

## EFFECT OF PHYSICAL WORK ENVIRONMENT THROUGH PRODUCTIVITY EMPLOYEES JOB SATISFACTION AS AN INTERVENING VARIABLE

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### ABSTRACT

*The purpose of this study was to determine the effect of the physical work environment on employee productivity mediated by employee job satisfaction. This research was carried out in Mama's Kecak Disco Kecak located in East Denpasar, Bali, Indonesia. Primary data in this study is through questionnaires and direct interviews with employees. The sampling technique chosen in this study was to use the survey method. The number of respondents taken in this study were 42 respondents. This study uses Path analysis data analysis techniques to determine whether there is an influence of the physical work environment on employee productivity through job satisfaction as an intervening variable. The results of the study found that physical work environment and job satisfaction directly had a positive and significant effect on employee productivity and the effect of the physical work environment on employee work productivity was not mediated by employee job satisfaction. The implication in this study is that managers must pay attention to the physical work environment and job satisfaction of employees to improve work productivity. Physical environment such as air circulation, air temperature conditions, flexibility in activities, noise and cleanliness of the workplace must be a major concern in increasing the productivity of its employees. The condition of a good work environment and providing comfort in work can increase employee productivity.*

Keywords: Employee productivity, physical work environment, satisfaction satisfaction

### INTRODUCTION

Every company in general has the goal of increasing the work productivity of its employees. In some cases, productivity is measured taking into account performance improvements when there are fewer absences, fewer employees leave early and fewer breaks (Amofa *et al.* 2017). One important factor that must be considered by companies in an effort to improve work productivity is the comfort of the work environment.

The work environment is where employees carry out work activities every day. A comfortable work environment provides a sense of security and allows employees to work optimally. The work environment can affect employee emotions. If the employee likes his work environment, then the employee will feel at home in his workplace, carry out activities so that work time is used effectively. These physical factors include the width of the workspace, lighting, noise, air temperature in the workplace, color of the room, cleanliness and music in the workplace (Senata *et al.* 2014).

Mutia *et al.* (2014) reveal that the work environment in an organization can be a big determinant of the level of worker productivity. This opinion was supported by Desmoda (2016) who in his research found that the physical work environment consisting of office space, lighting, color, air, music, noise level had a significant influence on employee productivity. Conversely, a poor work environment will have a large impact on the health of its workers and can reduce feelings of excitement, enthusiasm and progress in work (Duru and Shimawua, 2017). But in a study conducted by Samson *et al.* (2015) stated that physical aspects in the work environment have a non-significant effect in influencing work activities of employees. This is because the physical environment in small companies has an impact on increasing employee work activities.

The research gap raises the placement of mediation variables in this study, namely the factor of employee job satisfaction. The employee job satisfaction factor is very important for the company because with the satisfaction of employees, it is hoped that it will further improve performance and impact on increasing overall productivity of the company (Muayyad, 2016). High productivity is closely related to job satisfaction. Job satisfaction will be able to increase productivity, the higher job satisfaction will also affect the high productivity (Bockerman and Ilmakunnas, 2012). This statement is supported by Adiwinata and Eddy (2014) in his research found that job satisfaction has been proven to be a factor influencing work productivity towards the company.

The Kacang Disco Kecak Mama Company is a home-based industry that produces peanut processed products. The company has quite a number of employees for the home industry class, which is about 42 employees with 24 female employees and 18 male employees. But with the number of employees that many companies still find difficult to increase the productivity of their employees. This is evidenced by companies that still have difficulty meeting market demand because production is still low and not in accordance with the number of existing workers. From the results of observations the causes of productivity are still low due to problems in the physical work environment. Although the available space is quite wide but the layout is still not organized so that workers have difficulty working on the stages of production efficiently. Workers are not given a comfortable place to work for example given a bench so employees often complain of back pain. Stale air is also often a complaint of workers so workers often come out because they want to breathe fresh air. This causes frequent long production so that it cannot work on requests in a timely manner.

Job satisfaction is also an obstacle in increasing productivity. Dissatisfaction among co-workers is a major problem. In the company there is no definite work segregation so that one employee complains due to too much work compared to the others. This causes disputes between one worker and another. In accordance with the problems and empirical studies presented, the purpose of this study was to determine the effect of physical work environment and job satisfaction on employee productivity and the role of job satisfaction as an intervening variable between the physical work environment and employee productivity. In accordance with the research gap, this study aims to analyze the role of job satisfaction in mediating the relationship of physical work environment to employee work productivity.

## THEORETICAL REVIEW

The theoretical basis of this study is based on Maslow's Hierarchy of Needs Theory deals with the basic needs of humans in their work. Herzberg's theory is the basis of the theory of job satisfaction and dissatisfaction. In addition to underlying the relationship of work productivity, Mc Gregor's Theory X and Y Theory are used as the basis of the theory which reveals that humans have perceptions, namely: Theory X which states that humans are basically negative, and Theory Y which states that humans are basically positive (Muayyad, 2016).

### Relationship between physical work environment towards employee job satisfaction

A well-organized physical work environment can provide comfort for employees at work. Comfort will be able to lead to the pleasure of employees in working the latter can lead to satisfaction in the employee at work. Tio (2014) in the study found that the physical work environment has a significant influence on employee job satisfaction. This is in accordance with the results of a study conducted by Kukiqi (2017) which states that the work environment, especially the physical work environment has a significant influence on employee satisfaction. This means that lighting, temperature and the presence of conditioning plants can provide comfort and job satisfaction for their employees.

H1: Physical work environment has a positive and significant effect on employee job satisfaction

### The relationship between employee job satisfaction and employee productivity

Workers who are happy with their work are productive workers, so that employee job satisfaction becomes very important in a company. Böckerman and Ilmakunnas (2012) in their study stated that increasing the average level of employee job satisfaction had a positive impact on increasing hourly value added in manufacturing. Satisfaction is related to security at work and subsequent impacts occur on their performance or productivity. A high level of satisfaction occurs when workers feel safe at work so that there is a calmness in pikeian and creates a sense of loyalty to the organization. This means that work headaches have a positive impact on workers' work productivity (Awan and Asghar, 2014)

H2: Employee job satisfaction has a positive and significant effect on employee productivity

### Relationship between physical work environment towards employee work productivity

Physical work environment plays an important role in influencing employee productivity. A comfortable, safe and healthy work environment will give rise to a good sense of joy for its employees so that it can increase productivity at work. Research conducted by Hansen (2017) which states that the physical work environment can affect individual productivity. Negative or positive physical impacts can have an impact on employee health problems so that it impacts on productivity. Kamarulzaman (2011) on the results of his research that the environment in the workspace has a large influence on employee attitudes, behavior, satisfaction and productivity. A comfortable work environment is very important in supporting worker performance so that it can improve organizational performance better. Bad physical factors will affect the comfort of employees at work. The factor of work accident is an example of the poor arrangement of a physical environment that is comfortable and safe so that it can affect the performance of employees in the company (Bushiri, 2014).

H3: Physical work environment has a positive and significant effect on employee productivity

### Mediation Role of employee job satisfaction on the relationship of physical work environment to employee work productivity

Job satisfaction is one of the most complex management areas. Creating a work environment and good working conditions will increase employee job satisfaction. Good job satisfaction of employees will be able to improve their performance in their work so that work productivity will also increase (Sign and Jain, 2013).

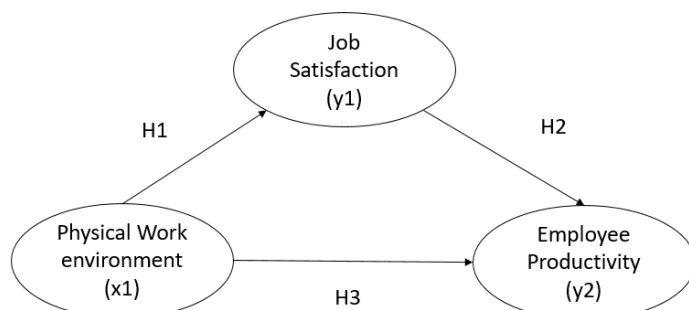
H4: Job satisfaction mediates the relationship between physical work environment and employee productivity.

## RESEARCH METHODS

This research was conducted on Mama's Kecak Disco Kacang business located in East Denpasar. The subjects of this study were employees who worked at Mama's Disco Kecak Kacang business. The object of this study is the influence of the physical work environment on employee productivity through job satisfaction as an intervening variable. Primary data in this study is through questionnaires, the results of direct interviews with employees. The population in this study were all employees who worked in Mama's Kecak Disco Nut, which numbered 42 people. The sampling technique chosen in this study was to use the survey method. The number of respondents taken in this study were 42 respondents. The research data was collected with an instrument in the form of a questionnaire that was distributed directly to respondents. The scale used in this study is a 5-point Likert scale that is distributed directly to respondents. Validity and reliability tests are used to examine whether the questionnaire that has been distributed is accurate and worthy of further research and use. This study uses Path analysis data analysis techniques to

determine whether there is an influence of the physical work environment on employee productivity through job satisfaction as an intervening variable.

**Conceptual Framework**



**RESULTS AND DISCUSSION**

Before analyzing the relationship between variables and testing hypotheses, first test the validity and reliability.

**Table 1 Validity Test and Reliability Test**

<i>Variabel</i>	<i>correlation</i>	<i>Variabel</i>	<i>correlation</i>
x1	0,877	y1.1	0,863
x2	0,795	y1.2	0,785
x3	0,870	y1.3	0,811
x4	0,887	y1.4	0,891
x5	0,920	y1.5	0,815
x6	0,852	y1.6	0,813
x7	0,858	y1.7	0,860
y2.1	0,838	y1.8	0,871
y2.2	0,870	y1.9	0,889
y2.3	0,813	y1.10	0,877
y2.4	0,864	y1.11	0,902
y2.5	0,858	y1.12	0,894
y2.6	0,883		
y2.7	0,812		
y2.8	0,843		

To find out how diversity can be explained by the model used by observing R Square in the Model Summary of the first and second structural equations as in Table 2 and Table 3

**Table 2 Regresion Structur 1**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.598 <sup>a</sup>	.358	.342	8.14795

a. Predictors: (Constant), Work Physical Environment

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.550	4.586		3.609	.001
	Work Physical Environment	1.033	.219	.598	4.718	.000

a. Dependent Variable: Job Satisfaction

Table 3 Regresion Struktur 2

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.191	2.510		.474	.638
	Work Physical Environment	.125	.130	.105	.965	.340
	Job Satisfaction	.537	.075	.774	7.140	.000

a. Dependent Variable: Productivity

Based on Table 1 and Table 2, model validation in this study was obtained

$$\begin{aligned} \epsilon_1 \text{ Struktur 1} &= \sqrt{1-R^2} \\ &= \sqrt{1-0,358} = 0,80 \\ \epsilon_2 \text{ Struktur 2} &= \sqrt{1-R^2} \\ &= \sqrt{1-0,706} = 0,54 \end{aligned}$$

Based on the results of the above calculations, the coefficient of determination ( $R^2$ ) can be calculated :

$$\begin{aligned} R^2 &= 1 - (0,80)^2 (0,54)^2 \\ &= 1 - (0,80)^2 (0,54)^2 \\ &= 1 - 0,43 \\ &= 0,57 \end{aligned}$$

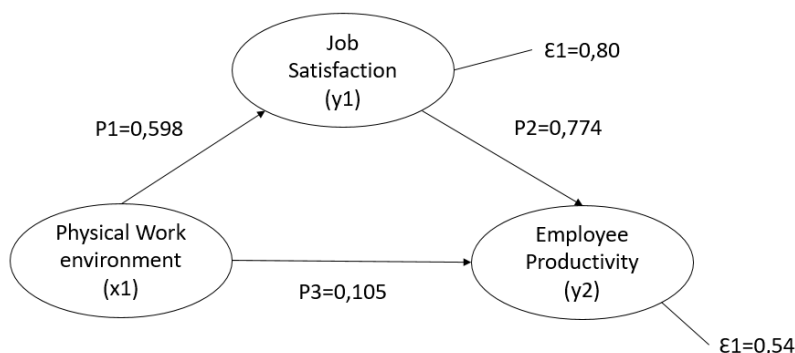
These results indicate that the diversity of data that can be explained by the model is 57 percent, which means that the work productivity of employees is explained by the physical work environment and job satisfaction by 57 percent and the remaining 43 percent is explained by other factors beyond the research model.

Hypothesis testing

To determine the effect of the physical work environment on job satisfaction and employee work productivity were analyzed based on two equations:

$$\begin{aligned} Y_1 &= a + \beta_1 X \\ &= 16,550 + 0,598 X \\ Y_2 &= a + \beta_2 X + \beta_3 Y_1 \\ &= 1,191 + 0,105 X + 0,774 Y_1 \end{aligned}$$

Figure 2  
Path Analysis Model Diagram



A summary of the results of the path analysis coefficients can be presented in Table 3

Hubungan Variabel	Koefisien Jalur (Beta)	Nilai t	Nilai Sig	Keterangan
Physical work environment (X) on job satisfaction (Y1)	0,598	4,718	0,000	Signifikan
Job satisfaction (Y1) on productivity (Y2)	0,774	7,140	0,000	Signifikan
Physical work environment (X) on productivity (Y2) after mediated	0,105	0,965	0,340	Tidak Signifikan
Physical work environment (X) on productivity (Y2) (Y2)	0,567	4,355	0,000	Signifikan

#### Relationship of physical work environment to job satisfaction

Based on Table 3, it can be seen that the path coefficient of the influence of the physical work environment on job satisfaction ( $p_1$ ) is 0.598 with a significance value of 0.000 smaller than  $\alpha = 0.05$ . From these results it can be concluded that the physical work environment has a positive and significant direct effect on job satisfaction. These results indicate that the better the physical work environment, the higher the job satisfaction felt by these employees.

#### Relationship between Job Satisfaction and Work Productivity

The path coefficient of the effect of job satisfaction on employee work productivity ( $p_2$ ) is 0.774 with a significance value of 0.000 smaller than  $\alpha = 0.05$ . From these results it can be concluded that job satisfaction has a positive and significant effect on employee work productivity. These results indicate that the better job satisfaction, the greater the work productivity of the employee. The results of this study also state that job satisfaction has a positive and significant effect on work productivity. This supports the research of Bockerman and Ilmakunnas (2012) which states that job satisfaction will be able to increase productivity, the higher job satisfaction will also affect the high productivity.

#### Relationship of physical work environment to work productivity

The path coefficient of the influence of the physical work environment on employee work productivity ( $p_3$ ) is 0.105 with a significance value of 0.340 smaller than  $\alpha = 0.05$ . From these results it can be concluded that the physical work environment has a significant effect on employee work productivity. Physical work environment for productivity

This study states that the physical work environment has a significant effect on employee work productivity. This is consistent with the research conducted by Sehgal (2012). This means that the better the work environment will create a comfort for their employees which causes good work productivity. Desmoda (2016) in his research also stated that the physical environment has a significant effect on employee productivity.

#### Mediation Role Job satisfaction with occupation Physical work environment for work productivity

To find out the status of the mediating variable employee satisfaction, it can be known by doing 4 (four) stages proposed by Baron & Kenny (1986). Testing the mediation role is referred to in four stages, as follows. Physical work environment has a significant effect on job satisfaction ( $p$ -value  $< 0.05$ ) with a regression coefficient ( $a$ ) = 0.598. Job satisfaction has a significant effect on employee work productivity, ( $p$ -value  $< 0.05$ ) with a regression coefficient ( $b$ ) = 0.774. Physical work environment has no significant effect on employee work productivity after controlling for job satisfaction variables ( $p$ -value  $> 0.05$ ) with a regression coefficient ( $c$ ) = 0.105. Furthermore, the direct effect  $c$  ditemukan is equal to 0.567 which is greater than  $c = 0.105$ . The influence of the independent variables on the physical work environment on the dependent variable of work productivity is reduced and significant ( $p$ -value  $> 0.05$ ), after controlling for the mediator variable of job satisfaction. Based on the criteria of Baron and Kenny (1986), it can be concluded that the mediational hypothesis is not supported which means that the influence of the physical work environment on employee work productivity is not mediated by employee job satisfaction.

### Research Implications

The results of the study show that job satisfaction is not a mediating variable between the relationship of physical work environment and employee productivity, the implication in this study is that the physical work environment has a big influence on employee productivity. This means that the ownership of the company must pay more attention to the physical environment that supports employee work productivity such as the condition of air circulation, the condition of the air temperature, flexibility in activities, noise and cleanliness of the workplace. The condition of a good work environment and providing comfort in work can increase employee productivity. Good employee productivity will provide positive things for the development of the company.

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