK Negeri 1 Kota Besi. Data were collected through learning achievement tests before and after treatment, then analyzed using the Independent Samples Test. The results of the analysis showed that the average student learning outcome in the PBL class was 81, while in the non-PBL class it was 82. The hypothesis test showed a significance value (Sig. 2-tailed) of 0.231, which is greater than 0.05, so it can be concluded that there is no significant difference in learning outcomes between the two groups. However, the application of the PBL model is able to increase student activity, cooperation, and critical thinking skills in the learning process.

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1. INTRODUCTION

Education is a process in which one of the behaviors is to turn ignorance into knowledge in the learning process. Currently, the learning curriculum provided is no longer teacher-centered education, so this kind of educational curriculum should require teachers to create an innovative learning process that will motivate students to be optimal in class and outside the classroom according to the current curriculum (Suyoso, 2025). This limitation is based on school support alone. So that the technology included in the current curriculum cannot be absorbed as a component of the curriculum as a whole, because there are no support and mastery of direction in the learning process in class or outside the classroom.

so, they do not get the opportunity to enjoy the learning more because it is only focused on the students themselves. In addition, students tend to be less interested and passive during learning activities, especially in economics subjects, so that motivation and desire to learn are low. Learning conditions like this hurt student learning outcomes. Therefore, more effective learning techniques are needed to improve the learning process and optimize learning outcomes. The Problem-Based Learning (PBL) method is an alternative method that can be implemented. According to John Dewey, PBL can motivate students to play an active role in solving real problems so that learning becomes more meaningful. This approach helps students to work collaboratively, develop analytical thinking skills, and understand phenomena holistically. According to Arends in Trianto (2010:301), syntax Problem Based Learning (PBL) consists of five phases, namely: (a) orienting students to the problem, (b) organizing students to conduct investigations, (c) guiding investigations independently or in groups, (d) developing and presenting results, and (e) analyzing

and evaluating the problem-solving process. PBL is a student-centered learning model that encourages active student involvement in solving problems through exploration, investigation, problem-solving, and evaluation. This is what students and their teachers desire because it has a very practical impact on solving problems for students who tend to be passive in certain subjects (Economics). And the positive impact is that students' interest in learning will grow by itself. Through this method, we are able to explore and develop information that becomes a benchmark in students' lives. The characteristic of this PBL technique can help solve a problem. So it is hoped that students can develop their material and numerical abilities contained in the subjects they are studying. Referring to the previous explanation, the writer is interested in conducting research with the title "Application of the Problem-Based Learning Model in Economics Subjects".

2. METHOD

This study was conducted using systematic stages in collecting, analyzing, and interpreting data to answer the research problem. The research methodology explains the scientific approach implemented, namely a quantitative approach with the method pre-test and post-test. The aim is to observe the influence of the use of the PBL learning model on students' economic learning outcomes in Vocational High Schools (SMK).

A quantitative approach was chosen because the research uses numerical data to be analyzed to test the established hypotheses. The study was conducted at SMK Negeri 1 Kota Besi, specifically for the 10th-grade students in the Economics and Business program. This school was chosen because it implements project-based learning and competency-based assessment, making it suitable for assessing the effectiveness of the PBL method.

The subjects of this study were 10th-grade students taking Economics, focusing on Demand, Supply, and Market Equilibrium Price. The study focused on the implementation of the PBL method by the economics teacher and the students' learning outcomes after the lesson. The aim was to determine the extent to which the implementation of the PBL method improved students' economics learning outcomes.

The study began with a pretest to measure students' initial skills, followed by PBL learning in the experimental class and conventional methods in the comparison class. After several meetings, students were given a posttest to measure their learning outcomes. The data obtained was analyzed using simple statistical techniques to determine significant changes between the two groups.

The PBL learning stages used in this study include:

1. Introduction to economic problems, where the teacher provides real case examples related to students' daily lives.
2. Formation of discussion groups, students discuss to formulate and analyze economic problems
3. In inquiry and information search, students collect data, references, and opinions to find the right solution.
4. Compilation and presentation of results, each group presents its solutions and arguments in front of the class.
5. Reflection and evaluation are carried out to assess students' critical thinking processes and understanding of economic concepts.

This research aims to obtain an objective picture of the influence of PBL on the economic learning outcomes of vocational school students and to serve as a reference for teachers in determining effective learning methods and encouraging students' activeness and critical thinking.

3. RESULTS AND DISCUSSION

Teachers have developed lesson plans (RPPs) designed systematically and comprehensively, adhering to the full syntax of the Problem-Based Learning (PBL) model. These lesson plans cover the stages of problem orientation, problem formulation, organizing investigative activities, conducting group investigations, compiling work results, and evaluating learning

outcomes. In addition to fully addressing PBL steps, teachers also align learning objectives with the Basic Competencies of Vocational High School Economics. This ensures that learning focuses on conceptual understanding, fostering analytical skills, problem-solving skills, and decision-making relevant to everyday economic contexts.

Teachers clearly present contextual problems directly related to the economic experiences experienced or observed by vocational high school students. Examples of problems presented include managing pocket money, creating a simple budget, analyzing small business opportunities, and local economic phenomena encountered in their surroundings. By providing real-world situations, students are able to connect the subject matter to the realities they face. This type of problem presentation is highly effective in increasing student engagement, as they perceive that what they are learning has practical implications for their lives.

Teachers actively encourage students to ask questions, respond to peers' opinions, and express their own opinions. They use open-ended questions to spark students' curiosity, encouraging them to explore economic issues more deeply. Furthermore, the classroom environment is built on dialogue, allowing students to feel safe expressing their opinions without fear of being wrong. The teacher's appreciative attitude toward each student's questions and opinions significantly contributes to the development of a healthy discussion culture.

Students demonstrated strong participation during group discussions. Each group member contributed through assignments, information searches, data analysis, and solution development. They discussed and presented arguments to reach a shared understanding of the given economic problem. The discussions were dynamic and productive, demonstrating that students understood their role in problem-based learning. PBL fosters effective collaboration, and this was evident in the way students collaborated to achieve the best possible results.

The teacher acts as a facilitator, not the primary source of information. The teacher doesn't dominate the lesson with lengthy lectures, but simply provides guidance when the group experiences difficulties or when the learning needs to be redirected to the original objective. By providing sufficient space for students to explore on their own, the teacher encourages the development of critical thinking skills, independent learning, and creativity. This facilitator role aligns perfectly with the characteristics of PBL, a student-centered learning process.

Students are given time to analyze the most relevant parts of the problem to explore. They can also propose new perspectives that they believe are more important to analyze. This activity demonstrates that students are not simply recipients of material but also participate in determining the direction of learning. This involvement makes students feel responsible for the learning process, thus increasing their intrinsic motivation. The teacher supports the ideas that emerge from students during problem formulation.

Students actively collect information from various sources, including textbooks, online articles, simple economic reports, and data available in their surroundings.

They conducted information searches with minimal guidance from the teacher, then processed the data to produce logical and accountable solutions. This demonstrates that students' information literacy skills are developing, and they are able to use data sources to support their economic analysis. The teacher provided detailed feedback after each group completed its presentation. The feedback covered aspects of the substance of the economic material, the accuracy of the data analysis, the appropriateness of the thinking process, and the presentation of the work. The teacher also provided constructive suggestions for improvement so that students could address any deficiencies. The feedback provided was not only evaluative but also educational, encouraging students to acknowledge their mistakes and learn how to improve their understanding.

Teachers ask students to reflect on their learning activities, either verbally through class discussions or through individual notes. This reflection helps students understand what skills they have acquired, what areas remain challenging, and how they can improve in future sessions. Through reflection, students can assess their own development in understanding economic concepts and applying them to real-life situations.

The implementation of PBL has had a positive impact on improving student learning outcomes, demonstrating a deeper understanding of economic concepts, particularly in their ability to analyze problems, develop argumentative solutions, and convey logical solutions. Furthermore, improvements have been seen in students' communication skills, collaboration, and creativity. PBL helps students understand the material contextually, enabling them to apply it not only through memorizing concepts but also through real-world situations.

This data was generated from pre-test and post-test in two classes, namely the experimental class, which received PBL treatment, and the control class, which received conventional learning.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									lower	Upper
Hasil	Equal variances assumed	,978	,331	-1,225	28	,231	-1,00000	,81650	-2,68841	,68841
	Equal variances not assumed			-1,225	23,160	,233	-1,00000	,81650	-2,68841	,68841

Independent Samples Test

	Data	N	Mean	Std. Deviation	Std. Error Mean
Hasil	2,00	15	82,0000	2,69921	,69693
	1,00	15	81,0000	1,64751	,42538

Group Statistics

The results of the hypothesis test based on the test obtained a significance figure of 0.231 and degrees of freedom (df) according to the number of research samples. At a significance level of 0.05, the decision-making provisions state that the number exceeds 0.05, meaning H_0 is accepted. Because the significance value obtained is 0.231 > 0.05, H_0 is accepted, and H_1 is rejected.

This means that there is no significant change in economic learning outcomes between students who follow the PBL model and conventional learning in class X of SMK Negeri 1 Kota Besi. This result is reinforced by the descriptive data in the table. Group Statistics, which shows the average value of student learning outcomes in the application of the PBL model is 81, while the average in the non-PBL class is 82. The difference in the average value of only one point shows that, in general, the learning outcomes of the two groups are almost the same. Therefore, the implementation of the PBL technique in this study did not have a significant effect on improving student learning outcomes.

Research findings demonstrate that student learning outcomes are influenced by several external and internal factors. This aligns with Hamalik's (2010) finding that learning outcomes are influenced by internal factors such as students' prior abilities, motivation, and readiness to learn, as well as external factors such as learning methods, teacher roles, and the learning environment. In this study, although the PBL model was implemented effectively, other factors may influence student learning outcomes, such as relatively similar basic abilities between the two classes, limited learning time, and students' learning habits, which are still accustomed to conventional learning.

Although statistically insignificant, the implementation of the PBL model still had a positive impact on learning activities. Through PBL, students became active in discussions, accustomed to working in groups, and trained to analyze and solve economic problems related to their daily lives. This proves that PBL contributes more to the development of students' critical thinking, communication, and collaboration skills than simply improving final grades. Therefore,

the PBL technique remains relevant as an alternative learning method that focuses on the process and development of student competencies.

In the PBL model, the teacher acts as a liaison, guiding students to examine and solve the problems presented. The learning process focuses not only on presenting material but also on guiding students to seek information, analyze situations, and formulate solutions through group discussions. In this way, students actively construct their own knowledge, resulting in deeper understanding and long-term retention. In contrast to the control class, which implemented a traditional learning model, students were more passive because most of the learning activities were centered on the teacher's explanation.

4. CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that the application of the Problem-Based Learning (PBL) learning model in economics learning in vocational high schools has not provided a significant difference in learning outcomes when compared to conventional learning. The results of data analysis show that the average value of students in classes using PBL and classes using conventional learning methods has a very small difference. In addition, the results of statistical tests also show that the difference is not statistically significant, so it cannot be said that PBL directly improves the value of student learning outcomes in this study.

Data analysis from the Group Statistics and Independent Samples Test tables shows that the average scores of the two groups, namely the group using the Problem-Based Learning (PBL) learning method and the group that did not use PBL, have very little difference. The first group obtained an average score of 81, while the second group had an average score of 82. The difference in scores of only one point indicates that the abilities of the two groups are almost the same.

In addition, the results of the statistical test through the Independent Samples Test showed a Sig. (two-tailed) value of 0.231, which is greater than 0.05. This means there is no significant difference between the two groups. In other words, the use of the PBL learning model in this study did not provide a significant increase in learning outcomes compared to the learning methods commonly used. Overall, it can be said that even though the PBL method was applied, student learning outcomes did not show significant changes. This shows that in the context of this study, the PBL method has not had a strong impact on improving student grades.

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