International Journal of Multidisciplinary Comprehensive Research

The effect of workload and work environment to employee performance of the production department company XYZ

Trisila Agus Kuat Wibowo [1*], Mohamad Sodikin [2], Sugiarto [3]
[1] Student, Sekolah Tinggi Ilmu Ekonomi Cendekia Karya Utama Semarang, Semarang, Indonesia
[2-3] Lecturer, Sekolah Tinggi Ilmu Ekonomi Cendekia Karya Utama Semarang, Semarang, Indonesia

* Corresponding Author: **Trisila Agus Kuat Wibowo**

Article Info

ISSN (online): 2583-5289
Volume: 02
Issue: 06
November-December 2023
Received: 04-10-2023
Accepted: 06-11-2023
Page No: 55-59

Abstract
The success of the organization in achieving goals, one of which is influenced by human resources who act as mobilizers. Company XYZ is a manufacturing industry in the food sector that produces souvenirs of typical Yogyakarta food. From preliminary studies, information was obtained that production targets exceeded production capabilities so that many employees worked overtime for 12 hours, rest periods were not replaced with overtime pay. Problems were found such as disorderly employees attending, negligent employees in maintaining production equipment, machines that could not operate until many products failed causing the production process to be ineffective and efficient. The purpose of this study is to determine the effect of workload and work environment on employee performance in Company XYZ. The research method is casual associative with a quantitative approach. Sampling using simple random sampling, which is as many as 100 employees of the production department. Data analysis techniques are descriptive analysis and multiple linear regression analysis. The research instruments were the IBM SPSS questionnaire and application. The results showed that each workload (β = -0.461; $p<0.001$) and work environment (β = 0.590; $p<0.001$). The contribution of workload and work environment to employee performance was 20.9% (ΔR^2 = 0.209) and 33.7% (ΔR^2 = 0.337) respectively. While the load and work environment (β workload = -0.322 and βwork environment = 0.498; $p<0.001$) and both together contribute 43.0% (ΔR^2 = 0.430) to employee performance.

DOI: https://doi.org/10.54660/IJMCR.2023.2.6.55-59

Keywords: Manufacture, Workload, Work Environment, Employee Performance

1. Introduction

In an organization, human resources that act as organizational drivers must be managed properly so that the output produced can achieve goals and quality. Organizations are all people who perform different but interconnected and coordinated functions so that one or more tasks can be completed (Griffiths, 1959) [4]. Salah satu faktor penentu keberhasilan organisasi dalam mencapai tujuan tersebut adalah kinerja karyawan. One of the determining factors for an organization's success in achieving these goals is employee performance. Employee performance is the result of quality and quantity work achieved by an employee in carrying out his duties in accordance with the responsibilities given to him (Mangkunegara and Prabu, 2011) [7].

Company XYZ is a manufacturing industry engaged in food, namely souvenir food typical of Yogyakarta. The manufacturing industry is a group of similar companies that process materials into semi-finished goods or finished goods with greater added value (Prawirosentono and Yustianti, 2007) [10]. The process of physically converting production resources (inputs) into products (outputs). Therefore, the activity occurring in this enterprise depends largely on the employees of the production department. Aspects of employee performance appraisal are timeliness, job description and quality of work (Christi *et al.*, 2010) [1].

Employee performance can be influenced by several factors, including: internal employees, internal environment of the organization, and external organization (Wirawan, 2009) [14]. Work environment factors can improve performance (Wilson, 2015) [13]. High workloads can contribute to the development of fatigue, illness and other problems which can lead to decreased performance (Fan and Smith, 2017) [2].

This company implements work shifts for production employees, namely morning shifts and night *shifts*. *The morning shift* is from 07.00 to 15.00. While *the night shift* starts at 19.00 to 03.00. Companies that produce souvenir foods typical of the region, such as Company XYZ have *fluctuating* production targets. For example, on weekends and holiday periods orders will increase from normal days which causes employees to have high overtime schedules. *The work shift* that has been set by the company, which is 8 hours per day, has also increased to 12 hours per day. Although employees are compensated for overtime work, rest hours cannot be replaced with wages.

The results of the preliminary study are known from the Head of HRD of Company XYZ that the performance of production employees has not been maximized. According to information from the *leader* of the production machinery section of Company XYZ, production activities are often completed untimely due to the absence of production employees and/or problematic production machines. In addition, there are still many employees who neglect not to clean production machines when changing *shifts*. Production machines that are not properly maintained can affect the use of machines when operated to be inefficient or even unusable. The ineffective and efficient production process results in many failed products, meaning that the product does not meet production standards so that it cannot be transacted. These things show that employee performance is not qualified both in terms of time, work and results.

Company XYZ has 238 employees, with 140 production employees. During the preliminary study, a survey was also conducted on 20 employees of the production department of Company XYZ to select 2 factors that most influenced the decline in performance. The survey results (table 1) show that the workload factor (43%) is the factor that most influences the decline in employee work, followed by the work environment (28%). Workload is pressure in response to not being able to adjust due to individual or psychological differences as a consequence of any extreme action against a person (Gibson *et al.*, 1994) [3]. The production target of Company XYZ exceeds normal production capabilities indicated by the intensity of employees who often overtime.

Table 1: Survey Results Factors Influencing the Decline in Performance of Production Employees of Company XYZ

No.	Factor	Frequency	Percentage
1.	Work Motivation	8	20%
2.	Workload	17	43%
3.	Work Environment	11	28%
4.	Organizational Culture	2	5%
5.	Compensation	2	5%
Total		40	100%

***Source*:** Survey January 2023

Several previous studies have shown that there is a simultaneous influence between workload and operator employee performance at PT. Giken Precision Indonesia (Irawati and Carollina, 2017) [5]. The work environment has a positive and significant influence on employee performance at PT. Intimas Lestari Nusantara (Prahiawan and Simbolon, 2014) [9] The significant influence of load and work environment with employee performance is also found in PT. Sabar Ganda Manado (Tjiabrata, Lumanauw and Dotulong, 2017) [12]. Based on the findings of these problems, research was conducted at Company XYZ to determine the effect of workload and work environment on the performance of production employees.

2. Methods

The research was conducted at Company XYZ, Depok sub-district, Sleman Regency, Yogyakarta Special Region Province. The research method used in this study is a casual associative method using a quantitative approach. This research will be conducted in January 2023 – June 2023. The data used in this study are primary and secondary data. The instruments used were questionnaires and the IBM SPSS application. The independent variables of this study are workload and work environment while the dependent variable is employee performance. The study population amounted to 140 employees of the production department of Company XYZ and was sampled using *a simple random sampling* technique, which was as many as 100 people. The data analysis techniques used are descriptive analysis and multiple linear regression analysis.

3. Results

A. Characteristics of Respondents

This analysis was conducted on 100 production employees at Company XYZ to determine the characteristics of research respondents including: gender, age, last education, and length of work. The results of the analysis (table 2 (show the dominant characteristics of research respondents according to their respective categories, among others: male gender (86%), age group 18-20 years (47%), last high school education (88%), and length of work 1-6 months (62%).

Table 2: Results of Descriptive Analysis of Respondents' Characteristics

Characteristics	Frequency	Percentage
Gender		
Male	86	86
Female	14	14
Total	100	100%
Age		
18-20 Years	47	47
21-25 Years	36	36
26-30 Years	10	10
>30 Years	7	7
Total	100	100%
Recent Education		
Junior High School	4	4
Senior High School	88	88
Diploma	4	4
Bachelor	4	4
Total	100	100%
Length of Work		
1-6 Months	62	62
7-12 Months	18	18
>12 Months	20	20
Total	100	100%

B. Variable Category Description

Variable categories describe respondents' responses to research variables categorized into high, medium, and low. The categorization results (table 4) showed that most: respondents' workload was moderate (84%); respondents' work environment was moderate (68%); and employee performance is moderate (80%).

Table 3: Results of Descriptive Analysis of Variable Data Distribution

Variable	Min	Max	Mean	SD
Workload	1,6	3,8	2,2860	0,47077
Work Environment	2,0	4,0	3,0320	0,48386
Employee Performance	2,2	4,0	3,1940	0,40647

Table 4: Variable Categorization

Category	Interval Score	Frequent	Percentage
Workload			
High	X > 2,75677	9	9%
Medium	2,75677 > X > 1,81523	84	84%
Low	X < 1,81523	7	7%
Total		100	100%
Work Environment			
High	X > 3,51586	19	19%
Medium	3,51586 > X > 2,5934	68	68%
Low	X< 2,5934	13	13%
Total		100	100%
Employee Performance			
High	X > 3,60047	10	10%
Medium	3,60047 > X > 2,78753	80	80%
Low	X < V	10	10%
Total		100	100%

C. Analysis Prerequisite Test

1. Normality Test

Test data normality using Kolmogorov-Smirnov test with the following hypothesis:

H0: normal distributed residual data Ha: abnormal distributed residual data he results of the data normality test (table 5) show that the significance value is 0.977 which is greater than 0.05 so that H0 is acceptable. Then it can be concluded that the data is normally distributed.

Table 5: Normality Test Result

Variable	Asymp. Sig (2-tailed)	Interpretation
Residual performance variables, workload, work environment	0,977	Normal

2. Linearity Test

Linearity tests are performed on independent variables against dependent variables. The results of the statistical test (table 6) show that the significance of each independent variable > 0, 05. So it can be concluded that all independent variables are linear with dependent variables.

Table 6: Linearity Test Result

Variable	Significant	Interpretation
Workload	0,054	Linier
Work environment	0,114	Linier

3. Multicollinearity Test

Multicollinearity test was conducted between independent variables in the study. The statistical test results (table 7) show a tolerance value of > 0,1 and a VIF value of < 10. So it can be concluded that there is no multicollinearity between dependent variables.

Table 7: Multicollinearity Test Results

Variable	Tolerance	VIF
Workload	0,913	1,095
Work environment	0,913	1,095

4. Heteroscedasticity Test

The heteroscedasticity test is performed using the Gleiser test. The results of the statistical test (table 8) show that the significance level > 0.05 so that it can be concluded that there is no difference in variance from residuals of one observation to another observation in the regression model.

Table 8: Heteroscedasticity Test Results

Variable	Significant
Workload	1,00
Work environment	1,00

D. Test the Hypothesis

The hypotheses proposed in this study are

Hypothesis I: Workload has an influence on the performance of employees of the production department of Company XYZ

Hypothesis II: The work environment has an influence on the performance of employees of the production department of Company XYZ

Hypothesis III: Workload and work environment have an influence on the performance of employees of the production department of Company XYZ

Through hypothesis testing, it will be known that each hypothesis is accepted or rejected. The results of the

hypothesis I test (table 9) show that in the Model 2 column (β), the workload variable negatively affects -0.461 (p<0.001) on employee performance and the ΔR² value is 0.209 (p<0.001) so that it can be concluded that hypothesis I is acceptable. The results of the hypothesis II test (table 9) show that in the Model 3 (β) column, the work environment variable positively affects employee performance by 0.590 (p<0.001) on employee performance and the ΔR² value is 0.337 (p<0.001) so that it can be concluded that hypothesis II is acceptable. The results of hypothesis III test (table 9) show that in column 4 (β) the workload variable has a negative influence of -0.322 (p<0.001) and the work environment has a positive influence of 0.498 (p<0.001) on employee performance. The influence contribution of both is (ΔR²) 0.430 so it can be concluded that hypothesis III is acceptable.

Table 9: Hypothesis Test Results

Variable	Employee Performance			
	Model 1 (β)	**Model 2 (β)**	**Model 3 (β)**	**Model 4 (β)**
Dependent Variable				
Gender	-0,043	-0,060	-0,055	-0,065
Age	0,121	0,088	0,089	0,070
Last	0,035	0,025	0,021	0,019
Education Length of work	-0,133	-0,088	-0,050	-0,032
Workload		-0,461***		- 0,322***
Work Environment			0,590***	0,498***
R^2	0,026	0,235	0,363	0,456
ΔR^2	0,026	0,209***	0,337***	0,430***
***p<0,001				

4. Discussions

A. The Effect of Workload on the Performance of XYZ Company Production Employees

Based on the results of the research that has been done, it is known that hypothesis I can be accepted so that the workload variable affects the performance of employees of the production department of Company XYZ. The β value (-0.461***) indicates the negative influence of workload and the ΔR² value (0.209) indicates the contribution of workload to employee performance by 20.9%. Based on this research, the majority of production employees at Company XYZ feel that their workload is moderate. This is due to the frequent work of employees beyond normal working hours. The perceived workload of employees impacts their performance. Employee workload is measured from two indicators, namely speed and amount of work (Spector and Jex, 1998). Speed in work is related to the time available. The lack of speed for employees of the production department of Company XYZ at work causes employees to be unable to complete work at a predetermined time. This relates to the indicator of the performance variable, namely timeliness. Then, the large amount of work results in fatigue in the production department employees of Company XYZ, increasing the possibility of *human error*. This increase in *human error* is related to indicators of performance variables, namely the quality of work. The results of this study show that workload has a negative and significant influence on employee performance. This is supported by research at PT. Giken Precision Indonesia conducted by stating that workload has an influence on employee performance (Irawati and Carollina, 2017) [5].

B. The Effect of the Work Environment on the Performance of XYZ Company Production Employees

Based on the results of the study, it is known that hypothesis II can be accepted so that the work environment variable affects the performance of employees of the production department of Company XYZ. The work environment is everything that is around the worker and that can affect him in carrying out the tasks charged (Nitisemito, 1996) [8]. The work environment can be seen from 3 indicators, namely work facilities, comfortable workplaces, and tranquility. Companies that have a good work environment will have employees with a high level of performance. A pleasant environment can reduce fatigue, monotony and boredom so that performance can be optimized (Jain and Kaur, 2014) [6]. The results showed that the work environment fell into the medium category. Company XYZ is a manufacturing company where in the production process uses various kinds of machines. Some divisions in the production department use machines that make noise. Then, the hot workplace and the rule of wearing masks and head coverings also add to the discomfort of employees at work. This hot workplace and noise can reduce employee concentration which can then increase *human error* so that the quality of work can decrease. Then, work facilities, namely production machines that are often problematic, will delay the completion of the production process. This indicates that the timeliness of completion of the work was not achieved. The results of this study show that the work environment has a positive and significant influence on employee performance. This research is in accordance with the results of research conducted at PT. Intimas Lestari Nusantara which shows that the work environment has a positive and significant effect on employee performance (Prahiawan and Simbolon, 2014) [9].

C. The Effect of Workload and Work Environment on the Performance of XYZ Company Production Employees

From the results of the study, the results of hypothesis III can be accepted, then the variables of workload and work environment affect the performance of employees of the production department of Company XYZ. Employee performance is the result of work in quality and quantity achieved by an employee in carrying out his duties in accordance with the responsibilities given to them (Mangkunegara and Prabu, 2011) [7]. Therefore, every organization or company will strive to improve the performance of its employees. Performance can be affected by workload and work environment. The results showed that the workload and work environment of production employees at Company XYZ fell into the medium category. The performance of employees of the production department of

Company XYZ is related to punctuality and quality of work. The lack of speed of employees at work and work facilities (production machines) that are often problematic hinder the completion of all work so that punctuality in completing work is not achieved. Then, the large amount of work and the noise produced by the production machine cause fatigue and disrupt the concentration of employees. This will increase the possibility of human error so that it can reduce the quality of employee work. The results of this study show that workload and work environment affect employee performance. Similar results showed in the results of research at PT. Sabar Ganda Manado which shows that workload and work environment have a significant influence on employee performance (Tjiabrata, Lumanauw and Dotulong, 2017) [12].

5. Conclusion

From the research that has been done on the influence between the workload and work environment with the performance of the production department in Company XYZ, it can be concluded:

1. 1. Workload has a negative influence (β value = -0.461; p<0,001) and contributes 20.9% (ΔR^2 = 0.209) to employee performance so that hypothesis I can be accepted, namely workload has an influence on the performance of employees of the production department of Company XYZ.
2. Work environment has a positive influence (value β = 0.590; p<0.001) and contributes 33.7% (ΔR^2 = 0.337) to employee performance so that hypothesis II can be accepted, namely work environment has an influence on the performance of employees of the production department of Company XYZ.
3. Load and work environment each have a negative (β value = -0.322; p<0.001) and positive (β value = 0.498; p<0.001) and their contribution of 43% (ΔR^2 = 0.430) on employee performance so that hypothesis III can be accepted, namely the load and work environment have an influence on the performance of employees of the production department of Company XYZ.
4. Based on the results of the research, XYZ company should be able to discipline employees so as not to neglect to perform their duties and conduct an inventory of production equipment periodically so that the condition of the equipment is monitored for early detection of problematic machines so that they can be followed up before they cannot be used.
5. The researcher can further use this research as a reference and continue the research to analyze other factors that contribute to employee performance, such as work ethic, work motivation, compensation, etc.

6. References

1. Christi S. ul H, *et al.* Impact of participative Management on employee Job Satisfaction and Performance in Pakistan, Journal Academic. 2010; 10(12):89-101.
2. Fan J, Smith AP. The Impact of Workload and Fatigue on Performance, in International Symposium on Human Mental Workload: Models and Applications. Springer, 2017, 90-105.
3. Gibson JL, *et al*. Organisasi: Perilaku, Struktur, Proses. Jakarta: Erlangga, 1994.
4. Griffiths DE. Administrative Theory. New York: Appleton Century Crofts, 1959.
5. Irawati R, Carollina DA. 'Analisis Pengaruh Workload terhadap Kinerja Karyawan Operator pada PT Giken Precision Indonesia', Inovbiz: Jurnal Inovasi Bisnis, 2017; 5(1):51-58.
6. Jain R, Kaur S. Impact of Work Environment on Job Satisfaction. International Journal of Scientific and Research Publications. 2014; 4(1):1-8.
7. Mangkunegara A, Prabu A. *Manajemen Sumber Daya Manusia Perusahaan*. Bandung: Remaja Rosdahkarya, 2011.
8. Nitisemito AS. *Manajemen Personalia: Manajemen Sumber Daya Manusia*. Jakarta: Ghalia Indonesia, 1996.
9. Prahiawan W, Simbolon N. Pengaruh Motivasi Intrinsik dan Work environment terhadap Kinerja Karyawan pada PT Intimas Lestari Nusantara', Jurnal Ekonomi Universitas Esa Unggul, 2014, 5(1).
10. Prawirosentono S, Yustianti F. *Manajemen Operasi*. 4th edn. Jakarta: Bumi Aksara, 2007.
11. Spector PE, Jex SM. Development of four self-report measures of job stressors and strain: interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory, Journal of occupational health psychology. 1998; 3(4):356.
12. Tjiabrata FR, Lumanauw B, Dotulong LO. Pengaruh Workload dan Work environment terhadap Kinerja Karyawan PT. Sabar Ganda Manado', Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi, 5(2).
13. Wilson KG. Impact of Work Environment on Academic Staff Job Performance: Case of a Uganda University, International Journal of Advances in Management and Economics, 2015, 04(04).
14. Wirawan. *Evaluasi Kinerja Sumber Daya Manusia*. Jakarta: Salemba Empat, 2009.