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THE INFLUENCE OF WORK SKILLS AND WORK ENVIRONMENT ON WORK PRODUCTIVITY OF EMPLOYEES OF UMKM CENTER OF PLUMBON BEAD INDUSTRY, GAMBANG, JOMBANG

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ABSTRACT

The bead industry center in Plumbon Gambang, Jombang, has developed from a traditional craft to an export-oriented creative industry. However, employee productivity is still constrained by limited skills and an unsupportive work environment. This research was conducted to assess the impact of employees' skills and their work setting on job productivity at the Plumbon Gambang Jombang Bead Industry UMKM Center. The approach used uses a quantitative approach, using data collection methods such as observation, interviews, documentation, and questionnaires. The sample was selected using a purposive sampling technique which is included in the nonprobability sampling category with a sample size of 36 employees. Data analysis used descriptive statistics, validity and reliability tests, classical assumption tests, multiple linear regression analysis, hypothesis tests and coefficient of determination (R^2). The results of the study showed that: (1) work skills have a positive and significant effect on work productivity; (2) the work environment also has a positive and significant effect on work productivity; and (3) simultaneously work skills and work environment exert a significant influence on employee work productivity at the Plumbon Gambang Jombang Bead Industry UMKM Center.

Keywords: Job Skills, Work Environment, Work Productivity

INTRODUCTION

Indonesia is known as a country rich in culture and arts and crafts, one of which is the glass bead industry which is currently growing rapidly in Plumbon Gambang Village, Gudo District, Jombang Regency. This industry not only reflects cultural heritage, but also becomes the main source of the local economy and penetrates the export market to various countries. However, the success of this industry is inseparable from the important role of human resources who have high skills and are supported by a supportive work environment.

Employee productivity is essential for organizational success, as it reflects the efficiency of converting inputs into outputs within a given time frame. It is measured by how effectively and efficiently employees complete tasks in line with organizational goals (Setiawan, 2021). Productivity can be improved through better time and resource management, enhanced work systems, advanced production techniques, and increased employee skills. It influences not only individual performance but also organizational and societal outcomes. High productivity supports financial achievement, market competitiveness, and customer satisfaction. According to (Hasibuan et al., 2023), productivity indicators include work quality, output quantity, and timeliness.

There are several factors that affect employee work productivity, one of which is work skills. According to (Rohim & Irayanti, 2022) skills are the ability to use reason, ideas, concepts, and creativity in working on, changing, or creating something to make it more meaningful so as to create value through the output of work. Work skills be crucial to in supporting the implementation of tasks effectively. Employees who have adequate skills tend to be able to complete work faster, reduce errors, and are able to face challenges without the need for many adjustments. The skills possessed by experienced employees not only improve individual performance but also have a meaningful impact on the the productivity and success of the organization as a whole (Bella Arin Anggraini, Karuniawati Hasanah, 2022). Work skill indicators according to (Fauziyah et al., 2023) are basic proficiencies, technical knowledge, interpersonal competencies, and problem-analysis skills.

In addition to skills, another factor that affects employee productivity is the work environment. The work environment includes all equipment, materials, the physical environment of the workplace, the work process used, and job arrangement both individually and in groups (Rosdiana & Romdhoniati, 2023). A supportive work environment can create a sense of security, comfort, and encourage employees to stay at work to support maximum work performance. A good work environment can also increase enthusiasm in completing tasks, provide job satisfaction, and increase work productivity. According to (Herispon & Daulay, 2021) the work environment can be measured through several indicators, namely lighting, air circulation, noise, unpleasant odors, and safety.

Interview results show that work productivity at the Plumbon Gambang Beads Industry UMKM Center faces challenges in several areas. In terms of quality, product flaws

still occur due to inaccurate forming techniques and traditional tools. Quantity is limited as production is manual and lacks skilled labor. For timeliness, slow production often causes delays in order completion, highlighting the need for better time management and customer communication to maintain commitment and service quality.

Based on interview results, bead craftsmen at the Plumbon Gambang UMKM Center still face challenges in work skills. Many have not received modern technical training, such as printing, forming, and coloring, which limits innovation. Basic skills like cutting, carving, and assembling beads are also lacking, especially among new craftsmen, leading to frequent product shape and pattern errors. Problem-solving skills remain low, particularly when dealing with limited raw materials or design mismatches. However, their interpersonal skills are relatively good, fostering a harmonious work atmosphere and effective teamwork.

In terms of the work environment, several issues still hinder productivity. Poor lighting during cloudy weather causes eye strain, despite additional lamps. The production area is often hot and stuffy due to limited air circulation from the kiln, making workers tire easily. Noise from the kiln disrupts communication, especially for those with hearing difficulties. Strong odors from chemicals and burning reduce work motivation. Safety is also a concern, as the lack of proper protective equipment like masks poses risks to workers' respiratory health.

Previous studies have shown inconsistent results, according to (Rosdiana & Romdhoniati, 2023) found that skills and work environment simultaneously have a significant effect on productivity. Other research results that support the results of this study are research conducted by (Kristiana Yusuf, Fitria Damayanti, 2022). According to (Rahwana & Oktaviani, 2024) shows that work skills have a positive and significant effect on work productivity, while (Apriliyani, 2022) and (Fau & Buulolo, 2023) concluded that the work environment also has a positive effect on work productivity. However, (Sari et al., 2022) states that only work skills have a significant effect, while the work environment does not. This inconsistency indicates an evidence gap, where research evidence on work productivity generally focuses on large industries and modern manufacturing, while empirical studies examining MSME centers for the bead craft industry are still very limited. In fact, based on export data, more than 80% of locally made bead products have penetrated the international market, showing great potential that has not been studied academically.

Therefore, the research intends to examine **"The Effect of Work Skills and Work Environment on Employee Productivity at the Plumbon Gambang Jombang Bead Industry UMKM Center"**. These findings are expected to be a new contribution in the field of human resource management and provide practical recommendations in increasing the efficiency and competitiveness of local culture-based creative industries.

RESEARCH METHODS

This research uses a quantitative method with a causal approach. The sample was determined using a purposive sampling technique that is included in the nonprobability sampling category, with 36 employees as respondents. Data collection techniques include observation, interviews, documentation, and questionnaires. The data obtained through the questionnaire were then tested for validity and reliability, followed by classical assumption testing, multiple linear regression analysis, hypothesis testing, and coefficient of determination (R^2) analysis. The entire data analysis process was carried out with the help of SPSS (Statistical Package for the Social Sciences) software.

RESULTS AND DISCUSSION

Respondents' Characteristics

Based on the results of the respondents' characteristics in Table 1, it shows that the majority of employees in this study are male (77.8%). This shows that work in the bead industry tends to be done by men because it requires physical strength, technical skills, and flexibility in working time. In terms of age, most respondents were aged 36-45 years (61.1%), indicating that employees are at a productive age with a fairly high level of maturity and experience. Meanwhile, the respondents' tenure was dominated by the group with 15-20 years of service (38.9%), reflecting loyalty and work skills formed from long-term experience in the bead production process.

Jenis Kelamin		
Keterangan	**Frekuensi**	**Persentase**
Laki-Laki	27	77,1%
Perempuan	8	22,9%
Total	35	100%
Usia		
Keterangan	**Frekuensi**	**Persentase**
> 55 tahun	1	2,8%
25-35 tahun	9	25,0%
36-45 tahun	22	61,1%
46-55 tahun	4	11,1%
Total	36	100%
Masa Kerja		
Keterangan	**Frekuensi**	**Persentase**
> 5 tahun	8	22,2%
15-20 tahun	14	38,9%
25 tahun	2	5,6%
5-10 tahun	12	33,3%
Total	36	100%

Table 1. Respondents' Characteristics
Source: Data processed by researchers, 2025

Validity Test

According to (Ghozali, 2021) the validity test aims to measure whether the statements in the questionnaire that have been made are valid or not. The following are the results of the validity test of each variable, namely Work Skills, Work Environment and Work Productivity.

Variabel Keterampilan Kerja (X1)			
ITEM	R TABEL	R HITUNG	KETERANGAN
X1.1	0,700	0,3291	VALID
X1.2	0,722	0,3291	VALID
X1.3	0,678	0,3291	VALID
X1.4	0,508	0,3291	VALID
X1.5	0,644	0,3291	VALID
X1.6	0,739	0,3291	VALID
X1.7	0,645	0,3291	VALID
X1.8	0,731	0,3291	VALID
X1.9	0,656	0,3291	VALID
Variabel Lingkungan Kerja (X2)			
ITEM	R TABEL	R HITUNG	KETERANGAN
X2.10	0,629	0,3291	VALID
X2.11	0,554	0,3291	VALID
X2.12	0,743	0,3291	VALID
X2.13	0,698	0,3291	VALID
X2.14	0,646	0,3291	VALID
X2.15	0,698	0,3291	VALID
X2.16	0,624	0,3291	VALID
X2.17	0,690	0,3291	VALID
X2.18	0,704	0,3291	VALID
X2.19	0,673	0,3291	VALID
Variabel Produktivitas Kerja Y			
ITEM	R TABEL	R HITUNG	KETERANGAN
Y.20	0,672	0,3291	VALID
Y.21	0,633	0,3291	VALID
Y.22	0,776	0,3291	VALID
Y.23	0,658	0,3291	VALID
Y.24	0,733	0,3291	VALID
Y.25	0,695	0,3291	VALID

Table 2. Validity Test
Source: Data processed by researchers, 2025

The r table for df = 36-2 = 34, the r table in this study is 0.3291. Based on the table above, there are 25 indicators and all r counts for each variable are greater than r table (0.3291). which means that overall the statement items are valid and can be used for the next analysis stage.

Reliability Test

The reliability test according to (Ghozali, 2021) aims to measure the questionnaire which is an indicator of the variable, the reliability test is carried out using the Cronbach Alpha value > 0.70.

No	Variabel	Cronbach's Alpha	Keterangan
1.	Keterampilan Kerja (X1)	0,830	Reliabel
2.	Lingkungan Kerja (X2)	0,850	Reliabel
3.	Produktivitas Kerja (Y)	0,793	Reliabel

Table 3. Relibity Test Results
Source: Data processed by researchers, 2025

Based on table 3 above, it shows that each variable has a Cronbach's Alpha greater than 0.70, which indicates that the instrument is reliable and suitable for use to measure research variables.

Normality test

Normality test in this study, the Kolmogorov-Smirnov (K-S) method was used and the significance value (Asymp. Sig.) was seen as the point of reference for decision making.

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		36
Normal Parameters[a,b]	Mean	0E-7
	Std. Deviation	1.66946194
Most Extreme Differences	Absolute	.078
	Positive	.073
	Negative	-.078
Kolmogorov-Smirnov Z		.466
Asymp. Sig. (2-tailed)		.982

a. Test distribution is Normal.
b. Calculated from data.

Table 4. Kolmogorov-Smirnov Normality test results
Source: Data processed by researchers, 2025

Based on the table, the results of the normality test conducted using the Kolmogorov-Smirnov method show a sig value of 0.982, which indicates that this value is greater than 0.05. Based on this, it can be concluded that the residual data is in accordance with the normal distribution.

Multicollinearity Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	10.026	2.498		4.013	.000					
	Keterampilan Kerja	.153	.073	.349	2.100	.043	.562	.343	.283	.656	1.524
	Lingkungan Kerja	.150	.069	.363	2.186	.036	.568	.356	.294	.656	1.524

a. Dependent Variable: Produktivitas Kerja

Table 5. Multicollinearity Test Results
Source: Data processed by researchers, 2025

Based on table 5, the results of the muliticollinearity test are tested by looking at the Tolerance and Variance Inflation Factor (VIF) values. The test results show that the Tolerance and VIF values for the work ability and work environment variables are 0.656 and 1.524, respectively. Because Tolerance > 0.10 and VIF < 10, there is no multicollinearity in the regression equation.

Heteroscedasticity Test

The heteroscedasticity test aims to test whether in the regression model there is a difference in variance from the residuals of one observation to another. In this research, the heteroscedasticity test was carried out using the Glejser method.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.294	1.342		1.710	.097
	Keterampilan Kerja	-.028	.039	-.154	-.724	.474
	Lingkungan Kerja	.004	.037	.022	.102	.919

a. Dependent Variable: ABS_RES

Table 6. Heteroscedasticity results of the Glejser Test
Source: Data processed by researchers, 2025

Based on table 6, the significance values of the the variables of job skills and workplace environment were 0.474 and 0.919, respectively, both > 0.05, so it can be concluded that there is no heteroscedasticity in the regression model used.

Multiple Linear Regression Analysis Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	10.026	2.498		4.013	.000					
	Keterampilan Kerja	.153	.073	.349	2.100	.043	.562	.343	.283	.656	1.524
	Lingkungan Kerja	.150	.069	.363	2.186	.036	.568	.356	.294	.656	1.524

a. Dependent Variable: Produktivitas Kerja

Table 7. Multiple Linear Regression Analysis
Source: Data processed by researchers, 2025

Based on table 7 shows that the multiple linear regression equation obtained is Y = 10.026 + 0.153X1 + 0.150X2, where Y is employee work productivity, X1 is work skills, and X2 is working environment. The constant 10.026 indicates basic productivity when X1 and X2 are zero. The positive coefficients on X1 (0.153) and X2 (0.150) indicate that increasing occupational skills and organizational environment will significantly increase employee productivity.

t-Test

The t-test is used to analyze how each independent variable impacts the dependent variable partially. If the calculated t> t table or the significance value <0.05, the variable is considered to have a statistically significant impact (Ghozali, 2021). In this study, a two-tailed test was used with degrees of freedom (df) = n - 2 = 36 - 2 = 34, so that the t table value was obtained as 1.69092.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.026	2.498		4.013	.000
	Keterampilan Kerja	.153	.073	.349	2.100	.043
	Lingkungan Kerja	.150	.069	.363	2.186	.036

a. Dependent Variable: Produktivitas Kerja

Table 8. t-Test Results
Source: Data processed by researchers, 2025

According to the t-test results, the work skills variable (X1) has a t-count value of 2.100 and a t-table of 1.69092 with a level of significance of 0.043. Because t-count > t-table and the significance value <0.05, then work skills contribute positively and significantly to employee productivity. Meanwhile, the work environment variable (X2) has a t-count value

of 2.186 and a t-table of 1.69092 with a significance level of 0.036. Because t-count is also greater than t-table and the significance value <0.05, then the work environment also has a positive and significant effect on employee work productivity at the Plumbon Gambang Jombang Manik Industry UMKM Center.

F-Test

The simultaneous influence test is used to determine whether the independent variables jointly or simultaneously affect the dependent variable.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.674	2	32.837	11.108	.000[b]
	Residual	97.549	33	2.956		
	Total	163.222	35			

a. Dependent Variable: Produktivitas Kerja

b. Predictors: (Constant), Lingkungan Kerja, Keterampilan Kerja

Table 9. F Test Results
Source: Data processed by researchers, 2025

The F table value is obtained based on a significance level of 0.05 with degrees of freedom df1 = 2 (number of independent variables) and df2 = 33 (n - k), which is 3.28. Based on the F-test, it is shown that the calculated F is 11.198> F table 3.28 with a significance value of 0.000 (<0.05). This means that the variables of work skills (X1) and work environment (X2) together, they exert a positive and significant influence on the work productivity of employees at the Plumbon Gambang Jombang Manik Industry UMKM Center.

Determination Coefficient Test (R^2)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.634[a]	.402	.366	1.719

a. Predictors: (Constant), Lingkungan Kerja, Keterampilan Kerja

Table 10. Results of the Determination Coefficient Test (R^2)
Source: Data processed by researchers, 2025

The findings from the coefficient of determination test show an adjusted R square value of 0.366, which means that the variables of work skills and work environment simultaneously affect employee productivity by 36.6%. The rest 63.4% is affected by other factors outside the focus of this research.

CONCLUSION

Based on the results of the study on the influence of work skills and work environment on employee productivity at the Plumbon Gambang Jombang Bead Industry UMKM Center, several conclusions were obtained as follows. Work skills have a positive and significant effect on employee productivity, which means that the higher the skills possessed, the higher the work productivity produced. This finding is supported by various previous studies which show that work skills contribute significantly to employee

productivity, as evidenced by research by (Putri et al., 2024) on Hijab MSMEs in Sidoarjo and (Wahyudi et al., 2024) on Tire Building employees at PT. Ban Indonesia. The work environment has a positive and significant effect on employee productivity, where a comfortable and supportive work environment can increase a sense of security, comfort, and work effectiveness. This finding is in line with several previous studies which also stated that the work environment has a significant effect on productivity. Among them are a study by (Adelia Nava Ulfa Mustofa, 2024) at the Niks convection company and research (Fitria et al., 2020) at the Sari Bumi Trenggalek roof tile factory. Simultaneously, work skills and work environment have a significant effect on employee productivity, which shows that the two variables complement each other and together support the creation of maximum work productivity at the Plumbon Gambang Jombang Bead Industry UMKM Center. The results of this work environment study on employee productivity are backed by previous research conducted by (Putra & Liswani, 2020) which concluded that the variables of job skills and work environment on work productivity have a significant effect on the work productivity of PT. Indonesia Epson Industry.

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