

The Relationship of Work Environment Towards High School Teachers Performance in Bandung During Covid-19 Pandemic

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Abstract - COVID-19 outbreak significantly affected a lot of industries in Indonesia, including the educational industry. Only 72.71% of the educational industry operates like usual, meaning that the school's activity is held remotely, and the educational personnel have to do their work at home. With a new working environment during COVID-19, the main objective was to identify the relationship between work environment and employee performance during COVID-19. Since it is reported from former studies that show an employee's workplace environment positively influences their performance in doing their work. In this study, there are two independent variables, the first one is the physical environment, and the second one is the non-physical environment. This study was conducted in a public high school in Kota Bandung using questionnaires to gather data from 100 respondents. The data analysis uses the multiple linear regression method, where the results show that the work environment has a significant influence on employee performance. Meaning that teachers, school, and government should synergise to pay attention to the teachers work environment while working from home during COVID-19 to optimise teachers' performance.

Keywords - Work Environment, Physical Environment, Non-Physical Environment, Teachers

I. INTRODUCTION

In order to achieve the desired level of employee performance, there's a lot of factors that should be considered by the institute, organisation, or company. One of the factors that should be considered by the company is the working environment.

The working environment is defined as a group of factors that affect employee's morale, engagement, and productivity in a positive or negative way [1]. The work environment becomes one of the factors that can help employees perform better and work more efficiently because its convenience was so impactful towards the employee's performance. Moreover, according to research from a study [2], in a non-conductive work environment, employee productivity may suffer, and employees may become dissatisfied. This fact shows that the working environment has a significant influence on employee performance.

The work environment is divided into two forms: physical and non-physical environments. The physical environment refers to any factors in the workplace that impact employees, either directly or indirectly [3]. It consists of various elements such as lighting, noise,

thermal environment, working tools, and work layouts. Meanwhile, the non-physical environment consists of non-physical factors such as rules or regulation, internal factors, external factors, resources [4] training and development, participative management, the opportunities for further growth, supervision [5] incentives, coaching, and performance appraisal are some of the factors of the non-physical environment [1].

Since the COVID-19 outbreak came to Indonesia at the end of Q1, it impacted almost all industries in Indonesia, including the educational industry and forced the teachers to work at home following the large-scale social distancing restriction regulations from the government. This is supported by data served by Badan Pusat Statistik [6] that indicates 72.71 percent of the educational industries have been disrupted and forced to close to implement their activities remotely from home. This number is the highest number among all industries that needed to be closed down.

Following the restriction to work on-site that impacted the educational industry and forced teachers to work from home to conduct remote learning during the pandemic, the teachers have to face a new working environment. There are a lot of expectations that are faced by the teachers, such as the acceleration of technology adaptation in the learning activities, the need to reorganise teaching methods, expected to be creative and innovative in developing an effective learning method in order to keep the learning process effective, etc. And, it is supported by findings from another study that shows there are other several issues because of the new environmental condition, a lot of teachers losing their motivation, getting distracted easily, etc. [7] The changes and issues that they are facing in their work environment may influence the teacher's performance.

Furthermore, considering the importance of this study to keep the learning environment handled efficiently, following the goals of the education system in Indonesia which want to develop Indonesian people and generation quality through the education. Hence, to get a good quality of the students with a good performance, it is also needed the teacher's optimal performance [8] because according to the issues that arise during remote learning in the COVID-19 situation there's a lot of disparities in the learning delivery that can affect the teacher's performance. And in this different learning environment which is conducted at

home the researcher's main goals is to know whether the physical environment and non-physical environment as the independent variable has a significant influence on teachers' performance.

This is the following hypothesis to support the examination of the main goals of the study:

H1: Physical environment has a significant relation with teacher performance in public high school during COVID-19.

H2: Non-physical environment has a significant relation with teacher performance in public high school during COVID-19.

H3: Physical environment and the non-physical environment simultaneously have a significant relation with teacher performance in public high school during COVID-19.

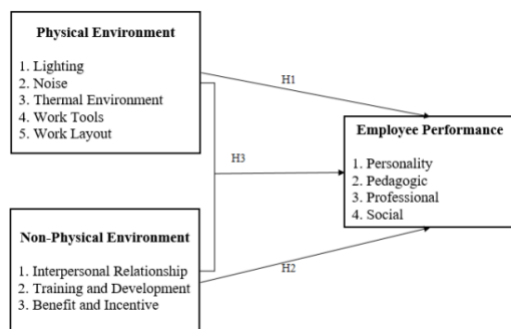


Fig. 1. Conceptual Framework

II. METHODOLOGY

And because this study aims to know the relationship between the physical environment and non-physical environment towards employee performance, the researchers use a quantitative approach as the methodology of this research. And the data collection method of this study is using a questionnaire with a 5-point Likert-Scale and measurement point starting from strongly disagree to strongly agree.

The questionnaire contains 36 questions that are constructed by the definition of each of the variable dimensions, there are lighting, noise, thermal environment, work tools, work layout, interpersonal relationship, training and development, benefit and incentive, personality, pedagogic, professional, and social.

However, since the limitation of targeted samples is for teachers from public high school and vocational schools in Bandung city, this study gathers 100 samples that have been calculated using Slovin's formula from 2818 total population of public high school and vocational school teachers in Bandung city with 10% margin of error and 90% confidence level as seen on the equation below:

$$n = N/(1 + Ne^2)$$

$$n = 2818/(1 + (2818 \times 0.1^2))$$

$$n = 96.5729952 \approx 100$$

Fig. 2. Slovin's Formula

And for the data analysis, it will use descriptive analysis, data validation method consisting of validity and reliability test, classical assumption test, and multiple linear regression method. This method is used since it is suitable to assess the influence of two or more independent variables on the result of a dependent variable in accordance with the purpose of this study.

In the multiple linear regression method, the researchers use formulation as follows;

$$Y_i = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + e_i$$

Fig. 3. Multiple Linear Regression Formula

Where:

Y_i : Dependent variables

b_0 : Constanta

b_1 and so on: Coefficient regression of Independent Variable (X_1 , X_2 , and so on)

e : Error

Thus, to do the multiple linear regression test, the researchers must conduct the coefficient of determination test, F-Test, and T-Test to determine the real value of the regression model. To measure the coefficient of determination, can be seen from The R Square, The R square value indicates how effectively the independent variable can explain the dependent variable's variation. A low R squared value indicates that the independent variable's capacity to explain the dependent variable is constrained. To identify the simultaneous relationship between the independent variables and the dependent variable, the researchers use F-Test. Finally, to conduct a test which aims to identify the partial relationship of the independent variables on the dependent variables, the researcher uses T-test.

III. RESULTS

A. Descriptive Analysis

The results of data collection show the demographic background of this study respondents. Among 100 respondents, 79% of respondents are female, and the other 21% are male. The age background was various there are 39% of the respondents are >50 years old, 18% of them are in the age between 41 and 50 years old, 31% of them are in the age between 31 and 40 years old, and the rest of 12% are in the age between 20-30 years old.

Other demographic data collected in this study is the respondents' level of education, which shows that most of them, with 79% of total respondents, graduated with bachelor degrees. The respondents also show that most of

them are having more than 15 years of teaching period in the educational industry, meaning that they are considered as experienced in the academic industry. And the respondent's workplaces are quite balanced, and there are 45% of the respondents coming from high school and 55% coming from vocational schools.

B. Validity Test

The validity test is conducted to determine the accuracy of a questionnaire [9]. The validity test is carried out using the SPSS application to perform bivariate correlation and to determine if the questionnaire is valid. The test is conducted by comparing the Pearson correlation coefficient value is greater than the R-Table [9]. And, the results show that all of the variables are considered to be valid.

C. Reliability Test

This study conducts a reliability test to determine how consistent the responses of respondents are in a questionnaire [9]. If the Cronbach's Alpha value is greater than 0.6, it is referred to as reliable.

TABLE I
RELIABILITY TEST

Variable	Cronbach's Alpha	N of Items	Reliability
Physical Environment	0.777	12	Reliable
Non-physical Environment	0.761	9	Reliable
Performance	0.843	15	Reliable

From the results above it shows that this study is considered to be reliable.

D. Classical Assumption test

In this study, the classical assumption test used is normality test, homoscedasticity test, multicollinearity test and linearity test.

The first assumption test is the normality test, and this test is used to see if the variables are distributed normally [9]. The Kolmogorov-Smirnov (K-S) test is used to determine if the variables are normally distributed. And because the significance value is 0.20, which is more than 0.05, the results of the computation using One-Sample K-S are normally distributed.

The second assumption test is a homoscedasticity test where a regression model is considered a good model if there is no heteroscedasticity. It will be considered as homoscedastic if the data in the scatter plots are spreading in the upper and lower ranges of number 0 on the Y-axis, and no pattern can be discerned, and as seen from Figure 2 below, the data is homoscedastic.

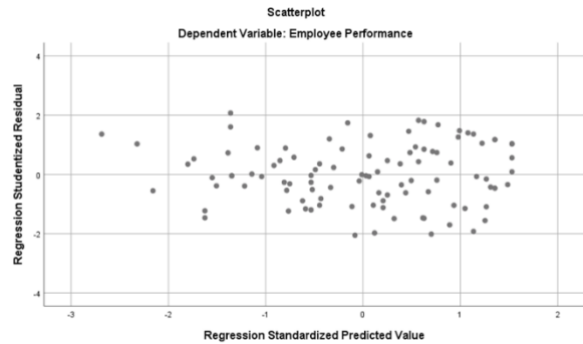


Fig. 4. Heteroscedasticity Test

The third assumption test is a multicollinearity test that aims to identify whether the independent variables in the regression model are correlated, and a good regression model is one in which the independent variables are not correlated. To exclude any multicollinearity, the tolerance value should be greater than 0.100, and the VIF value should be less than 10.00. And from the test results, the tolerance value is greater than 0.100, which is 0.674, and the VIF value also shows that it is less than 10.00, which is 0.674. It can be concluded that there's no multicollinearity in the regression model.

The fourth assumption test is the linearity test that aims to assess the accuracy of the models. Additionally, the significant value of deviation from linearity can be used to determine if the regression model is linear or not, and the outcome is linear if it is bigger than 0.05. From the data, the linearity of the physical environment is 0.428, and the non-physical environment is 0.901, which can be concluded that there's a linear relationship.

E. Multiple Linear Regression

Multiple Linear Regression is a method for calculating the impact of two or more independent variables on a dependent variable. Based on the results from the data collected, here is the set of equation models:

$$Y_i = 23.286 + 0.159 X_1 + 0.840 X_2$$

From the equation models, it can be interpreted as if the constant-coefficient value of 23.286 means that if the values of Physical Environment and Non-Physical Environment are zero, the value of Employee Performance will be 23.286.

Also, the physical environment value is 0.159, which indicates that if every 1% increase in the physical environment, it will affect employee performance by 15.9%.

And, the non-physical environment value is 0.840, which indicates that if every 1% increase in the non-physical environment, it will affect employee performance by 84%.

Coefficient of Determination (R Square)

The coefficient of determination (R square) is used in the multiple linear regression test to measure how well the independent variable explains the variation of the dependent variable. The data processed shows that the R square value is 41.5 percent, meaning that 41.5 percent of the employee performance variable can be described by physical and non-physical environment variables, while the remaining value can be explained by additional factors that are not examined in this research. And the R-Square level is considered significant in this study because it is deemed significant if the R-square is bigger than 0.26 [10].

Simultaneous F-test

In this study, researchers use an F-test to see if the independent factors are able to affect the dependent variable simultaneously. From the results that are shown in Table 2 below, the physical and non-physical environment variables simultaneously affect the employee performance, since the significant value is lower than 0.05, which is 0.000 and from the comparison of the F-table (3.09) and the F-value (34.475) the F-value is greater than the F-table.

TABLE 2
F-TEST

ANOVA ^a					
Model		Sum of Squares	df	Mean Square	F
1	Regression	1297.220	2	648.610	34.475
	Residual	1824.970	97	18.814	
	Total	3122.190	99		

a. Dependent Variable: Employee Performance
b. Predictors: (Constant), Non Physical Environment, Physical Environment

Partial T-test

The researchers also use a partial test to identify whether the independent variables are able to affect the dependent variable partially. It is considered as able to partially influence the dependent variable if the significance value is less than 0.05. From the results as seen in Table 3, the significance value of the physical environment is 0.123, and the significance value of the non-physical value is 0.000, where it can be concluded that the physical environment partially has no relation to employee performance. Meanwhile, the non-physical environment partially has a significant effect on employee performance.

TABLE 3
T-TEST
Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.286	5.135		4.535	.000
	Physical Environment	.159	.102	.147	1.555	.123
	Non Physical Environment	.840	.145	.549	5.810	.000

a. Dependent Variable: Employee Performance

Here is a table to help differentiate the results of the partial and simultaneous relationship between the variables:

TABLE 4
RESULTS DIFFERENCES

Simultaneous results	Partial results
- F-Test is used to jointly test the independent variables. - The results show that the independent variables simultaneously have a significant relationship on teachers' performance. - It has significant relationship by 41.5% according to the coefficient of determination	- T-test is used to test the independent variable partially. - The physical environment show that it didn't have any significant relationship, meanwhile for the non-physical environment it has a significant relationship - The physical environment has a relationship by 15.9% if there's any increase of 1% on the dependent variable - The non- physical environment has a relationship by 84% if there's any increase of 1% on the dependent variable

IV. DISCUSSION

The following are the outcomes of the hypothesis, based on the previous data analysis:

TABLE 5
HYPOTHESIS OUTCOMES

Hypothesis	Outcomes
H1	Rejected
H2	Accepted
H3	Accepted

According to the findings, the H1 (Physical Environment) has no substantial relationship on teacher performance, implying that the physical environment has no significant relationship on teacher performance. For the H2 (Non-Physical Environment), the findings reveal that it has a considerable impact on teacher performance. Furthermore, the H3 (physical and non-physical environment) has a significant impact on teacher performance, according to the findings.

The results are in contrast to prior research findings, it can be seen from the findings from [3] and [1] that the physical environment positively affects employee performance and the company needs to improve the physical working environment to optimise their employee performance. Such as considering the noise level around the environment and the employees work layout to give the employees privacy for themselves. Meanwhile, the results from a study by [11] have a similar outcome with this study. It shows that employee performance is not affected

by the physical environment factors like privacy or work layout, noise, or disruption. In this study it can be caused by the fact that most of the respondents have more than 15 years of experience where within those 15 years there's a lot of change in the physical environment. And the teachers are more adaptive to changes in the physical environment.

This also applies to the results of the non-physical environment, and it shows that from [12], the elements of the non-physical environment such as maintaining a great relationship, receiving training and development, and receiving a good incentive or reward all have a favourable impact on an employee's performance and help the employees to enhance their productivity. These results supported by the current condition, where job demands and responsibilities are higher and in order to achieve those responsibilities, they need a good performance which is mainly supported by the non-physical environment aspects. Furthermore, other research findings have the same results that show the non-physical environment has a significant influence on employee performance to work more effectively, and it is considered to be important for the company to maintain a good non-physical environment to achieve an optimal employee performance [3]. However, the other results from another study also show that the non-physical environment had no substantial impact on employee performance [13].

The results may differ from the previous study, and this difference might be because of the different locations, sample size, different industry sectors, or the condition of this study is during COVID-19 condition where the past study is conducted during the normal condition that leads to the variation of the results.

For the H3 results, it is indicating that the simultaneous results of the independent variables on the dependent variables is accepted and have 41.5% significant relationship. It is in line with the previous study which also indicates that the physical and non-physical environment is important to employee performance.

However, even if the findings of the physical environment in H1 are rejected, the results demonstrate that the physical environment can have a substantial association with the teachers' performance in H3, which is in a simultaneous situation. This can be supported by the results from the equation models on Fig.5 where the physical environment is able to increase the employee performance by 15.9% if there's any 1% increase in the physical environment of the teachers, this result is still considered as having a relationship even if it's only in a small percentage of numbers.

V. CONCLUSION

Based on the results of the analysis on teachers from public high school and vocational schools in Bandung city

regarding the influence of the physical environment and non-physical environment towards the teacher's performance, here is the conclusion of the study:

1. The physical and non-physical environment have a 41.5 percent positive impact on teacher performance. And the rest of the values are other factors that are not examined in this study.
2. The results of the analysis of the physical environment show that the variables have no significant relationship on the employee performance since the significant value is greater than 0.05 where $t\ 0.123 > \alpha\ (\alpha)\ 0.05$ and in constant condition, with every 1% increase of the physical environment it will affect the employee performance by 15.9%
3. The results of the analysis of the non-physical environment show that the variables have no significant relationship on the employee performance since the significant value is lower than 0.05 where $t\ 0.000 < \alpha\ (\alpha)\ 0.05$ and in constant condition with every 1% increase of the non-physical environment it will affect the employee performance by 84%.

From the result of this study, in this current pandemic condition, teachers are more considerate of the non-physical environment to support their work performance. Also, considering their work responsibilities that are quite stressful which require the teachers to be more creative, so it leads the teachers to be more demanding to the opportunity to develop, receive training facilities, building a good interpersonal relationship to discuss and communicate with others, and benefit or incentive as rewards and support during this outbreak condition.

And it is considered important for the institution, organisation, or company to understand the important factor to achieve the employee's optimal performance since the work environment is one of the factors that influence their performance it is important to define which of the work environment variable is more considered as important in the company whether it is the physical or non-physical environment.

ACKNOWLEDGMENT

The author would like to express gratitude towards the author's parents, supervisors, friends, and especially teachers in public high school and vocational schools in Bandung city for the participation and all public high school and vocational school in Bandung city for the permission to distribute the questionnaire as the research material.

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