



The Influence of the Work Environment and Career Development on Employee Work Productivity at PT. PG Rajawali II Unit Jatitujuh Majalengka

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Abstract

Employee work productivity is one of the main determinants in supporting the success and competitiveness of companies, especially in the manufacturing industry sector, which strives for a high level of efficiency and performance. The achievement of employee work productivity is influenced by various internal organizational factors, namely the conditions of the work environment and the career development system. This research intends to examine the influence of Work Environment and Career Development on employee work productivity at PT PG Rajawali II Jatitujuh Majalengka Unit. Data accumulation was carried out through a survey using a systematic questionnaire disseminated to 133 permanent employee respondents, with a sample determination technique using probability sampling based on the Slovin formula. The data analysis was conducted using the Structural Equation Modeling method based on Partial Least Squares (SEM-PLS) with SmartPLS software, accompanied by testing the validity and reliability of the research instruments. The results of the analysis prove that the Work Environment has a positive and significant effect on the work productivity of employees, as well as Career Development, which is shown to have a positive and significant influence on work productivity. These findings prove that the creation of a conducive work environment and the implementation of a clear and structured career development system play an important role in increasing employee work productivity..

INTRODUCTION

The manufacturing industry, including the sugar mill sector, plays a significant role in the structure of the national economy, particularly in the provision of employment opportunities and its contribution to the formation of gross domestic product. One of the manufacturing entities operating in the sugar processing industry is PT PG Rajawali II Jatitujuh Majalengka Unit, which holds a strategic position in supporting national food security while encouraging economic growth at the regional level. PT PG Rajawali II Jatitujuh Unit, which carries out labor-intensive sustainable production processes, relies heavily on the productivity and performance of its human resources to achieve production goals and increase operational effectiveness. Due to production activities such as the use of machinery, the implementation of shift work systems, and the unique nature of the manufacturing work environment, workplace conditions and employee career development are important components that should be a priority for management.

According to a report from Kabar Cirebon (2025), the quality of raw sugarcane, the efficiency of the use of production machinery, and the readiness of the workforce to support operational procedures are some of the factors that have affected the success of production in the previous period. In line with this, labor productivity is an important factor that affects how well and competitively a company operates in the manufacturing sector, according to Friska et al. (2023). High productivity reflects the ability of workers to maximize output by using resources effectively and efficiently in accordance with the company's operational requirements.

The results of a study (Scopus Q1) entitled "Sweet Success or Sour Struggles?" conducted by Adli et al. (2025) show how management factors, human resource readiness, and working environment conditions each affect the efficiency level of the sugar industry. The findings of this study confirm that efforts to increase productivity in the sugar industry are essential. Enzelina et al. (2024) stated that the work environment is also an important factor in retaining employees, as a pleasant work environment can affect job satisfaction and happiness, which ultimately leads to increased employee productivity.

In addition to the elements of the work environment, career development is an important component that can increase employee work productivity (de Moraes et al., 2016; Iis et al., 2022; Kosasih et al., 2023; Moraes et al., 2015; Sheetal & Kumar, 2019; Solomon, 2016). According to Idajor (2023), organized career planning can increase employee enthusiasm and performance, as seen from the contribution of career training of 94.6%, as well as offering opportunities for self-improvement, future certainty, and a sense of justice. Employees can improve their competencies, expand their knowledge, and achieve their career goals with the help of ideal career development programs, which ultimately increase motivation and productivity in the workplace (Wirdha et al., 2025).

Many previous studies have looked at how career and workplace development affect worker productivity in a variety of industries. However, there are currently only a few studies that specifically focus on the sugar sector in the Majalengka area, because most of this research is still incomplete in terms of variables and research locations. Due to these circumstances, PT PG Rajawali II Jatitujuh Unit in Majalengka is not fully represented. The lack of research simultaneously investigating the impact of career development and the work environment on productivity in sugar mills in the region is one of the major shortcomings of previous research. Therefore, the research gap lies in the limited empirical evidence that examines the influence of the work environment and career development simultaneously on employee work productivity in the sugar industry in Majalengka. This research is expected to fill these gaps and make a valuable contribution, both in terms of scientific development and as practical considerations for management.

This study aims to examine the influence of the work environment and career development on employee work productivity at PT PG Rajawali II Jatitujuh Majalengka Unit. The specific objectives of this research are to analyze the effect of the work environment on employee work productivity and to analyze the effect of career development on employee work productivity. This research is expected to fill the existing gaps and make valuable contributions, both in terms of scientific development and as practical considerations for management. Theoretically, this study contributes to the enrichment of human resource management literature, particularly regarding the factors that influence employee work productivity in the

manufacturing sector. Practically, the findings of this study are expected to provide input and considerations for the management of PT PG Rajawali II Jatitujuh Majalengka Unit in formulating policies and strategies related to the improvement of the work environment and career development programs to enhance employee work productivity. Furthermore, this research can serve as a reference for future researchers interested in examining similar topics in different organizational contexts or with additional variables.

METHOD

An associative quantitative methodology was used in this study to examine the relationship between independent and dependent variables. This approach is intended to assess how the work environment (X1) and career development (X2) affect the work productivity of employees (Y). According to Akbar et al. (2024), associative quantitative research aims to explain the direction and strength of interactions between variables while methodically and objectively examining how one variable affects another variable in a phenomenon. The population in this study consists of 199 permanent employees at PT PG Rajawali II Jatitujuh Majalengka Unit. The sample size was determined using the slovin formula with an error tolerance of 0.5 used to calculate the number of samples in this study. According to this calculation, 133 respondents were used as samples in the study and then presented as study participants.

The data applied in this study includes primary data and secondary data. Primary data was collected by distributing questionnaires directly to employees of PT PG Rajawali II Jatitujuh Majalengka Unit who were selected as research respondents. The purpose of primary data collection is to obtain real and empirical information about the conditions experienced directly by employees in the company's workplace. Reports on the number of personnel and organizational profiles, as well as official company records, are some of the sources of supporting secondary data. Books, scientific journals, and other public publications that intersect with research variables are among the secondary data sources collected from previous research.

The data collection technique from this study is by distributing questionnaires. This questionnaire contains statements related to the variables to be studied, namely; Work environment, Career development, and Work productivity, which respondents will answer using a Likert scale of 1-5

Tabel .1 scale likert

1	Strongly Disagree
2	Disagree
3	Simply Agree
4	Agree
5	Strongly agree

Source: Primary data processed (2026)

Data analysis in this study was carried out using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) method, with the help of SmartPLS software. The PLS-SEM method was chosen based on its ability to analyze the relationships between latent variables simultaneously, both in measurement models and structural models. Hair et al. (2021) state that PLS-SEM is a prediction-focused analytical approach, making it very relevant for verifying the

influence of independent variables on dependent variables and explaining variations in endogenous constructs in research models. Therefore, this method is considered suitable for studies aiming to test the causal relationships between latent variables.

The data analysis process in this study was carried out in two main stages: the Outer Model and the Inner Model, accompanied by a model fit test as part of the comprehensive evaluation of the research model. The Outer Model evaluation aims to assess the correlation between indicators and the latent constructs they represent, ensuring that each indicator can assess the construct validly and reliably through testing for convergent validity, discriminant validity, and construct reliability.

Convergent validity, which evaluates the degree of correlation between indicators and their capacity to represent the same latent concept, was tested using two approaches: Outer Loading, to assess the strength of the connection between the indicator and the latent construct, and Average Variance Extracted (AVE), to measure the variance ratio of indicators explained by the latent construct. Acceptable values are above 0.70 for outer loadings and above 0.50 for AVE (Hair et al., 2021). Discriminant validity was assessed using three methods to ensure clear differences between constructs: Cross Loading, where an indicator's loading on its intended construct should be higher than on other constructs; the Fornell-Larcker Criterion, requiring the square root of AVE for each construct to exceed its correlations with other constructs; and the Heterotrait-Monotrait Ratio (HTMT), with values below 0.90 indicating adequate discriminant validity (Hair et al., 2021). Construct reliability was evaluated using Cronbach's Alpha and Composite Reliability, with both measures expected to exceed 0.70 to confirm internal consistency.

Additionally, the Model Fit Test was conducted using the Standardized Root Mean Square Residual (SRMR) to assess the extent to which the overall research model represents empirical data, with values below 0.10 indicating acceptable model fit. Subsequently, the Inner Model evaluation was performed to examine causal relationships between latent variables and test the formulated research hypotheses, focusing on the strength of variable influences and the model's predictive ability. This evaluation included the R-Square (R^2) to assess the extent to which independent variables explain variations in dependent variables; the Effect Size (f^2) to determine the magnitude of the impact of each independent variable on endogenous constructs, categorized as weak, moderate, or strong; the Predictive Relevance (Q-Square) to evaluate the model's ability to accurately estimate observed values, with values above zero indicating adequate predictive relevance; and the Significance Test (Hypothesis Testing) using bootstrapping techniques to estimate parameters and test causal relationships. Hypotheses are accepted if T-statistics exceed 1.96 and P-values are below 0.05.

RESULTS AND DISCUSSION

Table 2. Respondent Characteristics

No	Features	Category	Number (People)
1	Gender	Male	129
		Women	4
2	Age	21–34 years old	81
		35–45 years old	38
		>45 years old	14
3	Tenure	1–10 years	102

11–20 years	25
21–30 years old	6

Source: Primary data processed (2026)

It is known from the respondent characteristics table that there were 133 participants in this study. By gender, there were four female respondents and 129 male respondents, which constituted the majority of respondents. This condition shows that the composition of the workforce in the companies that are the object of the research is dominated by male employees, which is generally related to the characteristics of jobs in the manufacturing sector which involve more operational and technical activities.

Based on age, the maximum respondents were in the age range of 21–34 years, which was 81 people. Furthermore, respondents aged 35–45 years amounted to 38 people, while respondents over 45 years old amounted to 14 people. Since the majority of respondents are of productive age, according to the age distribution, they are considered to have the best physical and mental capacity to complete tasks and are aware of the company's work environment and career development programs.

Judging from the working period, the majority of respondents have a working period of 1–10 years, which is 102 people. Respondents with a working period of 11–20 years amounted to 25 people, while respondents with a working period of 21–30 years amounted to 6 people. With this, it can be seen that the majority of respondents have sufficient work experience, so that they are able to provide factual and relevant assessments of the variables studied, especially the work environment, career development, and work productivity.

Outer Model

Outer Model testing is carried out through 3 main stages: convergent validity, discriminant validity, and construct reliability, according to the analysis procedure using the method (PLS-SEM).

1. Convergent validity

In this study, the value of outer loading was examined to test convergent validity. The recommended outer loading value for convergent validity testing with SmartPLS is ≥ 0.70 , according to Hair et al., (2021) This value is considered to have a strong representation because it shows that the indicator can explain at least 50% of the latent construct variation measured. Therefore, a value criterion greater than 0.70 was used to test this study.

a) Outer Loading Testing

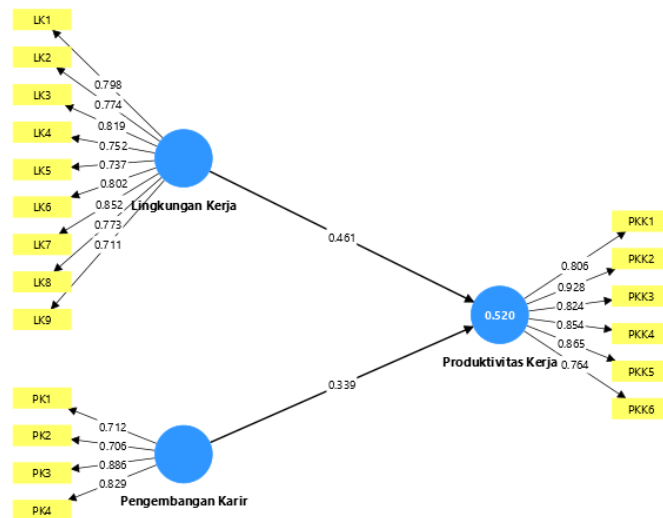


Figure 1. Outor Model

Source: Output SmartPLS 4.0 (2026)

Table 3. Nilai Outor Model

	Work Environment	Career Development	Work productivity	Remarks
LK1	0.798			Valid
LK2	0.774			Valid
LK3	0.819			Valid
LK4	0.752			Valid
LK5	0.737			Valid
LK6	0.802			Valid
LK7	0.852			Valid
LK8	0.773			Valid
LK9	0.711			Valid
PK1		0.712		Valid
PK2		0.706		Valid
PK3		0.886		Valid
PK4		0.829		Valid
PKK1			0.806	Valid
PKK2			0.928	Valid
PKK3			0.824	Valid
PKK4			0.854	Valid
PKK5			0.865	Valid
PKK6			0.764	Valid

Source: Output SmartPLS 4.0 (2026)

The results of the outer loading analysis showed that all indicators in each variable had a value above 0.70. This indicates that each indicator is able to represent the latent variable it measures strongly and accurately. Thus, the construct in this study meets the criteria for convergent validity, since the relationship between the indicators and the measured construct shows an adequate level of correlation Hair et al., (2021). The findings indicate that the research instrument is declared feasible to use, so that the analysis process can be continued to the next stage of testing.

b) Average Variance Extracted (AVE)

The benchmark used in this study was the AVE value > 0.50.

Table 4. AVE Value

	Average variance extracted (AVE)	Remarks
Work Environment	0.610	Valid
Career Development	0.620	Valid
Work Productivity	0.708	Valid

Source: Output SmartPLS 4.0 (2026)

The test results show that:

- 1) The Work environment variable has an AVE value of 0.610
- 2) The Career development variable has an AVE value of 0.620
- 3) The Work Productivity variable has an AVE value of 0.708

The entire AVE value is above 0.50, which indicates that each construct is able to define more than 50% of the variance of its indicators. As a result, it can be concluded that the three research variables have met the criteria of convergent validity.

2. Discriminant validity

The discriminant validity test in this study was carried out using cross loading, Fornell-Larcker criterion, and Heterotrait-Monotrait Ratio (HTMT).

a) Cross loading

The results of the cross-loading test showed that each indicator showed the highest load for the construct it was measuring compared to the other constructs. This shows that all indicators meet the criteria of discriminative validity.

Table 5. Cross Loading Test

	Work Environment	Career Development	Work Productivity	Remarks
LK1	0.798	0.400	0.542	Valid
LK2	0.774	0.527	0.576	Valid
LK3	0.819	0.499	0.529	Valid
LK4	0.752	0.425	0.335	Valid
LK5	0.737	0.534	0.483	Valid
LK6	0.802	0.476	0.612	Valid
LK7	0.852	0.483	0.523	Valid
LK8	0.773	0.591	0.516	Valid
LK9	0.711	0.380	0.505	Valid
PK1	0.462	0.712	0.453	Valid
PK2	0.449	0.706	0.250	Valid
PK3	0.525	0.886	0.544	Valid
PK4	0.505	0.829	0.595	Valid
PKK1	0.548	0.542	0.806	Valid
PKK2	0.600	0.583	0.928	Valid
PKK3	0.641	0.497	0.824	Valid
PKK4	0.581	0.522	0.854	Valid
PKK5	0.591	0.606	0.865	Valid
PKK6	0.344	0.322	0.764	Valid

Source: Output SmartPLS 4.0 (2026)

b) Fornell larcker

The results of the test showed that the square root value of AVE in each construct was greater than the correlation value between other constructs.

Table 6. Uji Fornell Larcker

	Work Environment	Career development	Work Productivity	Remarks
Work Environment	0.781			Valid
Career Development	0.616	0.787		Valid
Work Productivity	0.670	0.622	0.842	Valid

Source: Output SmartPLS 4.0 (2026)

These results show that each component of the research model has a relatively high level of discriminatory validity compared to the other components. Therefore, the measurement model is considered to meet the Fornell-Larcker criteria for discriminant validity.

c) Heterotrait Monotrait Ratio of Correlation (HTMT)

Discriminant validity testing was also carried out using a Heterotrait-Monotrait Ratio (HTMT) value, with a value criterion of less than 0.90.

Table 7. HTMT Test

	Work environment	Career Development	Work Productivity
Work Environment			
Career Development	0.716		
Work Productivity	0.700	0.663	

Source: Output SmartPLS 4.0 (2026)

The test results show that the entire HTMT value between constructs is below 0.90. And, it can be concluded that there is no problem of overlap between constructs, so that discriminant validity is well met.

3. Construct Reliability

Construct reliability can be tested through 2 evaluation methods, namely with Cronbach's Alpha and Composite Reliability values. The two indicators are determined in looking at the value of the internal consistency level of each indicator that forms a variable in the research.

a) Cronbach' Alpha dan Composite Reliability > 0,70

Table 8. Construct reliability test

	Cronbach's alpha	Composite reliability (rho_c)
Work Environment	0.920	0.924
Career Development	0.801	0.834
Work Productivity	0.917	0.928

Source: Output SmartPLS 4.0 (2026)

The test results show that:

- 1) The Work Environment variable has a Cronbach's Alpha value of 0.920 and a Composite Reliability of 0.924
- 2) The Career Development variable has a Cronbach's Alpha value of 0.801 and a Composite Reliability of 0.834

- 3) The Work Productivity variable has a Cronbach's Alpha value of 0.917 and a Composite Reliability of 0.928

All research variables were declared reliable.

4. Test model Fit < 0.10

Table 9. Test Model Fit

	Saturated model	Estimated model
SRMR	0.088	0.088
d ULS	1.474	1.474
d G	0.711	0.711
Chi-square	478.756	478.756
NFI	0.756	0.756

Source: Output SmartPLS 4.0 (2026)

The results of the fit model test showed an SRMR value of 0.088, which is still within the tolerance limit of the PLS-SEM model. Therefore, the research model was declared to have an acceptable level of suitability.

Structural Model Test Results (INNER MODEL)

1. R Square

Table 10. R Square Test

	R-square	R-square adjusted
Work Productivity	0.520	0.512

Source: Output SmartPLS 4.0 (2026)

The R-square value of the Work Productivity variable is 0.520, which explains that the Work Environment and Career Development variables are able to explain 52% of the variation in Work Productivity, while the remaining 48% is explained by other variables outside the research model. The value is in the moderate category, so the structural model is considered quite good.

2. Effect size (F2)

Table 11. Test F

	Work Environment	Career Development	Work Productivity
Work Environment			0.275
Career Development			0.148
Work Productivity			

Source: Output SmartPLS 4.0 (2026)

The results of the effect size test showed that:

- 1) The Work Environment has an $f^{\text{value of } 2}$ of 0.275
- 2) Career Development has an $f^{\text{value of } 2}$ of 0.148

The values listed prove that both variables have a moderate influence on Work Productivity.

3. Q-square

Table 12. Q-square test

	Q ² predict	RMSE	IT IS
Work Productivity	0.503	0.722	0.568

Source: Output SmartPLS 4.0 (2026)

The results of the evaluation through Q-square testing on the work productivity construct explained a value of 0.503. These findings indicate that the research model has a strong predictive ability to comprehensively explain variations in work productivity. Therefore, it can be concluded that the independent variables included in the analysis model are able to provide a level of prediction accuracy that scans for changes in employee work productivity.

4. Significance (Hypothesis Testing)

Table 13. Hypothesis Test

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Work Environment -> Work Productivity	0.461	0.461	0.077	5.976	0.000
Career Development -> Work Productivity	0.339	0.346	0.071	4.784	0.000

Source: Output SmartPLS 4.0 (2026)

Hypothesis testing was carried out by observing T-statistical values (> 1.96) and P-values (< 0.05). So it is stated that it is accepted

The test results prove:

- 1) The work environment has a significant positive effect on Work Productivity with a T-statistic value of 5.976 and a P-value of 0.000
- 2) Career development has a significant positive effect on Work Productivity with a T-statistic value of 4.784 and a P-value of 0.000

Therefore, all hypotheses in this study are accepted.

The data in this study was obtained from respondents who are employees of PT PG Rajawali II Jatitujuh Majalengka Unit. After being processed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method, an in-depth discussion was conducted about the results of the research and the direct influence of the variables of Work Environment and Career Development. This study intends to examine the influence of Work Environment (X1) and Career Development (X2) on Work Productivity (Y) among employees of PT PG Rajawali II Jatitujuh Majalengka Unit. The test results showed that H1 was accepted and H2 was accepted, meaning that the Work Environment and Career Development had a significant positive influence on employee Work Productivity.

Influence of Work Environment (X1) on Work Productivity (Y)

The results show that the work environment has a positive and significant influence on the Work Productivity of employees at PT PG Rajawali II Jatitujuh Majalengka Unit. This is supported by the results of the structural model test, which showed the original value of the sample of 0.461, with a statistical T-value of 5.976 (greater than 1.96) and a P value of 0.000

(less than 0.05). therefore, the first hypothesis (H1) is accepted. Based on the results of the effect size (f^2) test, the Work Environment variable has a value of 0.275, which is classified as a moderate effect. This shows that the work environment makes a decent contribution in optimizing employee work productivity.

Examined from the measurement model, the Work Environment variable has met the standards of validity and reliability. All Work Environment indicators have an outer loading value above 0.70, with a range of values between 0.711 to 0.928. In addition, an Average Variance Extracted (AVE) value of 0.610 (> 0.50) shows that the Work Environment construct explains more than 61% of the variation in the indicator. Cronbach's Alpha value of 0.920 and Composite Reliability of 0.924 show that these variables have a very good suitability. The findings of this study are in line with the results of Widiatmoko et al.'s (2025) research, which said that the work environment has a positive and significant influence on employee work productivity.

The Effect of Career Development (X2) on Work Productivity (Y)

These findings show that career development has a positive and significant influence on work productivity. this is reinforced by a path coefficient of 0.339, a T-statistical value of 4.784 (which is greater than 1.96), and a p value of 0.000 (which is smaller than 0.05). Therefore, the second hypothesis (H2) is accepted. Based on the effect measure (f^2), career development has a value of 0.148, which indicates a moderate effect. These findings show that career development contributes significantly to increasing employee work productivity, although its contribution is relatively small compared to work environment variables.

From the evaluation of the outer model, the career development variables met all the criteria of validity and reliability. All indicators have an outer loading value above 0.70, ranging from 0.708 to 0.928. An EVE value of 0.620 (which is greater than 0.50) indicates that the career development construct can explain 62% variation in its indicators. In addition, Cronbach's Alpha value of 0.801 and composite reliability of 0.834 indicate that this variable has very good reliability. These findings support the findings of Firdaus et al. (2025) who said that career development has a significant positive influence on employee work productivity.

CONCLUSION

Based on the findings of this study on the influence of the work environment and career development on worker productivity at PT PG Rajawali II Unit Jatitujuh Majalengka, which was conducted by collecting data through questionnaires and analyzing it using the PLS-SEM method with SmartPLS software, it can be concluded that the two independent variables show a positive and significant influence on work productivity. The results of this study indicate that a good work environment is able to increase productivity. A comfortable, safe, and supportive work atmosphere encourages employees to implement their work and responsibilities more focused, enthusiastically, and efficiently. A conducive work environment also helps to create a harmonious work atmosphere where employees are able to provide their best performance for the company.

Furthermore, it has been proven that career development has a positive and significant effect on employee productivity. Opportunities for growth, clear career paths, and training and promotion programs can increase employee morale, engagement, and loyalty to the company.

Employees who get the opportunity to develop professionally usually show better and more productive performance. Overall, this study concludes that increasing employee productivity at PT PG Rajawali II Jatitujuh Majalengka Unit can be achieved by creating a conducive work atmosphere and implementing a planned and sustainable career development program. The company's management is expected to consider the results of this research when developing policies and strategies for controlling human resources, especially those related to increasing employee productivity to support the company's goals and sustainability.

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