

Employee's productivity at the operation of Indonesian railway

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ABSTRACT

This research was done to study the effect of the physical work environment and nonphysical workplace environment on employee's productivity. It was conducted at the Indonesian Railway Corp. operation district 8. The population consists of 250 employees and the sample was determined using Slovin's equation with the size 71 employees. The data was taken using a questionnaire and analyzed using linear regression to analyze the partial and simultaneous effect of the physical work environment and nonphysical workplace environment towards employee's productivity. Based on the statistical analysis conducted using SPSS 18, the p-Value of the physical workplace environment and nonphysical workplace environment are 0.013 and 0.036 respectively, both are less than 0.05. Thus, it indicates that the physical workplace environment and nonphysical workplace environment significantly and partially affect employee's productivity, while the F-count is 14.831 and its p-Value is 0.000 (<0.05) indicating that physical workplace environment and non-physical workplace environment simultaneously affected employee's productivity. The regression coefficient (R^2) was 0.504 or 50.4%. Therefore, it also shows that the physical workplace environment and non-physical workplace environment simultaneously affected employee's productivity about 50.4%, and about 49.6% might be affected by other variables.

ABSTRAK

Penelitian ini dilakukan untuk mengetahui pengaruh lingkungan kerja fisik dan lingkungan tempat kerja nonfisik terhadap produktivitas karyawan. Penelitian ini dilakukan di distrik operasi Indonesia Railway Corp 8. Populasi terdiri dari 250 karyawan dan sampel ditentukan menggunakan persamaan Slovin dengan ukuran 71 karyawan. Data diambil menggunakan kuesioner dan dianalisis menggunakan regresi linier untuk menganalisis efek parsial dan simultan dari lingkungan kerja fisik dan lingkungan tempat kerja nonfisik terhadap produktivitas karyawan. Berdasarkan analisis statistik yang dilakukan dengan menggunakan SPSS 18, p-Value dari lingkungan tempat kerja fisik dan lingkungan tempat kerja non fisik masing-masing adalah 0,013 dan 0,036, keduanya kurang dari 0,05. Dengan demikian, lingkungan tempat kerja fisik dan lingkungan tempat kerja nonfisik secara signifikan dan sebagian mempengaruhi produktivitas karyawan, sedangkan F-hitung adalah 14,831 dan p-Value-nya adalah 0,000 ($<0,05$) yang menunjukkan bahwa lingkungan tempat kerja fisik dan lingkungan tempat kerja non-fisik secara bersamaan mempengaruhi produktivitas karyawan. Koefisien regresi (R^2) adalah 0,504 atau 50,4%. Oleh karena itu, ini juga menunjukkan bahwa lingkungan tempat kerja fisik dan lingkungan tempat kerja non-fisik secara simultan mempengaruhi produktivitas karyawan sekitar 50,4%, dan sekitar 49,6% mungkin dipengaruhi oleh variabel lain.

1. INTRODUCTION

The increasing number of human beings affects the importance of various facilities to supply their necessary. One of the important things

is the availability of transportation, which can be useful for supporting all of economic activities in Indonesia. Due to the importance of transportation for economic activity, the

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company, which focuses on transportation service, must assure its quality. One of the convenience transportation in Indonesia, which has big number of passengers, is local train. It is organized by a state-owned company, namely Indonesian Railwayscorp or PT Kereta Api. This company has nine operation districts including operation district 1, 2, 4, 5, 6, 7, 8, 9, which was centered at Jakarta, Bandung, Cirebon, Semarang, Purwokerto, Yogyakarta, Madiun, Surabaya, Jember, respectively. For each district coordinates several sub districts.

The implementation of quality management system at service based industry must improve its performance. The company must require the quality for its sustainability. In the other hands, the company's productivity can be an importance issue for company's sustainability. Regarding the quality improvement, workplace environment has critical effects on job performance.

Workplace environment is a workplace station affecting the workplace outcome, both quantity and quality (Render & Heizer, 2001). According to Sedarmayanti and Pd (2001), workplace environment is divided to the physical environment and non physical environment, physical environment was divided to the environment, which directly connected to the employee including chair, table, door, air conditioner, paper, computer, etc, and intermediary connected employee, such as air circulation, lighting, noise, terrible smell, color, and mechanical vibration. While, non physical workplace environment described as the communication, connection, and collaboration between one employee and another in a workplace place. According to Alex Nitisemito (2000) and Santoso (2001) non physical environment in a workplace place must be intensified by a human resources manager to establish a sense of family, intensify the good communication and self controlling for supporting the company's goal. It is important to have a workplce consuderling the non physical environment factors.

Operation district 8 placed at Surabaya city, the capital city of province East Java coordinates several sub district including Surabaya, Sidoarjo, Malang, Mojokerto and Lamongan. The central office is placed at the Gubeng Train Station, Surabaya, it coordinates one of the great train station in Indonesia, namely the Gubeng Train Station. It is the fourth greatest train station in Indonesia and the greatest train station in the East Java.

This achievement might be affected by job performance of their employees. Therefore, this study is intended to study the effect of workplace environment on the employee's productivity in the operation district 8 of Indonesian RailwayCorp. This research is also expected to provide the benefit information for designing performance strategy at all of the operation districts throughout.

HYPOTHESIS

H1: Employee's productivity is affected by physical workplace environment

H2: Employee's productivity is affected by non physical workplace environment

2. RESEARCH METHOD

Research Approach

This is a quantitative approach allowing several steps, including pre-survey to the company to determine the population and sampling, then collect the required data including the general information of the Indonesian Railway corp. at operation district 8, information about the employee characteristics (demography). The data were collected by using questionnaire as the instrument to study the effect of workplace environment on employee's productivity (questionnaire is not shown). The independent variables in this research are physical workplace environment (X1) and non physical workplace environment (X2). The physical workplace environment concerns the office utensils and the office layout, while non physical workplace environment such as noise, and room temperature. The dependent variable is the employee's productivity (Y), described as job quantity, job quality, and punctuality.

Population and sampling

Population consists of 250 employees taken from Indonesian Railways corp. at the operation district 8. They were calculated using Slovin's equation.

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

Description

n	: Sample (people)
N	: Population (people)
e	: allowance (1%, 5%, 10%)

According to the equation above, there were 71 employees for choosen for this research.

Statistical analysis

The questionnaire was evaluated based on its consistency of the measured results over time

if the phenomenon, which is being measured is not changed. The validity is a measure that indicates that the tested variable in this research is desirable. Those indicators were tested using validity and reliability test. Normality test was conducted to test whether the regression model, the independent variables or residuals have a normal distribution and can be used to consider that the sample taken from a normally distributed population. Multicollinearity test was also conducted to test whether the regression model used was found a correlation between the independent variables. And, the next is Heteroscedasticity test, aimed to test whether the regression model of the residual variance occurs inequality an observation to other observations.

Hypothesis test was conducted to prove the effect of the physical workplace environment (X_1), non physical workplace environment (X_2) to variable employee's productivity (Y), both simultaneously and partially. Simultaneous test was done by calculating the value of F , if the F_{count} has p-value less than 0.05, the results can be claimed that physical and non physical workplace environment affect employee's productivity. Regarding the partial effect of independent variable on dependent variable, the study conducted it by calculating the t-value for each independent variable. All of statistical analysis in this research was done using SPSS 18.00.

3. DATA ANALYSIS AND DISCUSSION

As presented in Table 1, it can be seen that physical workplace environment significantly affects employee's productivity indicated by the p-Value of 0.013 (<0.05). It also has a positive effect on employee's productivity indicated with regression coefficient (β) was 0.466, and therefore, H_1 was accepted. According to Altman and Lett (1970), the characteristics of the office environment can have a significant effect on the workers' behavior, perceptions, and productivity while Dole and Schroeder (2001) assumed that employees who are more satisfied with the physical environment are more likely to produce better work outcomes. Other researchers (Akinyele, 2010) and Massoudi & Hamdi (2017) also found that employees' productivity was affected by their work environment directly both physical and non physical ones.

Table 1
The Results of Regression Analysis for Evaluating the Partial Effect of Each Tested Variable on Employee's Productivity

Variable	Standardized Coefficients	p.value
Physical workplace environment	0.466	0.013*
Non-physical workplace environment	0.151	0.036*

*) significant at $p < 0.05$

R^2 : 0.504

F_{hitung} : 14.831 (p : 0.000)

Source: Processed data

Vischer (1989) argued that a good physical workplace design is very important to help workers perform their tasks more effectively. The planned design of workplace will help the employees to conduct communication, supervising, and work monitoring. Overall, a good design will make the employee feels convenience during their tight works.

There are several aspects that could be considered to design a representative workplace design, including equipment should be placed and arranged systematically. Reference files must be made available easily. Lighting must be sufficiently conducted, and air circulation must be adequate (Matharuddin, 2003). According to neurobehavioral test conducted by Lan & Lian, (2009), workers in the different indoor environment with different temperature have different performance and neurobehavioral function including visual perception, working memory, reasoning, executive function. It suggests a study of employee's productivity can be done by using the neurobehavioral test coupled with questionnaire.

Based on Table 1, it can be seen that non-physical workplace environment significantly affects employee's productivity indicated by the p-Value that is 0.036 (<0.05). It also has a positive effect on job readiness indicated with regression coefficient (β) that is 0.151. Therefore, H_2 is accepted. This result is in line with a study done by Pangumpia (2013) that organizational communication affect the employee's productivity.

Overall, physical workplace environment and non-physical workplace environment simultaneously affect employee's productivity, It can be supported by the result of F-value test, in which the F_{count} and the p-value are 14.831 and 0.000 (<0.05) respectively.

The R-square is 0.504 (50.4%). Therefore, it can be concluded that physical workplace environment and non-physical workplace environment simultaneously affect employee's productivity with the degree of 50.4%, and 49.6% might be affected by other variables.

4. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

As discussed in the previous section, this study provides the essence and reasoning of doing this research. It is also logically based on the evidence concerning implication, limitations, and suggestions.

First of all, it is an evidence that partially the physical environment and non physical environment both have an effect on the employees' productivity in a company. Simultaneously these two variables also have effect on the employee's productivity. They can induce the employees to work better.

The limitation of this study concerns the object of the study and variables. This study was conducted in District 8 of the railway station. Therefore suggestion can be asserted for further study. The researchers can do the same way but in different districts to provide more generalisation. Besides that other factors can also be included.

It can be implied that when the employees are provided with a good physical and non physical environments, they will increase their productivity in the working place. Therefore, the company of the railway station can pay attention to these two factors.

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