

## **THE IMPACT OF PHYSICAL AND NON-PHYSICAL WORK ENVIRONMENT ON EMPLOYEE PRODUCTIVITY**

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### **ABSTRACT**

*The objective of this study is to evaluate the influence of the physical and non-physical work environment on employee productivity within the Social and Community Welfare Section of Indragiri Hilir Regency. The research method employed was quantitative. The population under investigation was all civil servants and contract employees in the Social and Community Welfare Section, a total of 32 individuals, with a census sampling technique. Data collection was conducted using questionnaires, while data analysis was performed with the use of SPSS software. The results demonstrated that the physical and non-physical work environment exerts a positive influence on employee productivity.*

*Keywords: physical work environment; non-physical work environment; employee productivity*

### **INTRODUCTION**

Amid increasing work pressure, the productivity of employees in the Social Welfare and Community Section of Indragiri Hilir Regency has significantly declined. Internal data reveals that over the past year, productivity levels have dropped by 15%, impacting the achievement of social service targets. This decline raises questions about the factors influencing employee productivity in this sector.

This study aims to explore the factors affecting employee productivity, particularly focusing on

physical and non-physical work environments. Previous studies by Smith (2018) and Johnson (2020) have demonstrated that a good work environment can enhance employee productivity. Smith's research highlights that lighting, noise, and room temperature play a crucial role in creating a comfortable and productive work environment (Smith, 2018). Johnson further found that non-physical factors such as managerial support, communication among employees, and organizational culture also significantly impact productivity (Johnson, 2020).

Why focus on the work environment? Initial survey data indicates that 70% of employees feel that their physical workplace conditions do not support productivity. Additionally, non-physical aspects such as relationships among employees and managerial support are frequently criticized. Research by Green and Black (2019) suggests that an unsupportive work environment can lead to stress and fatigue, reducing employee productivity.

Further, similar studies by Brown (2017) have shown that a decent work environment significantly increases job satisfaction and productivity in the public sector. Williams and Thompson (2016) also emphasize that non-physical factors such as work-life balance and an inclusive organizational culture are vital in boosting employee productivity.

Chandra's (2019) research highlights the importance of a healthy and safe work environment in enhancing employee performance, finding that companies investing in improvements to the physical work environment see up to a 20% increase in productivity. Additionally, Ahmed and Ramli (2018) show that strong

managerial support and effective communication can reduce employee stress levels and increase their engagement in work.

Unlike previous studies, this research offers a holistic approach that not only examines the separate impacts of physical and non-physical work environments but also explores the combined effects on productivity. By employing methods quantitative approach, this study will investigate how physical and non-physical work environments interact to influence employee productivity. This approach aims to provide new insights and practical recommendations for improving work conditions in the public sector.

## **LITERATUR REVIEW**

### **Employee Productivity**

Employee productivity measures the efficiency of employees in completing their tasks and responsibilities. According to Cascio (2019), productivity is gauged by comparing the output (work results) to the input (resources used). High productivity is crucial for organizations to achieve their set goals. Additionally, employee productivity is influenced by

various internal and external factors that management needs to understand.

### **Physical Work Environment**

The physical work environment includes all the physical aspects in the workplace that can affect employee comfort and performance. Some key factors in the physical work environment are:

- a. **Lighting:** Adequate lighting can enhance concentration and reduce eye strain. Al Horr et al. (2016) found that well-designed lighting can improve visual comfort and employee productivity. Their research indicates that well-planned lighting can reduce work errors and improve work quality.
- b. **Noise:** Excessive noise can cause stress and disrupt employee concentration. Sundstrom et al. (2016) discovered that workplace noise significantly impacts employee satisfaction and performance. Employees in high-noise environments tend to experience increased stress and decreased productivity.
- c. **Temperature:** Comfortable temperature can enhance employee comfort and productivity. Research

by Lan et al. (2018) shows that optimal room temperature correlates with improved neurobehavioral performance of employees. Extreme temperatures, whether too high or too low, can disrupt focus and reduce work efficiency.

Research by Al Horr et al. (2016) demonstrates that a well-designed physical work environment can boost employee productivity by up to 15%. This underscores the importance of creating a physical workspace that supports employee comfort.

### **Non-Physical Work Environment**

The non-physical work environment includes aspects that are not physical but influence the psychological and emotional state of employees, such as:

- a. **Managerial Support:** Effective managerial support can enhance employee motivation and engagement. Kim and Koo (2017) found a positive correlation between managerial support and work-life balance and employee productivity. Managers who provide emotional and operational support can improve employee loyalty and performance.

b. Employee Communication: Effective communication can enhance collaboration and reduce workplace conflicts. Men (2017) highlights that good internal communication, especially from top management, plays a crucial role in boosting employee engagement and work effectiveness. Transparent and open communication fosters a collaborative and productive work environment.

c. Organizational Culture: An inclusive and supportive organizational culture can increase employee satisfaction and commitment. Groyberg et al. (2018) emphasize that a strong and positive organizational culture can be a powerful tool for driving productivity and innovation. Organizations with inclusive and supportive cultures tend to have more satisfied and productive employees.

### **The Impact of Work Environment on Productivity**

Previous studies have established that both physical and non-physical work environments significantly influence employee productivity. For

instance, Lan et al. (2018) found that companies investing in improving the physical work environment see productivity gains of up to 20%. Additionally, research by Men (2017) indicates that non-physical factors such as work-life balance and an inclusive organizational culture are crucial for enhancing employee productivity.

The hypothesis of this research posits that there is a significant impact of the work environment, both physical and non-physical, on employee productivity. The physical work environment encompasses factors such as office layout, lighting, noise levels, ventilation, and other physical amenities available in the workplace. Meanwhile, the non-physical work environment includes aspects like organizational culture, employee relations, communication, and managerial support. This hypothesis suggests that improvements in one or both aspects of the work environment will positively influence employee productivity. In other words, enhancing the physical and non-physical work environment is expected to lead to increased employee productivity.

## RESEARCH METHOD

This research was conducted at the Social Welfare and Community Section of the Indragiri Hilir Regional Secretariat, located at Jalan Akasia No.1 Tembilahan. The population refers to the general area of study, consisting of objects or subjects with specific quantities and characteristics defined by the researcher for analysis and conclusion. A sample is a subset of the population whose characteristics are intended for study. Arikunto states that it is preferable to include every research subject if there are less than 100, approaching the investigation as a population study. Given that the number of subjects in this study is less than 100, the research is conducted on the entire population, which includes all civil servants and contract employees in the Social Welfare and Community Section of Indragiri Hilir, totaling 32 individuals. To gather the necessary data and information, the author used data collection techniques including questionnaires.

## RESULT AND DISCUSSION

This study aims to evaluate the effects of the “physical work environment” (X1) and the “non-

physical work environment” (X2) on worker productivity in the Indragiri Hilir Regency's Social Welfare and Community Section. Employee productivity (Y) is the dependent variable in this study, whereas the independent factors are the “physical work environment” (X1) and “non-physical work environment” (X2).

Data said to be normally distributed if they are not significantly different from, or standardised to, the standard normal. When a statistical test using the Kolmogorov-Smirnov test used, the variable said to be normally distributed if the significance value is greater than or equal to 0.05. Conversely, if the significance value is less than 0.05, the variable or data said to be not normally distributed.

**Table 1: Normality Test Results**

		Standardized Residual
N		32
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	.98675438
Most Extreme Differences	Absolute	.073
	Positive	.060
	Negative	-.073
Test Statistic		.073
Asymp. Sig. (2-tailed)		.200 <sup>c,d</sup>

It can be concluded that for the research variables obtained statistical results Asymp. Sig (2-tailed) of 0.200>

of 0.05 then all variables are declared normally distributed.

Validity Testing is an assessment of the accuracy or precision of a measurement tool in measuring what it is intended to measure. In simpler terms, validity testing aims to evaluate whether a set of measurement tools effectively measures what they are supposed to measure.

The results of the validity test for all research variables can be seen in Table 1 below:

**Table 2: Research Validity Test Results**

Variable	Item	Pearson correlation	r table	Description
Physical work environment (X <sub>1</sub> )	1	0.805	0.338	Valid
	2	0.636	0.338	Valid
	3	0.784	0.338	Valid
	4	0.783	0.338	Valid
	5	0.847	0.338	Valid
	6	0.666	0.338	Valid
	7	0.892	0.338	Valid
Non physical work environment (X <sub>2</sub> )	1	0.469	0.338	Valid
	2	0.579	0.338	Valid
	3	0.759	0.338	Valid
	4	0.632	0.338	Valid
Productivity (Y)	1	0.848	0.338	Valid
	2	0.891	0.338	Valid
	3	0.928	0.338	Valid
	4	0.827	0.338	Valid
	5	0.817	0.338	Valid
	6	0.846	0.338	Valid
	7	0.662	0.338	Valid

Based on the data analysis for each variable, all instruments are considered valid because the Pearson correlation coefficient values exceed the critical value of 0.338.

Reliability testing is conducted on questions that have been validated. A variable is deemed reliable or dependable if responses to the questions remain consistent.

The reliability coefficient is used to assess the consistency of answers to the statements provided by respondents. A variable is considered reliable if the responses to questions are consistently the same.

**Table 3: Reliability test results**

No	Variable	alpha	r table	criteria
1	Physical work environment (X <sub>1</sub> )	0.788	0.338	Reliable
2	Non physical work environment (X <sub>2</sub> )	0.729	0.338	Reliable
3	Productivity (Y)	0.798	0.338	Reliable

Consequently, the reliability coefficient for all research variables, indicated by a "Cronbach's Alpha" value greater than 0.600, surpasses the r-table value of 0.338, indicating that all instruments are deemed reliable and meet the necessary criteria.

To ascertain the effect of both physical and "non-physical work" surroundings on employee

productivity, multiple linear regression analysis is employed.

Regression analysis is also used to evaluate the validity of the hypotheses put out in this research. In this study, independent variables (the physical and non-physical work environment) are used as indicators to predict the condition of the dependent variable (work productivity) using multiple linear regression analysis.

This analysis method involves two or more independent variables related to the dependent variable (Y) and independent variables (X1 and X2).

**Table 4: Multiple Linear Regression**

Model	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	31.383	4.917	6.165	.004
1 X1	.270	.077	3.511	.001
X2	.358	.081	4.441	.000

From the regression analysis, the regression equation is obtained as follows:

$$Y = 31.383 + 0.270X_1 + 0.358X_2$$

The explanation of this regression equation is as follows:

- a. The constant 31.383 shows that the work productivity (Y) of the employees will be 31.383 if the values of the non-physical work

environment (X2) and physical work environment (X1) are 0.

- b. The physical work environment variable (X1) has a regression coefficient of 0.270, meaning that a 1% increase in the physical work environment (X1) will translate into a 0.270 increase in work productivity (Y), assuming all other independent variables stay constant. The physical work environment and productivity are positively correlated, as indicated by this positive coefficient.

- c. The non-physical work environment variable (X2) has a regression coefficient of 0.358, which indicates that a 1% increase in the non-physical work environment (X2) will result in a 0.358 increase in work productivity (Y), assuming all other independent variables stay constant. The positive coefficient suggests a positive correlation between job productivity and the non-physical work environment.

The purpose of this test is to assess whether the regression model can be used to predict the dependent variable and whether each independent variable has a substantial impact on the

dependent variable (Y). Significance suggests that the association found can be applied to the entire population.

The analysis results show that the effect of variable X1 on Y (physical work environment on employee productivity) has a t-value of 3.511 and a significance level of 0.001, which is less than  $\alpha = 0.05$ . This means that the physical work environment variable (X1) has a significant partial effect on employee productivity (Y).

Additionally, the effect of variable X2 on Y (non-physical work environment on employee productivity) has a t-value of 4.441 and a significance level of 0.000, which is also less than  $\alpha = 0.05$ . This indicates that the non-physical work environment variable (X2) also has a significant partial effect on employee productivity (Y).

Thus, both physical and non-physical work environment variables can be used as predictors for employee productivity in the Kesra and Community Affairs section of Indragiri Hilir Regency.

The F-statistic test is mainly employed to assess whether all the independent variables in the model collectively impact the dependent

variable. One approach to conducting the F test involves comparing the computed F value with the critical F value from a table.

If the computed F value exceeds the critical F value from the table, we support the alternative hypothesis, indicating that all independent variables collectively impact the dependent variable (Ghozali, 2016).

**Table 5: F Test Results**

ANOVA <sup>a</sup>				
Model	Sum of Squares	df	F	Sig.
Regression	205.961	2	75.413	.000 <sup>b</sup>
1 Residual	20.483	29		
Total	226.444	31		

With a significance level of 0.000, which is less than 0.05, and a calculated F value of 75.413, exceeding the critical F value of 3.33, the hypothesis can be accepted. This indicates a significant simultaneous effect of both physical and non-physical work environment variables on employee productivity.

The correlation coefficient, often represented by the symbol (r), quantifies the strength of the linear association between two variables. Its value lies within the range of -1 to 1. A coefficient of 1 signifies a perfect positive linear relationship, while -1 indicates a perfect negative linear

relationship. A value of 0 implies no linear relationship between the variables.

The coefficient of determination, commonly represented by ( $R^2$ ), is used to measure the extent to which the variation in one variable can be explained by another variable. Its value ranges from 0 to 1, with higher values indicating a greater proportion of variability that is explained.

**Table 6: Correlation and Determination Coefficient**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.853 <sup>a</sup>	.728	.707	2584613,586

The correlation coefficient ( $r$ ) obtained is 0.853, signifying a highly robust association between the physical and non-physical work environment and employee productivity.

The calculated coefficient of determination ( $R^2$ ) is 0.728, indicating that approximately 72.8% of the variability in the dependent variable can be accounted for by the independent variables. The remaining 27.2% are influenced by other factors not considered in this research model.

## CONCLUSION

In the modern work environment, a comfortable and supportive workspace is crucial in boosting employee productivity. The work environment is divided into two main aspects: physical and non-physical environments. Both aspects are interconnected and significantly impact employee performance and productivity.

Research by An et al. (2019) highlights that adequate natural lighting can boost productivity by up to 15%. Employees working in spaces with sufficient natural light report lower stress levels and better performance.

A study by Lan et al. (2018) found that the optimal room temperature ranges between 22-25°C. This study showed that productivity could increase by 10% when the room temperature is within a comfortable range. Extreme temperatures can cause discomfort and reduce performance.

Research by Seddigh et al. (2020) indicates that workplace noise can diminish concentration and productivity. Reducing noise through soundproofing materials and good

spatial design can enhance productivity by up to 8%.

A study by De Been and Beijer (2021) demonstrated that an ergonomic and well-organized workspace layout can improve work efficiency. Employees working in well-arranged environments showed a 12% increase in productivity.

Research by Zoghbi-Manrique-de-Lara and Ting-Ding (2017) suggests that a positive and inclusive organizational culture can enhance employees' sense of belonging and motivation. A good organizational culture can increase productivity by up to 20%. Employees who feel valued and supported by their organization tend to be more enthusiastic about their work.

A study by Han et al. (2018) found that harmonious working relationships and effective communication among employees are crucial for creating a comfortable and collaborative work atmosphere. Good relationships with colleagues can boost productivity by 15%.

Research by Cheng et al. (2020) indicates that management support in the form of constructive feedback, training, and career development

opportunities is essential for employees' professional growth. Effective management support can increase productivity by up to 18%.

Overall, both the physical and non-physical work environments play crucial roles in determining employee productivity. Organizations aiming to enhance productivity should focus on improving the physical conditions of the workplace and creating a supportive organizational culture and environment. By optimizing both aspects, organizations can foster a conducive and productive work atmosphere, ultimately leading to better overall performance.

From this discussion, it is clear that attention to both tangible (physical) and intangible (non-physical) aspects of the work environment can significantly impact employee productivity and well-being. Implementing holistic and sustainable strategies will help organizations achieve their productivity goals more effectively

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