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## THE EFFECT OF APPLYING THE PROBLEM-BASED LEARNING MODEL IN THE SUBJECT OF PRACTICAL ACCOUNTING FOR SERVICE, TRADE AND MANUFACTURING COMPANIES ON THE COMPETENCY SKILLS OF CLASS XI AKL UPT SMKN 1 SIDRAP

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### **Abstract**

*The purpose of this study is to ascertain how the problem-based learning model has affected the competency skills of students in class XI AKL UPT SMKN 1 Sidrap. A total of 96 students from class XI of AKL UPT SMKN 1 Sidrap served as the study's sample. Using SPSS 25, an instrument test and hypothesis testing are the data analysis techniques used. A validity test and a reliability test are both parts of the instrument test. The t test, coefficient of determination, pearson product moment correlation analysis, and simple linear regression analysis make up the hypothesis test. According to the study's findings, the simple linear regression equation model  $Y' = 59.035 + 0.505X$  indicates that the skill competency value of the problem-based learning model increases by one for every additional value students in the class increase by 0.505 units. The problem-based learning model significantly affects students' competency skills, according to the results of the t-test analysis, which yielded 0.000 0.05. The analysis of the correlation coefficient produced a  $r^2$  value of 58.1%, indicating that the problem-based learning model contributes 58.1 to the student's competency skills. The results of the product moment correlation analysis showed a strong correlation between the problem-based learning model and students' competency skills, with a Pearson correlation value of 0.762.*

**Keywords:** problem based learning; student expertise competency

### **Abstrak**

Tujuan penelitian ini adalah untuk mengetahui bagaimana pengaruh model pembelajaran berbasis masalah terhadap kompetensi keahlian siswa kelas XI AKL UPT SMKN 1 Sidrap. Sebanyak 96 siswa kelas XI AKL UPT SMKN 1 Sidrap dijadikan sebagai sampel penelitian. Menggunakan SPSS 25, uji instrumen dan uji hipotesis merupakan teknik analisis data yang digunakan. Uji validitas dan uji reliabilitas merupakan bagian dari uji instrumen. Uji t, koefisien determinasi, analisis korelasi pearson product moment, dan analisis regresi linier sederhana merupakan uji hipotesis. Berdasarkan temuan penelitian, model persamaan regresi linier sederhana  $Y' = 59,035 + 0,505X$  menunjukkan bahwa nilai kompetensi keterampilan model pembelajaran berbasis masalah meningkat satu untuk setiap nilai tambah siswa di kelas meningkat sebesar 0,505 satuan. Model pembelajaran berbasis masalah berpengaruh signifikan terhadap kompetensi keterampilan siswa, berdasarkan hasil analisis uji-t diperoleh 0,000 – 0,05. Analisis koefisien korelasi menghasilkan nilai  $r^2$  sebesar 58,1% yang menunjukkan bahwa model pembelajaran berbasis masalah memberikan kontribusi sebesar 58,1 terhadap kompetensi keterampilan siswa. Hasil analisis korelasi product moment menunjukkan adanya korelasi yang kuat antara model pembelajaran berbasis masalah dengan kompetensi keahlian siswa, dengan nilai korelasi Pearson sebesar 0,762.

**Kata Kunci:** *problem based learning*; kompetensi keahlian siswa



## INTRODUCTION

Education is a process to increase, improve, and change the knowledge, skills, attitudes and behavior of a person or group of people in an effort to educate human life through educational guidance and training activities. This process shows that there is activity in the form of active action, where dynamic interactions take place and are carried out consciously to achieve the desired goal, namely to bring a better quality of Indonesian education. In order for students to actively develop their potential for religious spiritual strength, self-control, personality, intelligence, noble character, and skills possessed by themselves, society, nation, and country, education is a conscious and planned effort to create a learning environment and learning process. Education is one of the factors that cannot be separated from a person's life both in the family, community, nation and state. Because of this, it is possible to conclude that "Education is one of the factors that play a big role in the life of the nation because education can encourage and determine the progress or decline of the nation's development process in all fields"(Husna dkk., 2016).

By choosing an interesting learning method, the enthusiasm of the students will grow to be more active and like the lessons, especially the practical subjects of accounting for service companies, trade and manufacturing in class. These innovations can be in the form of learning models that activate students during the learning process. One of the appropriate models used to solve problems is the problem-based learning model. The problem-based learning learning model is a problem-centered model that students are faced with a problem so that it will provoke students to think creatively and come up with ideas or opinions according to the problems they face. The Problem-based education In order for students to build their own knowledge, develop higher skills and inquiry, become independent, and boost their self-confidence, learning models must have a student learning approach to real-world problems. (Hosnan, 2014).

The many problems that demand authentic investigation—that is, investigations that call for real solutions and real problems—are the foundation of the problem-based learning learning model. The learning model's performance indicators for problem-based learning. As stated by Rusman (2010), Orientation of students to problems, organizing students for learning, directing individual and group research, guiding the creation and presentation of work, and directing the evaluation of problem-solving techniques. The problem-based learning approach also has a number of benefits, including the ability to boost students' metacognition skills, develop their learning motivation, and make learning meaningful.



Learning is made meaningful by using this approach, which can help students develop their self-confidence and ability to learn on their own.

An effective learning environment should be produced by the choice of the employed learning model. Additionally, it is hoped that by implementing the Problem Based Learning learning model, students will be more interested in learning about service companies and that their participation and responses to the learning process will improve. Increasing student learning activities indirectly will also increase student competence. Based on research conducted by Sari et al., (2017), It was discovered that the teaching factory learning model significantly improved the skills of the students.

Increased Competence is the result obtained by students after the learning process becomes a benchmark for the success of a learning process, are there indicators that show the learning process, one of which can be influenced by the application of methods, strategies, and or learning models used by teachers, because student learning activities will be impacted by the learning model. Competence is the capacity for people to engage in cognitive, affective, and psychomotor behavior. It comes in the form of knowledge, skills, and abilities. (Daryanto, 2015).

UPT SMKN 1 Sidrap is a Vocational High School that already has A accreditation in Sidenreng Rappang Regency or commonly abbreviated as Sidrap Regency. This school implements the Revised 2013 Curriculum in grades X, XI, and XII in the practical subject of service, trade and manufacturing company accounting at UPT SMKN 1 Sidrap which is a subject that requires in-depth analysis and understanding, especially in the preparation of the accounting cycle. Before applying the model of problem-based learning, educators at UPT SMKN 1 Sidrap first used conventional learning models with various lecture methods: question and answer and assignments. This can be seen from the achievement of the percentage score of each competency indicator for class XI AKL UPT SMKN 1 Sidrap students. Based on preliminary findings from research conducted at UPT SMKN 1 Sidrap by distributing questionnaires to students in classes XI AKL 1, XI AKL 2, and XI AKL 3 using the Problem Based Learning Model (Rukajat, 2018).

## RESEARCH METHODS

The problem-based learning model is the X variable in this study, and the student's competency skills are the Y variable. Numerical, non-experimental quantitative data are used in this study. methods that include both written and verbal surveys for data collection. In this survey method technique, a questionnaire is used as a tool to collect data. An instrument test and hypothesis testing are used as data analysis techniques when using SPSS 25. The instrument test consists of two tests: a validity test and a

reliability test. In contrast to the hypothesis test, which consists of the t test, simple linear regression analysis, and coefficient of determination, the pearson product moment correlation analysis.

The study's participants were students in class XI AKL UPT SMKN 1 Sidrap.

## RESULTS AND DISCUSSION

### 1. Percentage Descriptive Analysis

Based on the results of distributing questionnaires regarding The percentage of the total score of all respondents' responses from the five indicators listed in table 1 below, which describes the problem-based learning model:

**Table 1 summarizes Responses From Respondents Regarding The Learning Model.**

No	Indicator	Actual Score	Ideal Score	Actual Score (%)	Information
1.	Orientation of students to problems	1219	1440	85	Very Good
2.	Organizing students to study	1160	1440	81	Very Good
3.	Guiding individual and group investigations	1157	1440	80	Good
4.	Guiding developing and presenting the work	1164	1440	81	Very Good
5.	Guiding evaluate the problem-solving process	760	960	79	Good

The results of the problem-based learning learning model's actual percentage score showed an average score percentage of 81%, which is considered to be very good. Even so, there are still 2 indicators that are below the average percentage of actual scores: 1) indicators guiding individual and group investigations by 80% because students are frequently too lazy to conduct research or work in groups to investigate issues; and 2) indicators guiding individual and group investigations by 80%. 2) Guidance indicators give a 79% actual percentage score for the problem-solving process because students are often too lazy to actively participate in class discussions.

Table 2 below shows the findings from the descriptive analysis of student expertise competencies.

**Table 2. Table 2 summarizes respondents' comments on students' skill levels.**

	Descriptive Statistics				Std . Deviation
	Minimum	Maximum	Mean		
Kompetensi					2.3
	6	4.00	7.00	6.9792	2143
Valid N (listwise)	6				

The mean value (mean) is 86.97 where this value is below the 84-92 interval which is classified as good category with a standard deviation of 2.321. This justification leads to the conclusion that the class XI AKL UPT SMKN 1 Sidrap competency skills students in the practical subject of service, trade and manufacturing company accounting are in the complete category with 96 students who score above the KKM.

## 2. Instrument Test

### a. Instrument Validity Test

Validity test is done by comparing the value of  $r$  count with  $r$  table for degree of freedom ( $df$ ) =  $n - 2$ . Where the number of samples ( $n$ ) in the research conducted was 96, so the amount of  $df$  obtained was  $96 - 2 = 94$ , with a significance level of 5% so that the  $r$ table, which is visible in the  $r$ table, was obtained. The Problem Based Learning (X) learning model's instrument, which consists of 14 statement items, can be seen in table 3 below if  $r$ count exceeds  $r$ table.:

**Table 3.** Results of Testing the Validity of Problem Based Learning Model Instruments

No Item Statement	validity		Conclusion
	$r_{hitung}$	$r_{tabel}$	
1	0,564	0,201	Valid
2	0,638	0,201	Valid
3	0,544	0,201	Valid
4	0,636	0,201	Valid
5	0,764	0,201	Valid
6	0,618	0,201	Valid
7	0,534	0,201	Valid
8	0,539	0,201	Valid
9	0,632	0,201	Valid
10	0,557	0,201	Valid
11	0,636	0,201	Valid
12	0,764	0,201	Valid
13	0,589	0,201	Valid
14	0,510	0,201	Valid

All statement items submitted for the Problem Based Learning (X) model variable have  $r$ count values between 0.510 and 0.764, according to the findings of the instrument validity test based on table 3. This demonstrates that the problem-based learning model variable's  $r$ count value, which represents all of the statement items, is higher than the  $r$ table value, which is equal to 0.201. The problem-based learning questionnaire (questionnaire)'s statement items can all be regarded as "valid" based on these findings.

### b. Uji Reliabilitas Instrumen

Reliability test is a metric that demonstrates how well measurement results hold up over multiple measurements made with the same measuring instrument. This test aims to measure whether or not the respondents' answers are consistent with the items in a questionnaire (questionnaire). Instrument reliability testing in this study used the Cronbach's alpha technique with a total sample of 96

respondents. An instrument is declared reliable if the Cronbach's alpha value is  $> 0.60$ . The results of the instrument reliability test can be seen in table 4 below:

**Table 4.** Problem Based Learning Instrument Reliability Test Results

<i>Reliability Statistics</i>	
<i>Cronbach's Alpha</i>	N of Items
.868	14

The Cronbach's Alpha value of the Problem Based Learning instrument learning model is  $0.868 > 0.60$ . Thus, it can be concluded that the variable instrument of the problem based learning (X) learning model used in collecting data in this study is declared "reliable".

Based on the instrument test used includes the validity test and reliability test it can be concluded as follows:

**Table 5.** Conclusion Test the Validity and Reliability of Research Instruments

Information	Validity			Reliabilitas			
	<i>r</i> hitung	<i>r</i> tabel	Ket	<i>Cronbach's alpha</i>	Standard	Ket.	
Instrumen Soal	0,510	s.d 0,764	0,201	Valid	0,868	0,60	Reliable

Thus it can be concluded that the problem-based learning model instrument in this study is feasible to use.

### 3. Hypothesis Testing

#### a. Simple Linear Regression Analysis

To assess the impact of the problem-based learning model on student competency skills, simple linear regression analysis is used. Table 6 below shows the findings of the study's simple regression calculations:

**Table 6.** Simple linear regression analysis findings:

Model	Coefficients <sup>a</sup>				
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	59.035	2.525		23.381	.000
MODEL PBL	.505	.044	.762	11.423	.000

a. *Dependent Variable* : Kompetensi Keahlian

$Y = 59.035 + 0.505X$  is the simple linear regression equation model. The constant value is 59.035, according to the obtained equation model. This means that the competence competency variable for

class XI AKL UPT SMKN 1 Sidrap is 59.035 units if the Problem Based Learning learning model variable has a value of zero.

The regression coefficient value is 0.505, which indicates that the student's competency in the practical subject of accounting services, trade, and manufacturing companies would have increased if the learning model variable had increased by one unit. 0.505 more UPT SMKN 1 Sidrap is added.

## b. T-Test

The t-test is used to test the hypothesis and determine the significance of the program's impact on the competency skills of class XI AKL UPT SMKN 1 Sidrap students as it relates to the problem-based learning model. By comparing the significance value 0.05 (5 percent), the t-test can be used to determine the impact of the problem-based learning model on student competency skills. When a variable's significance value is less than 5% ( $= 0.05$ ), it is said to have an influence. Table 7 below shows the t-test results in more detail.:

**Table 7.** Results of the t-test

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	59.035	2.525		23.381	.000
MODEL PBL	.505	.044	.762	11.423	.000

a. *Dependent Variable* : Kompetensi Keahlian

The problem-based learning model variable significantly influences the competency skills of class XI AKL UPT SMKN 1 Sidrap students, as indicated by the significance value of  $0.000 < 0.05$ . So, it is possible to draw the conclusion that the study's hypothesis is "accepted".

## c. Coefficient Of Determination

In order to ascertain whether the problem-based learning model and the students' competency skills are related in the real-world context of service, trade, and manufacturing company accounting at UPT SMKN 1 Sidrap, a test of the coefficient of determination is conducted using SPSS Version 25. The results are shown in Table 8 as follows. :

**Table 8.** Coefficient of determination test results

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.762 <sup>a</sup>	.581		.577

a. Predictors: (Constant), Model PBL

Based on table 8, the coefficient of determination is 0.581, which means that other factors account for 41.9% of the remaining competency skills of students in the class XI AKL UPT SMKN 1 Sidrap's practical subject of accounting for services, trade, and manufacturing companies.

#### d. Pearson Product Moment Correlation Analysis

The direction and strength of the relationship between the problem-based learning model and the competency skills of class XI AKL students in the subject of practical accounting for service companies, trade, and manufacturing UPT SMKN 1 Sidrap were determined using Pearson product moment correlation analysis. Table 9 below shows the outcomes of the Pearson product moment correlation analysis. :

**Table 9.** Results of the Pearson Product Moment Correlation Analysis

		Correlations	
		Model PBL	Kompetensi Keahlian
Model Pbl	Pearson Correlation	1	.762**
	Sig. (2-tailed)		.000
	N	96	96
Kompetensi Keahlian	Pearson Correlation	.762**	1
	Sig. (2-tailed)	.000	
	N	96	96

\*\* . Correlation is significant at the 0.01 level (2-tailed).

It can be inferred from Table 9 that the problem-based learning model variable correlates with the students' competency skills because it shows a significant 0.000 or significance 0.05. The class XI AKL UPT SMKN 1 Sidrap students' competency skills in the practical subjects of service, trade, and manufacturing company accounting are at intervals of 0.600-0.799, which is in the strong category, according to the Pearson correlation value of 0.762, which is positive. So it can be said that the competency skills of class XI AKL UPT SMKN 1 Sidrap students in the subject of accounting practicum have a strong relationship with the problem-based learning model.

The goal of the problem-based learning learning model is to help students learn by applying their knowledge to real-world problems in order to build their own knowledge, advance their skills in inquiry, become more independent, and boost their confidence. The problem-based learning approach has a significant impact on students' competency abilities.

An effective learning environment should be produced by the choice of the employed learning model. The application of the problem-based learning model is also anticipated to increase student engagement in the learning process and draw their attention to the information presented about service





companies. For students to participate in the learning process and properly master and attain the expected competencies, the Problem Based Learning learning model is crucial.

The percentage of the actual average score for the problem-based learning model variable was found to be 81 percent in the very good category based on the descriptive results of the research variables. The student orientation indicator on the problem, which has a high percentage level of 85%, and the guiding indicator evaluating the problem-solving process, which has a low percentage level of 79% and is rated as good, are indicators of the problem-based learning learning model.

The problem-based learning model had a significant impact on the competency skills of class XI AKL UPT SMKN 1 Sidrap students, according to the results of the research that was conducted. The findings demonstrate that the simple regression equation  $Y = 59.035 + 0.505X$  indicates that the class XI AKL UPT SMKN 1 Sidrap students' competency skills increase by 0.505 if the problem-based learning learning model increases by one unit.

The study's findings also demonstrate that other factors influence only 41.9% of students' competency skills, with the problem-based learning model accounting for the remaining 58.1 percent. It can be said that the study's hypothesis is "accepted" because the results of the t-test showed a significant value of  $0.000 > 0.05$ , indicating a significant relationship between the class XI AKL UPT SMKN 1 Sidrap's skill competence and the Problem Based Learning learning model.

A correlation value of 0.762 was found in the range of 0.600-0.799, which was in the strong category, according to research on product moment correlation analysis. This demonstrates how the problem-based learning approach has a significant impact on the competency skills of students in class XI AKL UPT SMKN 1 Sidrap.

The findings of this study are consistent with research done by Sari et al. (2017), who reported that after applying the teaching factory learning model it showed that the competency level of students' skills in doing body repair and bodywork work was obtained by 0 students (0%) for the incompetent category, 8 students (26.7%) for the less competent category, 21 students (70%) for the competent category, and 1 student (3.3%) for the very competent category. Therefore, it can be said that the average falls into the competent category. This conclusion is supported by the theory that says a learner is considered competent if he possesses the knowledge, attitudes, and skills that are demonstrated in him in daily life.

The theory advanced by Amalia, Asrizal, and Kamus supports the findings of this study (2014) the choice of learning models can help students become more competent.

## CONCLUSION

The following conclusion can be drawn from the data analysis's findings and the discussion above regarding the impact of using the problem-based learning model in the practical subjects of service, trade, and manufacturing company accounting on the competency skills of class XI AKL UPT SMKN 1 Sidrap students :

1. In light of the outcomes of the descriptive statistical analysis of the very good category variables in the problem-based learning model.
2. The value of the students' competence in the subject of the accounting practicum class XI AKL UPT SMKN 1 Sidrap is largely in the good category, according to the findings of the descriptive analysis.
3. 3. The problem-based learning learning model has a positive impact on students' competency skills in the practical subjects of accounting services, trade, and manufacturing companies class XI AKL UPT SMKN 1 Sidrap, according to the findings of the t-test analysis.

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