

## **The Relationship between Interest in Learning and Mastery of PDTM Theory with Learning Outcomes of PDTM Class X Subjects of the Machining Engineering Expertise Program of SMK Negeri 1 Percut Seituan**

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### **ABSTRACT**

*This study aims to determine: (1) the relationship between interest in learning and student learning outcomes, (2) the relationship between mastery of theory and student learning outcomes, and (3) the relationship between interest in learning and mastery of theory on student learning outcomes. This type of research is correlational research. The research subjects were students of class X Mechanical Engineering at SMK N 1 Percut Sei Tuan as many as 64 students. Data collection techniques using questionnaires, test questions and documentation of learning outcomes. The validity test uses the product moment correlation formula and the reliability test uses the Cronbach alpha formula. The data analysis technique uses the product moment correlation formula. The results showed that: (1) there was a relationship between interest in learning and student learning outcomes. This is indicated by the value of  $r$  arithmetic greater than  $r$  table ( $0.490 > 0.246$ ) and a significance value of  $0.000 < 0.05$ ; (2) there is a relationship between mastery of theory on student learning outcomes. This is indicated by the value of  $r_{count}$  greater than  $r_{table}$  ( $0.457 > 0.246$ ) and a significance value of  $0.000 < 0.05$ ; and (3) the relationship between learning interest and mastery of theory on student learning outcomes. This is indicated by the correlation coefficient or  $R$  of  $0.605 > 0.246$ , and a significance value of  $0.000 < 0.05$ .*

**Keywords :** *Interest in Learning, Mastery of Theory, Learning Outcomes*

### **INTRODUCTION**

Vocational level education strategies are required to produce quality or dignified graduates at the cognitive, emotional and psychological levels continuously with industry needs. One way to achieve this is to produce graduates who have skills and competencies in fields that meet the needs of the industry and can be marketed to the world of work or industry. Therefore, we need to put in place programs that can prove their real role in implementation, both in terms of application and capacity.

The program implemented at SMK is the 2013 Curriculum Program. The 2013 Curriculum Education Program (K13) is a program published in 2013 by the Ministry of National Education. Through this implementation program, in an effort to develop from the previous program which includes attitudes, knowledge and skills. This should be in line with the role and needs of SMK, namely preparing and developing human resources through personal skills improvement and continuous professional training, as well as increasing the ability to be independent in life with the skills they have. This means that before entering the world of work, SMK students must be able to acquire and acquire skills relevant to their field of study, use their knowledge, and be able to be independent.

The difference between SMA and SMK lies in the quality of graduates. SMK has productive or career-oriented subjects. Productive subjects are professional studies, specific skills taught to students depending on the chosen skill program, and such subjects can be developed from a variety of subjects to support the development of psychomotor skills and abilities. The achievement of learning outcomes of students in productivity subjects,

especially PDTM (Basic Mechanical Engineering Work), is a key factor in knowing the competence and skill level of intermediate vocational school students. Academic achievement is the level of capability of a person's knowledge or skills acquired by a person during study and is used to determine a student's academic performance.

As for the curriculum at the level of education units in primary and secondary education in the regulation of the Minister of Education and Culture of the Republic of Indonesia Number 61 of 2014 concerning, Article 1 regulates education regarding the curriculum, named KTSP, is an activity program that is made and applied to the provisions of the education unit. The education system has been developed to be implemented in schools by teaching staff. This education unit is a set of educational services that are providers at all levels and types of education, based on formal and informal levels. The type of formal education in question is a structured pathway based on primary, secondary, and higher levels. Its formal education is only a school where educators and learners meet for educational activities. The learning process includes planning, implementing, and evaluating.

According to the observation of the learning outcomes of class X PDTM subjects, the machining engineering expertise program has not reached an optimal level. Achievement of learning outcomes of SMK students, which is consistently under the Minimum Completion Criteria (KKM). This can be seen from the average pdtm learning outcomes for the last semester in Table 1 below:

**Table 1. PDTM Class X Subject Learning Outcomes Scores**

T.A 2020/2021	Grade	Number of Students	Information
Sem Genap/II	90-100	None	Highly Competent
	81-89	6	Competent
	76-80	11	Competent Enough
	≤ 75	15	Tidak Kompeten
<b>Total</b>		32	Incompetent

Based on the table, it can be seen that the achievement of student learning outcomes in PDTM subjects looks not optimal. At the beginning of the 2020/2021 school year semester 1 of class X TPM had 15 students with grades 75, 11 students from 76 to 80 and 6 students from 81 to 89. Pdtm performance ranking results for the class. X TPM at SMK Negeri 1 Percut Sei Tuan has not met the expectations of KKM standard values. There are still several factors that prevent students from obtaining satisfactory learning outcomes. The above problems can illustrate that there is still a lack of student confidence in participating in learning, as well as a factor of mastering theory in achieving student achievement.

## LITERATURE REVIEW

### Learning Results of Mechanical Engineering Basic Work (PDTM)

In the KBBI (Big Dictionary Indonesian) in the outline, the meaning of learning is "trying to obtain intelligence or knowledge". This understanding can understand learning is an activity to acquire intelligence or knowledge. Another meaning of learning is a stage in which different types of skills, abilities, and attitudes are acquired. Learning starts from the moment a person is born until the end of life, Baharuddin and Esa (2009).

The definition of learning according to Oemar Hamalik (2001) is the improvement or reinforcement of behavior through experience. In this sense, learning is an act of changing

behavior in terms of activities rather than the results obtained. Learning is not about memorization, it is more about experience. Learning outcomes are not mastery of exercise results but changes in behavior. From the theoretical descriptions of the experts above, it is concluded that learning is an activity carried out by a person deliberately in a conscious state in order to obtain a new concept, understanding or knowledge so that changes in behavior occur relatively well ideologically, experience can act to change. on a person.

### **Interest in Learning PDTM (Basic Mechanical Engineering Work)**

Before learning interest in learning, we need to know what is meant by interest in learning. The word interest comes from etymological English meaning "Interest" which means to like, pay attention (tendency towards something), desire. Thus, in the learning process, the student must have an interest or interest in participating in lifelong learning activities, since interest encourages the student to show his interest, activity and participation in life. According to Ahmadi (2009) " Interest is the attitude of a person's soul, which includes the three functions of his soul (perceptual, conscious and emotional), that is, focused on something, not sure of the strength of emotions in this regard."

According to Djamarah (2011) Learning is a process that occurs between teachers and students, and because these activities have educational value in fostering and developing student potential, teachers who encourage students must be able to create innovative ways of learning. Similarly according to Khodijah (2014) learning is the process by which behavior is acquired or modified as a result of experience to achieve cognitive, emotional and psychomotor control through interaction with other people and the environment.

### **Mastery of Theory in PDTM Subjects (Basic Mechanical Engineering Work)**

The function of education is to guide students towards a goal that we take very seriously. We can say that education is good if it manages to lead all students towards this goal. Ideally, the purpose of teaching and learning activities is so that the material learned / provided is really mastered by students. Based on the Big Dictionary of Indonesian (2008) learning means understanding or the ability to use knowledge, intelligence.

Learning success is measured by how well students have mastered the theory (document) of teacher learning. The subject itself is knowledge of the subjects taught in school. Although the topic itself is a past human experience, systematically and logically arranged, and then described in textbooks, students must absorb the content of the book. Sometimes students do not need to understand the benefits of the material. Since these criteria are determined by technical proficiency, the assessment tool is usually a written test of the learning outcomes. (Vina Sanjaya, 2006).

## **METHODS**

Educational research methods are scientific tools for collecting valid data that can be found, developed and proven, certain knowledge can be used to understand, solve and predict. Diagnosing learning problems. The method used in this study is quantitative research with a descriptive type of research that uses numbers that are summed up as data which is then analyzed. Because this study aims to find out whether there is no relationship and if there is a relationship how much influence free variables have, namely interest in learning and mastery of theory on the learning outcomes of basic mechanical engineering work students.

This research has been carried out and applied research at SMK Negeri 1 Percut Sei Tuan Jl. Kolam No.3, Kenangan Baru, Kec Percut Sei Tuan, Kab. Deli Serdang, North Sumatra 20371, in class X students of the Machining Engineering Expertise Program for the 2022/2023 academic year, in the subject of PDTM (Basic Work in Mechanical Engineering). The research was carried out in the odd semester of the 2022/2023 academic year. In this study, the population in this study was class X students of Machining Engineering of SMK Negeri 1 Percut Sei Tuan in the odd semester of T.P 2022/2023. A total of two (2) Classes of 64 Students as shown in the following table:

**Table 2. Research Sample**

No	Machining Engineering Expertise Program	
	Class	Total
1	X TP 1	33
2	X TP 2	31
	<b>Grandtotal</b>	<b>64</b>

## RESULTS AND DISCUSSION

### Result

#### Normality Test Result

Normality tests are imposed with the aim of whether sample data are taken from normally distributed populations. The reasonable and accurate data used in this study is generally distributed data. In this study researchers used a normality test with the Kolmogorov-Smirnov test.

**Table 3. Summary of the Normality Test of Research Data Distribution**

No.	Variable	$L_{hitung}$	$L_{tabel}$	Information
1.	$X1 \rightarrow Y$	0,083	0,111	Normal
2.	$X2 \rightarrow Y$	0,086		Normal

Based on the table above, the normality test using the Kolmogorov-Smirnov Test Statistics method on learning interest (X1) on learning outcomes (Y)  $0.083 < 0.111$ , and mastery of theory (X2) towards learning outcomes (Y)  $0.086 < 0.111$ . So it can be concluded that the regression method in this study has met the normal assumptions.

#### Linearity Test Result

The linearity test is in principle to find out the relationship between the free variable (X) and the bound variable (Y) linear or not.

**Table 4. Summary of Linearity Test of Research Data Distribution**

Variable	Nilai (F)	$F_{tabel}$	Information
$X1 \rightarrow Y$	1,234	1,951	Linear
$X2 \rightarrow Y$	1,227	2,376	Linear

Based on the results of the calculation of the linearity test, the variable X1 as above is data of 1.234, which is greater than the predetermined  $F_{tabel}$  of 1.951. This can be interpreted to mean that between the independent variable (Learning Interest) and the dependent variable (Learning Outcomes) there is a linear relationship. Meanwhile, in the output of the calculation of the variable linearity test X2, the value of the calculation is 1.227, which is greater than the predetermined  $F_{tabel}$  of 2.376. It can be interpreted that between the

independent variable (Mastery of Theory) and the dependent variable there is a linear relationship.

### Hypothesis Test Result

To test the influence between free variables and bound variables used product moment correlation formula. With the analysis of zero-level correlation, the correlation coefficient was obtained between the learning interest variable (X1) and the learning outcome variable (Y) of 0.490, the theoretical mastery variable (X2) with the learning outcome (Y) of 0.457 and between the learning interest variable (X1) and the theoretical mastery variable (X2) of 0.226, each of these correlation coefficients is presented in the following Table.

**Table 5. Summary of the Results of the Calculation of the Correlation Coefficient Between Research Variables**

Variabel	X1	X2	Y	r tabel (N = 64) ( $\alpha = 0,05$ )
X1	1,000	0,226	0,490	0,246
X2		1,000	0,457	
Y			1,000	

From the data of the correlation coefficients shown in Table 5 can be concluded:

- The relationship of interest in learning with learning outcomes  
From Table 4.12 it can be seen that the variable coefficient X1 with Y is 0.490 while the rtabel price for N = 64 is 0.246 at  $\alpha = 0.05$ . Thus, the price of rhitung > rtabel, it is concluded that there is a positive relationship between the variable of interest in learning and the variable of learning outcomes.
- The relationship of mastery of theory with learning outcomes  
From Table 4.12 it can be seen that the coefficient of the variable X2 with Y is 0.457 while the price for N = 64 is 0.246 at  $\alpha = 0.05$ . Thus, the price of rhitung > rtabel, it is implied that there is a positive relationship between the theoretical mastery variable and the learning outcome variable.
- The relationship between interest in learning and mastery of theory with learning outcomes

To determine the influence of variables of interest in learning and mastery of theory with learning outcomes used analysis of double regression and double correlation. From the results of the multiple regression analysis carried out, the price of the constant  $a_0$  was obtained by 3.735, the regression coefficient  $a_1$  was 0.603 and the regression coefficient  $a_2$  was 0.387.

### Coefficient Determination Result

**Table 6. Multiple Regression Analysis Summary**

Source of varians	Dk	JK	Fh	Ft	Coefficient Determination
Total	63	4714,346			
Regression	2	864,061	17,650	3,145	0,367
Residual	61	48,954			

From the results of the analysis, the coefficient of determination of  $R^2$  was obtained by 0.367. Thus it can be concluded that 36.7% of the variance contained in the learning



outcome variable (Y) can be determined by the learning interest variable (X1) and the theory mastery variable (X2) through the equation:

$$\hat{Y} = 3.735 + 0.603X1 + 0.387X2.$$

In addition, from the coefficient of determination, the value of the double correlation coefficient R is 0.605 (greater than the scale r) and the calculated F is 17.650 (greater than the scale F). Thus, it can be concluded that the hypothesis proposed that there is a positive and significant relationship between interest in learning and theoretical knowledge and learning outcomes, has been accepted.

### Results of the Core Correlation Coefficient between Variables

To determine the correlation between each variabel, partial correlation analysis is used. In Table 7 is presented a summary of the analysis of partial correlations between variables.

**Tabl 7. Partial Correlation Analysis Summary**

Controlled Variable	$r_{1,2}$	$r_{2,1}$	tValue	
			$t_{hitung}$	$t_{tabel} \alpha = 0,05$
X1	0,446	-	3,895	1,670
X2	-	0,408	3,490	

The results of the partial correlation analysis show that the theoretical mastery variable (X2) becomes a controlled variable, so there can be a pure correlation between the learning interest variable (X1) and the learning outcome (Y) of 0.446 and t of 3.895 (greater than t table). So the hypothesis that says there is a positive and meaningful relationship between interest in learning and learning outcomes is accepted at  $\alpha = 0.05$ . Furthermore, if the learning interest variable (X1) becomes a controlled variable, then a pure correlation is obtained between the theoretical mastery variable (X2) and the learning outcome (Y) of 0.408 and t of 3.490 (greater than t table). According to the criteria of acceptance and rejection, the hypothesis that reads that there is a positive and meaningful relationship between mastery of theory (X2) and learning outcomes (Y) is accepted at  $\alpha = 0.05$ .

### Discussion

Based on the results of research conducted on Students of level X Machining Engineering it was found:

1. There is a positive and meaningful relationship between the interest in learning and student learning outcomes.
2. There is a positive and meaningful relationship between mastery of theory and student learning outcomes.
3. There is a positive and meaningful relationship between interest in learning and mastery of theory of student learning outcomes.

Therefore, a student who has an interest during learning can be interpreted that cenderugn has the potential to affect a learning outcome. Students who are interested in learning, then these students will be more active in learning. If students' interest in learning tends to be high, the ability of thinking patterns in taking learning indicators will be better. During training, teachers create interesting and meaningful educational and learning activities to arouse students' interest in knowledge. This can be seen from several indicators.

First, the feeling of happiness, the lively interest in learning reflects the interest in

changing the results according to the expectations of students and teachers. Students' enjoyment in participating in learning at school can increase their interest in their learning activities. Secondly, some students feel incomprehension during understanding the material received, if during improper learning treatment. However, some students took the initiative to overcome the difficulties they faced. This can be addressed by asking the teacher or person who guides the student during the learning procession. Shows a willingness to learn to solve problems. Passion is the most important factor in learning. Advanced focus can affect how students learn.

In addition, teaching materials and methods involving students are easier to learn and remember. Because attention is always related to attention, excitement and preparation. Increasing students' interest in learning has an impact on their learning outcomes. Because when students are interested in learning, they are more involved in learning. It can be concluded, the more interest in learning students increases, the better the learning outcomes will be. The results of the analysis show that mastery of the theory is related to the educational results of students of the faculty of mechanical engineering. This means that educational outcomes increase as theoretical skills are mastered. The theoretical ability test is a test that helps to find out the cognitive abilities of students. The purpose of the test is that most respondents have a very high level of theory. Therefore, it can be said that mastery of theory improves the quality of application. The higher the theory of student skills, the higher the quality of teaching implementation.

## CONCLUSION

Based on the results of research conducted by the author, the author can draw several conclusions as follow.

1. There is a relationship between the variable interest in learning (X1) and student learning outcomes (Y) with the category of correlation interpretation on medium criteria.
2. There is a relationship between the theoretical mastery variable (X2) and student learning outcomes (Y) with the correlation interpretation category on the medium criteria.
3. There is a relationship between the variables of interest in learning (X1) and mastery of theory (X2) to student learning outcomes in PDTM subjects (Y) with the category of correlation interpretation on medium criteria.

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