



FROM WORK CONDITIONS TO PERFORMANCE OUTPUT: THE EFFECTS OF WORK ENVIRONMENT AND INDIVIDUAL ABILITY ON EMPLOYEE PERFORMANCE

(A Study of Sewing Line Employees at PT Karya Mekar Dewatamali)

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Submitted: 11 June 2025, Accepted: 15 July 2025, Published: 12 September 2025

Abstract

This study examines the effects of the work environment and individual ability on employee performance among sewing line employees at PT Karya Mekar Dewatamali. The study employed an explanatory quantitative approach using a Likert-scale questionnaire survey administered to 66 employees. The work environment was measured through work atmosphere, physical facilities, subordinate-supervisor relations, and coworker relations (LK1–LK8). Individual ability was assessed through knowledge, training, experience, skills, and work capability (KI1–KI8). Employee performance was measured through quantity, quality, timeliness, attendance, and teamwork (KK1–KK10). The data were analyzed using multiple linear regression, with model adequacy evaluated through classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation. The findings show that the work environment is the most dominant factor and, together with individual ability, contributes positively to employee performance. The model explains a substantial proportion of the variance in performance (Adjusted $R^2 = 0.702$). These findings underscore the importance of workplace support and competency enhancement in repetitive and precision-based sewing tasks.

Keywords: work environment; individual ability; employee performance.

A. INTRODUCTION

Employee performance in labor-intensive manufacturing industries is a direct determinant of output stability, product quality, and on-time order fulfillment, particularly in production units that require high precision, such as sewing lines. Sewing activities are repetitive in nature and demand fine motor coordination, sustained concentration, and a consistent work rhythm. Under such working conditions, reduced focus, fatigue, or even minor disturbances in the work area may lead to technical errors and diminish production quality. The performance management literature emphasizes that work performance is influenced not only by individual factors but also by the work context and organizational policies that sustain daily work practices (Liang & Li, 2025).

Conceptually, performance research frequently refers to the framework developed by Mathis and Jackson, which views performance as a function of the combination of ability, effort or motivation, and support provided by the organization (Mathis & Jackson, 2010). Within this framework, the work environment represents the support dimension because it creates the conditions that enable employees to work effectively and safely, whereas individual ability represents the ability dimension that determines workers' capacity to meet job demands and quality standards. This framework is particularly relevant to sewing-line operations, as production work requires not only technical expertise but also depends on workplace conditions, ergonomics, and coordination support along the production line.

From the support perspective, previous studies have shown that the work environment is associated with employee performance. Work environment variables and leadership behavior may shape performance through broader dynamics of organizational support and work

behavior (López-Cabarcos et al., 2022). Other findings confirm that the influence of the work environment may operate through psychological mediating mechanisms that connect working conditions with performance outcomes (Zhenjing et al., 2022). A socio-cognitive perspective also suggests that the quality of the work environment affects performance through cognitive processes and more adaptive work behaviors (Chen & Lin, 2024). In addition, negative work environments, such as those characterized by bullying and incivility, have been shown to be associated with performance decline because they undermine psychological well-being and disrupt work concentration (Mehmood et al., 2024). Therefore, organizational support in the form of a safe, comfortable, and supportive work environment constitutes a prerequisite for maintaining consistent performance in highly precise and repetitive work.

From the ability perspective, individual capability and competence are often decisive factors in productivity and work quality, especially in manufacturing. Hosen et al. (2024) demonstrated that human resource development practices, including training and career development, are associated with improved work performance. In manufacturing contexts, competence and quality practices are regarded as drivers of sustainable performance because competence enables workers to execute process standards consistently (Karim et al., 2025). Measurable training strategies and performance appraisal systems are likewise considered essential for maintaining performance and ensuring quality consistency in manufacturing environments (Caterino et al., 2025). Accordingly, individual ability, which encompasses job knowledge, technical skills, and experience, constitutes the foundation for ensuring that work outputs meet established standards.

Although the relationships among the work environment, individual ability, and performance have been widely examined, two research gaps remain relevant. First, many studies address performance in a general context, whereas sewing-line work has specific characteristics: it is repetitive, highly precise, and particularly sensitive to ergonomics and workplace conditions. Integrative research on the physical work environment emphasizes that workplace design, including layout, ergonomics, and spatial quality, is systematically related to performance and deserves continued research attention (Oyedeki et al., 2025). Second, performance studies often emphasize either individual factors or environmental factors separately, even though in the Mathis and Jackson framework, performance is the outcome of the interaction between ability and support. In production work, employee capability may not be fully realized when environmental support is poor; conversely, a favorable work environment is insufficient if workers lack adequate core competencies. It is therefore important to examine both factors simultaneously within a specific production unit in order to obtain a more comprehensive understanding.

Based on this rationale, the present study was conducted among sewing-line employees at PT Karya Mekar Dewatamali to examine the effects of the Work Environment (X1) and Individual Ability (X2) on Employee Performance (Y). Practically, this study is intended to provide an operational basis for policy recommendations for HR and production management, in line with the literature emphasizing the importance of sustainable human resource policies in driving performance (Liang & Li, 2025). In addition, studies on restorative work environments suggest that certain environmental characteristics may facilitate fatigue recovery and improve work readiness, which is particularly relevant to repetitive forms of work (Gonçalves et al., 2023).

The research problems addressed in this study are as follows: (1) does the work environment affect the performance of sewing-line employees, and (2) does individual ability affect the performance of sewing-line employees? The objective of the study is to analyze the effect of each independent variable on performance, both as a scientific finding and as a basis for interpreting performance improvement policies. The theoretical contribution of this study lies in strengthening the application of the Mathis and Jackson performance framework in an

operational manufacturing context by emphasizing the role of support (work environment) and ability (individual capability) as important determinants (Mathis & Jackson, 2010). Its practical contribution lies in providing policy input for HR and production management, particularly regarding improvements in the physical and social work environment that support concentration, as well as training and mentoring programs to maintain work quality standards.

The novelty of this study lies in its contextual focus on the sewing-line unit as a work area that is highly sensitive to the physical environment, social dynamics, and operators' technical competence. From an academic perspective, the study links field-based conditions with international findings showing that the work environment influences performance through behavioral and psychological pathways (Chen & Lin, 2024; Zhenjing et al., 2022), and that competence development and human resource development practices are correlated with work performance (Hosen et al., 2024; Karim et al., 2025). From a practical perspective, the findings are expected to help organizations determine evidence-based intervention priorities, including environmental improvements that reduce psychosocial strain (Mehmood et al., 2024) and measurable technical training to maintain consistency in quality (Caterino et al., 2025).

B. LITERATURE REVIEW

1. Employee Performance in the Ability-Effort-Support Framework

The theoretical foundation of this study is anchored in the human resource management conception of performance, which views performance as the outcome of the interaction between individual and situational factors. Within the ability-effort-support framework, Mathis and Jackson emphasize that performance is a function of ability, effort or motivation, and organizational support (Mathis & Jackson, 2010). This framework highlights that performance cannot be adequately explained solely by the willingness to work, but must also take into account the individual's capacity to complete tasks and the working conditions that enable such capacity to be translated into desirable outputs.

In the manufacturing context, particularly in sewing-line operations, this framework is highly relevant because the work is repetitive and requires a high degree of precision. Accordingly, support from the work system and environmental conditions becomes crucial for maintaining focus, reducing fatigue, and minimizing errors, while technical ability determines the quality and speed of work. On this basis, the present study focuses on two principal components of the framework: support, represented by the work environment, and ability, represented by individual capability.

2. Work Environment as a Form of Support and Its Implications for Performance

Within the ability-effort-support framework (Mathis & Jackson, 2010), the work environment is positioned as part of the support dimension because it provides the conditions that enable employees to work effectively, safely, and consistently. The work environment encompasses both physical aspects, such as lighting, noise, temperature and ventilation, cleanliness, layout, and equipment ergonomics, and non-physical aspects, including workplace relationships, supervisory support, communication, and work climate. In production units such as sewing lines, the quality of the work environment influences the stability of work rhythm, accuracy, and the ability to sustain concentration over prolonged working hours.

International empirical evidence indicates that the quality of the work environment is associated with performance through various mechanisms. Work environment variables and leadership behavior may shape work behavior and organizational dynamics, which in turn contribute to improved performance (López-Cabarcos et al., 2022). In addition, the effect of the work environment on performance may operate through psychological mediating mechanisms, such as employees' psychological states and internal processes (Zhenjing et al., 2022). A socio-cognitive perspective also confirms that the work environment affects

performance through employees' cognitive processes and adaptive work behaviors (Chen & Lin, 2024). Conversely, negative social environments, such as those characterized by bullying and incivility, are associated with lower performance because they disrupt concentration and increase psychological strain (Mehmood et al., 2024). Integrative studies have likewise positioned the quality of the physical work environment, including layout, ergonomics, and spatial quality, as an important research agenda because of its relationship with work processes and outputs (Oyededeji et al., 2025).

Based on this foundation, the work environment in the present study is assumed to make a positive contribution to performance, particularly in sewing work that is highly sensitive to physical comfort and the stability of work coordination.

H₁: The work environment has a positive effect on employee performance.

3. Individual Ability as a Form of Ability and Its Implications for Performance

The ability component within the ability-effort-support framework (Mathis & Jackson, 2010) refers to the individual's capacity to perform work effectively. In this study, individual ability is understood as the combination of job knowledge, technical skills, experience, accuracy, and the capability to carry out tasks in accordance with standard operating procedures. In sewing-line production work, technical ability serves as the primary foundation for maintaining quality standards, reducing production defects, and ensuring the timeliness of outputs.

The international literature supports the relationship between ability and performance. Training and development practices, as well as career development, are positively associated with improved work performance because they enhance individual competence and readiness to carry out job responsibilities (Hosen et al., 2024). In manufacturing contexts, competence and quality practices are regarded as drivers of sustainable performance because competence enables employees to implement process standards consistently and reduce quality variation (Karim et al., 2025). At the implementation level, measurable training strategies and performance assessment systems are also considered important for maintaining output consistency and quality in manufacturing environments (Caterino et al., 2025). Therefore, individual ability in this study is assumed to contribute positively to the performance of sewing-line employees.

H₂: Individual ability has a positive effect on employee performance.

C. METHODS

This study employed a quantitative approach with an explanatory design to examine the effects of the work environment (X_1) and individual ability (X_2) on employee performance (Y) among sewing line employees at PT Karya Mekar Dewatamali, a manufacturing company engaged in shoe and bag production. An explanatory design was chosen because the main objective of the study was to explain causal relationships statistically through hypothesis testing, thereby identifying both the direction and significance of the effects of the independent variables on the dependent variable.

The population consisted of all employees working in the sewing line division. The total number of respondents included in the analysis was 66, in accordance with the dataset used in the descriptive and regression analyses. Data were collected using a closed-ended questionnaire with a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). This scale was used to capture respondents' perceptions regarding the indicators of each construct. The collected data were first processed descriptively through frequencies, percentages, and mean scores, and were then analyzed inferentially using multiple linear regression.

Operationally, the work environment (X_1) was defined as the physical and non-physical conditions surrounding employees that influence job implementation, including work

atmosphere, availability of facilities, and the quality of work relationships. This variable was measured using eight items (LK1–LK8), covering four indicators: (1) work atmosphere, (2) availability of physical facilities, (3) subordinate–supervisor relations, and (4) coworker relations. Each item was rated using the Likert scale, and the scores were aggregated to represent the level of the work environment.

Individual ability (X_2) was defined as the personal capacity enabling employees to perform tasks effectively, including work knowledge, training, experience, skills, and adaptability. This variable was measured using eight items (KI1–KI8), which represented five indicators: (1) knowledge, (2) training, (3) experience, (4) skills, and (5) work capability. Scores on these items were combined to generate each respondent's individual ability score.

The dependent variable, employee performance (Y), was defined as the degree of work achievement reflected in the quantity and quality of work, timeliness, attendance, and teamwork. Performance was measured using ten items (KK1–KK10), encompassing five indicators: (1) quantity of work, (2) quality of work, (3) timeliness, (4) attendance, and (5) teamwork. The performance score was obtained from the aggregated responses to all items.

Hypothesis testing was conducted using multiple linear regression. Prior to estimation, classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation, were conducted to ensure model adequacy. Subsequently, t-tests were used to examine the partial effects of X_1 and X_2 on Y , while the coefficient of determination (Adjusted R^2) was used to evaluate the contribution of the independent variables in explaining variance in employee performance.

D. RESULTS AND DISCUSSION

1. Results

This study was conducted among 66 employees working in the sewing line division of PT Karya Mekar Dewatamali. Demographically, the respondents were predominantly 31–40 years old (48.5%), female (95.5%), senior high school graduates (66.7%), and had worked for 1–2 years (57.6%). This composition reflects an operational workforce engaged in production tasks requiring precision and consistent skill performance.

Table 1. Summary of Respondent Characteristics (n = 66)

Characteristic	Dominant Category	Frequency	Percentage
Age	31–40 years	32	48.5%
Gender	Female	63	95.5%
Educational attainment	Senior high school	44	66.7%
Length of service	1–2 years	38	57.6%

The descriptive results indicate that respondents' perceptions of the study variables fell within the favorable category: work environment ($X_1 = 3.72$), individual ability ($X_2 = 4.21$), and employee performance ($Y = 4.13$). These findings suggest that, overall, respondents perceived workplace support to be relatively adequate and their personal abilities to be relatively strong, accompanied by a favorable assessment of performance.

Before hypothesis testing, the regression model met the necessary analytical requirements. No multicollinearity was detected, as indicated by a tolerance value of 0.562 and a VIF of 1.781. No heteroscedasticity was observed, as evidenced by the random distribution of points in the scatterplot. In addition, the Durbin–Watson value of 2.052, which is close to 2, indicates the absence of autocorrelation. These results confirm that the model was appropriate for examining the relationships among the variables. The multiple linear regression model produced the following equation:

$$Y = 12.269 + 0.665X_1 + 0.245X_2$$

The positive coefficients for X1 and X2 indicate that improvements in the work environment and increases in individual ability tend to be followed by improvements in employee performance. The Adjusted R² value of 0.702 indicates that 70.2% of the variance in employee performance can be explained by the work environment and individual ability, while the remaining 29.8% is attributable to factors outside the model.

Table 2. Summary of Hypothesis Testing (Multiple Linear Regression)

Hypothesis	Relationship	B	Beta	t	Sig.	Decision
H1	Work environment (X1) → Performance (Y)	0.665	0.701	7.758	0.000	Accepted
H2	Individual ability (X2) → Performance (Y)	0.245	0.196	2.176	0.034	Accepted

Table 3. Model Summary

R	R Square	Adjusted R Square	Std. Error	Durbin-Watson
0.843	0.711	0.702	2.85842	2.052

2. Discussion

The findings indicate that the work environment (X₁) has a positive and significant effect on employee performance (Y). This result is consistent with the performance framework proposed by Mathis and Jackson, which posits that performance is shaped by the combination of ability, effort, and organizational or environmental support (Mathis & Jackson, 2010). In the context of sewing-line operations, the work environment represents a critical form of support, given that the job is repetitive, detail-oriented, and highly dependent on stable physical conditions, including lighting, temperature, noise levels, cleanliness, and ergonomics, as well as social conditions such as coordination and support from supervisors and co-workers. When these conditions are conducive, employees are better able to maintain concentration, minimize disruptions, and produce outputs of more consistent quality.

This finding is further reinforced by empirical evidence studies. Previous research has shown that the work environment and leadership behavior are significantly associated with employee performance through organizational environment and behavioral mechanisms (López-Cabarcos et al., 2022). Other studies have demonstrated that the work environment affects performance through psychological mediating mechanisms, such as engagement and internal individual factors (Zhenjing et al., 2022). From a socio-cognitive perspective, the quality of the work environment has also been found to enhance performance through cognitive processes and work-related attitudes (Chen & Lin, 2024). Even systematic reviews suggest that restorative workplace characteristics, such as biophilic elements and exposure to nature, may improve employee well-being and performance (Gonçalves et al., 2023). Conversely, when the work environment is characterized by negative behaviors such as bullying or workplace incivility, employee performance tends to decline due to heightened psychological strain (Mehmood et al., 2024). Thus, the present result is theoretically and empirically plausible: in production units, the quality of environmental support constitutes a dominant predictor of employee performance.

Furthermore, individual ability (X₂) was also found to have a positive and significant effect on performance. This finding supports the ability component in the theory of Mathis and Jackson (2010), which emphasizes that employees with stronger skills, better knowledge of standard operating procedures, greater experience, and higher levels of accuracy are more likely to achieve superior work quality and quantity. In sewing-line operations, technical ability constitutes the foundation for maintaining quality standards and meeting production deadlines. Accordingly, improvements in employee capability through training and repeated work practice are likely to contribute directly to enhanced performance.

This result is likewise supported by prior studies showing that capability development and human resource development practices are closely associated with improvements in work

performance (Hosen et al., 2024). In manufacturing settings, competencies and quality-oriented practices have been positioned as key drivers of sustainable performance (Karim et al., 2025). Training in manufacturing environments is also regarded as essential for ensuring measurable performance improvement through systematic performance assessment (Caterino et al., 2025). Conceptually, the sustainable HRM perspective likewise places capability development as one of the principal pathways to improved organizational and individual performance (Liang & Li, 2025). In addition, integrative studies on the physical work environment emphasize that physical working conditions and human factors, including competence and ergonomics, interact in shaping work outcomes (Oyedeki et al., 2025). This helps explain why X_2 is significant, although its relative effect is smaller than that of X_1 : ability requires a supportive work setting in order to be translated into optimal performance.

Overall, this study confirms that the most dominant variable influencing the performance of sewing-line employees is the work environment (X_1) ($\beta = 0.701$), while individual ability (X_2) also exerts a positive effect, albeit to a lesser extent ($\beta = 0.196$). The stronger effect of X_1 can be understood contextually, as sewing-line work demands precision, a stable work rhythm, and resistance to fatigue. As a result, the quality of lighting, temperature and ventilation, noise control, ergonomics, and social support within the workplace become crucial determinants of productivity and consistency in output quality. From a managerial perspective, the implications for HR and production management are clear: priority should be given to quick-win improvements in both the physical work environment, such as lighting, ergonomics, and workplace layout, and the non-physical environment, including target coordination, supervisory support, and a supportive work culture. These efforts should be complemented by capability-enhancement programs, such as short technical training, mentoring by senior operators, and quality evaluation based on simple and measurable indicators. Through this dual strategy of support and ability enhancement, companies are more likely to improve employee performance sustainably, in line with the performance framework of Mathis and Jackson (2010) and the findings of prior empirical studies (Chen & Lin, 2024; Hosen et al., 2024; López-Cabarcos et al., 2022; Zhenjing et al., 2022).

E. CONCLUSION AND RECOMMENDATIONS

This study was conducted to understand how the work environment and individual ability are related to employee performance among sewing line employees at PT Karya Mekar Dewatamali. The main findings indicate that employee performance tends to improve when employees work in a more conducive environment, both physically, in terms of workspace comfort, cleanliness, lighting, and supporting facilities, and non-physically, in terms of supervisor support, coworker relations, and smooth work communication. Employee performance also tends to increase when employees possess stronger individual abilities, such as understanding work tasks and SOPs, technical sewing skills, work experience, training background, and the ability to adapt to changes in task demands and workload. Overall, these two factors complement one another: a favorable work environment provides enabling conditions, whereas individual ability ensures that work can be completed accurately and consistently in accordance with standards.

Based on these findings, a practical recommendation for the company is to prioritize improvements in the work environment as an initial strategy, because this factor has the strongest relationship with performance in the sewing line context. The company may conduct routine evaluations of the physical conditions of workstations, including lighting, ventilation and temperature, noise, cleanliness, and ergonomic posture, while also strengthening non-physical dimensions through clear production briefings, open supervisor–operator communication, and a supportive work culture. At the same time, the company is advised to strengthen individual ability through SOP-based technical training, mentoring by senior

operators to accelerate adaptation, and periodic feedback regarding work quality in order to maintain consistent output.

For future research, it is recommended to include other factors that may also shape employee performance, such as work motivation, discipline, workload, compensation, or leadership style, and to expand the research context across divisions or locations so that understanding of employee performance in manufacturing industries may become more comprehensive and the findings may be applied more broadly.

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