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The Influence of Covid-19 on The Implementation of Industrial Work Practices of Building Engineering Students of SMK N 1 West Sumatra

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ABSTRACT
This study was conducted to determine the magnitude of the influence of COVID-19 on the implementation of Industrial Work Practices of Building Engineering students of SMK N 1 SUMBAR. This research included quantitative research associative approach. The population of this study was students of class XI Building Engineering, which amounted to 50 students. Data collection was carried out using questionnaires. The questionnaire was used to measure COVID-19 variables and Industrial Work Practices. Instrument testing was carried out at SMK N 1 SUMBAR on grade XI students of the Mechatronics Expertise Program totaling 30 students. The data analysis techniques used are prerequisite analysis tests, namely normality tests and linearity tests, and hypothesis tests used are simple regression analyses. The results showed that there was an objective and significant influence of COVID-19 on the implementation of Industrial Work Practices of Building Engineering Students of SMK N 1 SUMBAR where the value of r xy was 0.499, the coefficient of determination (r^2_{xy}) was 0.249 and $t_{\text{was calculated}}$ (3.771) > t_{table} (1,677). Based on the coefficient of determination (r^2_{xy}) 0.249, it means that 24.9% of students' Industrial Work Practices are affected by COVID-19, while the remaining 75.1% are affected by other factors.

Keywords: *COVID-19, Industrial Work Practice.*

1. INTRODUCTION

Vocational High School (SMK) is a level of vocational secondary education that aims to develop the skills of students to carry out this type of learning and is intended to prepare students to be ready to enter the world of work [1]. Based on this, it can be concluded that vocational high schools are educational institutions that provide vocational learning by providing stimulation in the form of learning experiences and interaction with the outside world of students to be ready to enter the world of work [2].

The application of education in Vocational High Schools (SMK) is applied by the learning-by-doing method applied through Industrial Work Practices (Prakerin) [3]. Prakerin is on-the-job training that is carried out to form the skills of the workforce needed by a particular job [4]. Prakerin is a form of preparation that can spur the process of knowledge formation and experience or knowledge transfer. This training directly lowers students related to their respective job descriptions under the supervision and guidance.[5]

The purpose of prakerin is to produce graduates who have skills and work discipline that are following the demands of the world of work [6]. Graduates will have good competence if prakerin is carried out properly [5]. This is because when students carry out prakerin are faced with real conditions on a job in a work environment [7]. SMK graduates are not only equipped with basic knowledge about the industrial world, but directly with experience and practical skills in the real world of work. Therefore, educational institutions must be able to cooperate with the industrial world.

The implementation of prakerin is part of dual system education which is an innovation in the SMK program where students do work practices (internships) in companies or industries which are an integral part of the education and training process in SMK. Dual System Education (PSG) is inspired by the *dual system* conducted in Germany. It began to be enforced in

Indonesia based on the SMK curriculum in 1994, sharpened with the 1999 edition of the SMK curriculum, and reinforced with the 2004 edition of the SMK curriculum.

The important role of Industrial Work Practice (Prakerin) or Field Work Practice (PKL) in PSG is to improve competencies according to industry needs so that the needs desired by the industry are following the competencies possessed by students. The rapid advancement of DU / DI technology will be difficult to achieve in the world of education which is generally viewed from its equipment and competence that there is still a competency gap between SMK and competence in the industry [8]

The application of prakerin can be seen in one of the vocational schools in West Sumatra, namely SMK Negeri 1 SUMBAR. The implementation of Prakerin at SMK Negeri 1 SUMBAR is carried out by grade XI students for 3 months, from June to September. Class XI was chosen instead of class X to do Prakerin because class XI is more mature both skillfully and mentally and psychologically. After all, students will be focused on industrial places and each student will be separated according to the chosen place so that it is difficult for teachers or mothers and fathers to always control it.

At this time the implementation of prakerin is no longer carried out as usual. This is because the world is facing a new pandemic that is troubling society. Where this pandemic initially emerged at the end of 2019 and was referred to as COVID-19. COVID-19 is caused by SARS-CoV-2, a new type of *coronavirus* (a group of viruses that infect the respiratory system). Coronavirus infection can cause mild to moderate respiratory infections, such as flu, or inflammation of the respiratory system and lungs, such as pneumonia[9]

The COVID-19 pandemic entered Indonesia in early 2020. COVID-19 has disrupted daily activities, one of which is learning activities at school. This has made the education system in Indonesia change during the COVID-19 pandemic. To reduce the spread of COVID-19 and learning activities can run as usual. So the government made several efforts, one of which was the implementation of teaching and learning activities through an online system or an online system.

This online learning system has been implemented since March 2020. This online learning system is carried out face-to-face and remotely. By implementing this system, students are not required to come to school or campus to carry out the learning process. This learning system is supported by many facilities available to carry out non-face-to-face learning activities can be carried out. These distance education facilities include the Google Meet application, *Zoom Meeting, Google Classroom, Skype, YouTube*, and other applications and social media such as *WhatsApp.*

The implementation of learning with distance education methods is the possibility of various kinds of problems arising in the course of the educational process. With the implementation of non-face-to-face education, every educator and student must have a smooth internet connection so that educators and students can connect through the application facilities used. However, because there are still areas that have poor internet network access, teaching, and learning activities are hampered. So that the learning results obtained by students are not as optimal as the learning process as usual.

The Covid-19 pandemic, which emerged in December 2019 in Wuhan, Hubei Province, China, spread mainly to Far Eastern countries; then spread quickly throughout the world, including Indonesia. Towards the end of March, the Covid-19 pandemic also had a negative impact on the development of the world of education. With the pandemic, there has been a decline in teaching and learning including field practice activities, this situation has affected every country in the world [10]

At this time, the problem is that due to the COVID-19 outbreak, all prakerin activities cannot be carried out as in previous years, which results in losses to class XI school students themselves who should be able to carry out prakerin and this prakerin should make these students have useful experience and knowledge and make these students ready to face the world of work later. Students who do not undergo prakerin, as usual, will not get the experience that students gained in the previous year, nor will they get valuable lessons that will be gained during prakerin, such as experience interacting with employees, experience using tools and strengthening skills, and adjusting work situations [11]

Based on the results of an interview conducted with one of the Building Engineering teachers of SMK N 1 SUMBAR, it can be seen that students have difficulty in choosing a place to carry out prakerin due to restrictions from schools as a result of COVID-19 which is still ongoing. The difficulty is not only due to restrictions from schools, many industries are turning away prakerin students and limiting the number to fewer than in previous years. The time for prakerin implementation is also shortened to minimize the possibility of being affected by COVID-19, this creates obstacles for students which results in the implementation of prakerin is not optimal so that the purpose of prakerin is not achieved optimally. From all these problems, holistic and comprehensive thinking is needed to provide solutions to problems from the impact of Covid-19 [12]

2. RESEARCH METHODS

Based on the problems studied, the research method used is the quantitative associative approach. Quantitative research is a scientific method that uses numbers, starting from data collection, data

interpretation, and results in its analysis [13]. Associative research is research that aims to determine the influence or relationship between variables or more. The purpose of this study was to determine the relationship between 2 or more variables[14]. The population of this study is Building Engineering students of SMK N 1 SUMBAR with a total population of 50 students. If the number of respondents is less than 100, then the sample is taken all and the research is population research [2]. In this study, because the population is less than 100, which is 50 students, therefore it will not be sampled but the population will be studied.

This study was carried out using the questionnaire method. While the data collection tool uses a list of statements contained in the questionnaire (questionnaire). Therefore, this questionnaire contains a statement that reveals the effect of COVID-19 on class XI Building Engineering prakerin. Using a *Likert scale* consisting of five alternative answers [9]. Whereas the Likert scale has levels from very positive to very negative

The data obtained will later be processed and analyzed with descriptive statistical calculations using the SPSS Statistical 22 program. In the calculation of descriptive statistics, the value of the value will be obtained so that the average price, mode, range, maximum value, frequency distribution, and the histogram will be obtained. Furthermore, the prerequisite analysis test is the normality test and linearity test, and hypothesis test, namely simple regression analysis, the coefficient of determination, and the t-test.[15]

3. RESULTS AND DISCUSSION

The description of the data presented in this study is the influence of COVID-19 on class XI Building Engineering students of SMK N 1 SUMBAR. The research was conducted at SMK N 4 Pariaman. The results of the study were analyzed using the help of Microsoft Office Excel 2016 and SPSS statistic 22 to find the average value of a (*Mean*), the middle value of h (*Median*), the value that often appears m (*Mode*), the minimum value (*minimum*), the maximum value (*maximum*), and standard deviation (*Standard Deviation*).

3.1. Data Description

3.1.1. COVID-19

Table 1. Statistical Calculation of COVID-19 Indicators

N	Valid	50
	Missing	0
Mean		36.50
Median		37
Mode		37
Std. Deviation		4.756
N	Valid	50
	Missing	0
Minimum		24
Maximum		47

From the results of Table 1, the average value (*mean*) of 36.50 is obtained, and the median value is. 37, the value of appears l (*mode*) of 37, the minimum value (minimum) of 24, the maximum value (*maximum*) of 47, and the standard deviation (*standard deviation*) of 4.756. The result class s interval is calculated by the Strugess Rule formula which is 1 + 3.3 log n, 1 + 3.3 logs 50 = 8. Class range = maximum score – minimum score = 47-24= 23. Interval class length = class range/sum of interval class lengths = 23/8 = 2.87 rounded to 3. The variable frequency distribution of COVID-19 can be seen in Table 2 below:

Table 2. COVID-19 variable frequency distribution

No.	Interval	Frequency	Percentage
1.	24 – 26	2	4%
2.	27 – 29	2	4%
3.	30 – 32	5	10%
4.	33 – 35	7	14%
5.	36 – 38	16	32%
6.	39 – 41	13	26%
7.	42 - 44	4	8%
8.	45 – 47	1	2%
Sum		50	100%

Based on the frequency distribution data above, the frequency distribution of COVID-19 can be used as follows:

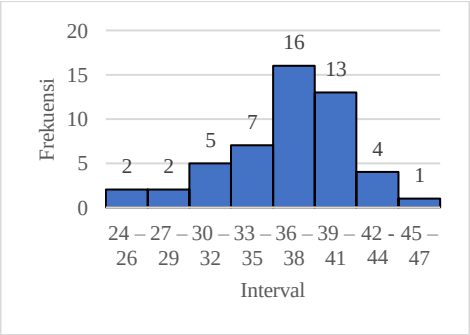

Figure 1. COVID-19 variable frequency distribution histogram

3.1.1. Industri Work Practices

Table 3. Statistical Calculation of Industrial Work Practice Indicators

N	Valid	50
	Missing	0
Mean		95.18
Median		98
Mode		98

N	Valid	50
	Missing	0
Std. Deviation		13.103
Minimum		56
Maximum		125

From the results of Table 3, the average number (*mean*) is 95.18, the middle number h (*median*) is r 98, the number that often appears m (*mode*) is 98, the minimum number (*minimum*) is 56, the maximum number (*maximum*) is 125, and the standard deviation (*standard deviation*) is 13.103. The result of class s interval is calculated by the formula Strugess Rule which is 1 + 3.3 log n, 1 + 3.3 log 50 = 8. Class range = maximum score – minimum score = 125-56 = 69. Interval class length = class range/sum of interval class lengths = 69/8 = 8.62 rounded to 9. The frequency distribution of prakerin variables can be seen in Table 4 below:

Table 4. Prakerin Variable Frequency Distribution

No.	Interval	Frequency	Percentage
1.	56–64	2	4%
2.	65–73	1	2%
3.	74–82	6	12%
4.	83 – 91	4	8%
5.	92–100	22	44%
6.	101-109	10	20%
7.	110-118	4	8%
8.	119-127	1	2%
Sum		50	100%

Based on the frequency distribution data above, the frequency distribution of Industrial Work Practices can be used as follows:

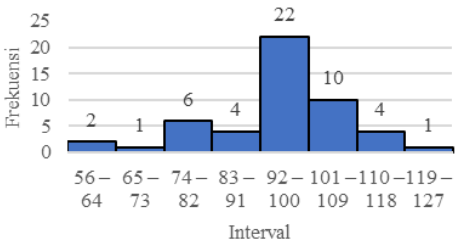

Figure 2. Prakerin variable frequency distribution histogram

3.2. Analysis Prereqiste Testing

3.2.1. Normality Test

According to [4] the normality test aims to test whether in one linear regression model, there is correlation between confounding errors or residuals have a normal distribution. The normality test in this study used the Kolmogorov-Smirnov One Sample test on SPSS 22 with decision-making criteria based on a significance value of 0.05. If the Sig value is >0.05 then the research data is normally distributed, and if the Sig value is < 0.05 then the research data is not normally distributed. The results of the normality test are shown in Table 5.

Table 5. Normality Test Results Summary

N	50
Statistical Tests	0,12
Asymp. Sig. (2-tailed)	0,090

Table 5. shows a significance value of 0.090 greater than 0.05 so that it can be concluded that the tested data is normally distributed.

3.2.2. Linearity Test

The linearity test is carried out to determine whether or not there is a linear relationship between the independent variable and the dependent variable [5]. The results of the linearity test can be known to see the significant value of the *deviation path from linearity*. If the significance value of *Deviation from Linearity* > alpha (0.05) then the value is linear[6]. The calculation is carried out with the help of statistical SPSS version 22. The significance value can be seen in the ANOVA table, a table of output generated by SPSS statistics version 22. A summary of the results of the linearity test can be seen in Table 6 below.

Table 6. Summary of Linearity Test Results

Variable	Significant Value	Information
COVID-19 (X) Industrial Work Practices (Y)	0,328	Linear

Based on Table 6, it can be seen that the significant value on the deviation from the linearity path > 0.05. It can be concluded that the relationship between the independent variable and the dependent variable is linear**.**

4. HYPOTHESIS TESTING

In a hypothesis testing situation, an interesting piece of evidence insofar as it tells something about the hypothesis. In an information theory formula, hypotheses do not arise. However, there is a measure, within the information-theoretical framework, that calculates the amount of information that a part of a piece of evidence can provide to support a given hypothesis.[16]

The hypothesis in this study is "COVID-19 has a significant effect on the implementation of industrial work practice of building engineering students of SMK N 1 Sumbar". The results of a simple regression analysis can be seen in table 7 below

Table 7. Smarmy of Simple Regression Analysis Result

Coefficients						
Type		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	60.106	9.887		6.079	.000
	COVID19	1.009	.267	.499	3.771	.000
a. Dependent Variable: PRAKERIN						

The table above displays the regression equation which is Y = 1.009 X + 60.106. From this equation, it can be seen that the constant value has a positive regression coefficient, which is 60.106, indicating that if other variables increase by 1 point, the Industrial Work Practice variable increases by 60.106. A simple linear regression test of the regression coefficient on variable X, namely COVID-19, has a positive sign of 1.009, meaning that it shows that every increase of 1 point of COVID-19, the effect on the implementation of Industrial Work Practices has increased by 1.009.

Further tests of the coefficient of determination and t tests were carried out. The test results can be seen in Table 8 below.

Table 8. Summary of the results of the coefficient of determination test and t-test

Variable	Price r			Price t		Koef.	Const.
	$r_{calculate}$	r_{table}	r^2	t_{count}	t_{table}		
X-Y	0,499	0,235	0,249	3,771	1,677	1,009	60,106

From the table above, it can be seen that the value of the regression coefficient (r xy) is 0.499 and the result of the coefficient of determination (r^2_{xy}) is 0.249. The value of r^2_{xy} can be interpreted that 24.9% of changes that occur in the Industrial Work Practice variable (Y) can be explained by the COVID-19 variable (X), while 75.1% are explained by various other variables that were not analyzed in this study. The result of the t test obtained t_{count} 3.771; while t_{table} with dk = (n-2 = 48) at the 5% significance level is 1.677. Thus, the tcount is greater than the ttable (3,771 > 1,677) so COVID-19 (X) has a significant effect on Industrial Work Practices (Y).

5. CONCLUSION

Based on the results of questionnaire data analysis using SPSS 22 software, it can be concluded that COVID-19 has a positive and significant influence on the implementation of Industrial Work Practices. This can be seen from the value of r xy of 0.499, the coefficient of determination (r^2_{xy}) of 0.249, and t_{count} (3.771) > t table (1.677). Based on the coefficient of determination (r^2_{xy}) 0.249, it means that 24.9% of Industrial Work Practices are affected by COVID-19, while the remaining 75.1% are influenced by other factors not discussed in this study.

the "Styles" menu should be used to format your text if needed. Highlight the text you want to designate with a certain style, and then select the appropriate name on the Style menu. The style will adjust your fonts and line spacing. Use italics for emphasis; do not underline. To insert images in Word, position the cursor at the insertion point and either use Insert | Picture | From File or copy the image to the Windows clipboard.

AUTHORS' CONTRIBUTIONS

Jonni Mardizal, as the head of the researcher provides the concept of the problem.

Fahmi Rizal, Nurhasan Syah, Syaiful Haq as member of the researcher who provides input for research problem solving ideas.

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