



The Relationship between Work Environment and Employee Development Program to Productivity and Job Satisfaction in the Manufacturing Industry in West Java

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ABSTRACT

This study investigates the relationship between the work environment and employee development programs on productivity and job satisfaction in the manufacturing industry in West Java. A quantitative approach was employed, with data collected from 100 employees using a Likert scale of 1 to 5. The data were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS 3). The results reveal that both the work environment and employee development programs have significant positive effects on productivity and job satisfaction. These findings underscore the importance of creating a supportive work environment and offering continuous development opportunities to enhance employee performance and satisfaction. This study provides practical insights for managers in the manufacturing sector on improving workplace conditions and development programs to drive better outcomes.

Keywords: *Work Environment, Employee Development Programs, Productivity, Job Satisfaction, Manufacturing Industry.*

INTRODUCTION

The manufacturing industry in West Java plays a key role in economic development, contributing to job creation and industrial output. To stay competitive amid global challenges, companies must enhance employee productivity and satisfaction. While manufacturing employment has historically driven economic growth in rich countries [1], [2], its significance in developing nations has diminished due to global competition [3], [4]. Despite this, manufacturing employment continues to positively impact growth [3], [5]. In Indonesia, there is a noticeable gap between real wages and productivity, particularly between large-medium (LM) and small-casualty (CS) firms [6], [7]. Higher wages in LM firms are linked to increased productivity and employment [6]. Wage policy, more than foreign ownership or export orientation, can drive productivity [8]. Additionally, labour, capital, and resource management, along with Total Factor Productivity (TFP), significantly impact output, making efficiency improvements and technology adoption crucial for sustained growth [9].

The relationship between the work environment, employee development programmes, and their impact on productivity and job satisfaction is crucial in West Java's manufacturing industry, which faces challenges like physically demanding conditions and adapting to technology [10]. A supportive work environment, including leadership and social support, greatly improves job performance [11]. Occupational health and safety (OHS) directly affects job satisfaction and indirectly enhances performance [12]. Motivation and job satisfaction mediate the positive effect of

the work environment on performance [13]. Career development and organisational culture help employees adapt to technological changes, while competencies and a conducive environment drive high performance [14]. Transformational leadership and employee empowerment further promote job satisfaction and productivity [11]. Providing development opportunities and a safe, motivating environment boosts both productivity and organisational performance [12].

Employee development programs serve as an important mechanism for improving skill sets, encouraging innovation, and promoting career advancement, all of which contribute to higher levels of productivity and job satisfaction [15]. These programs, when aligned with the needs of the organization and its workforce, can create a culture of continuous learning and development [16]. Similarly, a supportive and safe work environment, characterized by adequate facilities, clear communication, and good working relationships, contributes to a positive employee experience, fostering a sense of belonging and motivation to perform at higher levels [17]. This study seeks to address the gap in the literature by exploring the relationship between work environment and employee development programs on productivity and job satisfaction in the manufacturing sector in West Java.

LITERATURE REVIEW

Work Environment and Employee Productivity

The work environment plays a crucial role in influencing employee performance and productivity across various industries. A well-structured, positive environment fosters engagement and motivation, directly enhancing productivity. Physical elements such as lighting, temperature, noise levels, and ergonomic furniture significantly impact employee comfort and efficiency [13]. Psychological factors like leadership style, peer relationships, and work-life balance also contribute to employee satisfaction and performance [18]. In the manufacturing sector, where tasks are often repetitive and physically demanding, the work environment is even more critical. Unsafe conditions, excessive noise, or poor ventilation can lead to health issues and low morale, negatively affecting productivity [19], [20]. A well-managed environment, where employees feel safe and supported, encourages greater effort, reduces absenteeism, and lowers turnover rates [21]. Therefore, creating a conducive and safe work environment is essential for maintaining high productivity in the manufacturing industry.

Employee Development Programs and Job Satisfaction

Employee development programs are structured initiatives designed to enhance employees' skills, knowledge, and competencies, thereby improving their performance and career advancement potential. These programs, including training sessions, workshops, mentorship opportunities, and job rotations, are recognized as key drivers of job satisfaction, as they help employees feel valued and provide a clear path for professional growth [22]. Research has shown a strong correlation between such programs and job satisfaction, with employees perceiving organizational investment in their growth leading to increased loyalty and commitment [15]. This loyalty often results in higher job satisfaction and reduced turnover intentions [23]. In industries like manufacturing, where technological advancements constantly reshape production processes, ongoing employee development is essential for ensuring that workers remain adaptable and proficient in new systems and technologies [15], [24]. In West Java's manufacturing sector, employee development

programs are increasingly adopted to meet the need for a skilled workforce, though the extent of their impact on job satisfaction and productivity remains an area of ongoing research. This study aims to explore how these programs affect job satisfaction in the manufacturing sector.

The Relationship Between Work Environment, Employee Development, and Job Satisfaction

The intersection of the work environment and employee development programs offers a comprehensive perspective on factors influencing both productivity and job satisfaction. Herzberg's two-factor theory suggests that work environment elements such as safety, comfort, and management practices (hygiene factors) prevent dissatisfaction but do not necessarily enhance job satisfaction. In contrast, development opportunities (motivator factors) fulfill employees' intrinsic needs for growth and recognition, positively impacting job satisfaction [25], [26]. Recent studies highlight that combining a positive work environment with strong development programs significantly boosts both job satisfaction and productivity [25], [27]. When employees work in a supportive environment that values their well-being and provides opportunities for skill enhancement, they become more motivated and committed to the organization. This synergy acts as a powerful driver of organizational performance. Additionally, research by [28], [29] emphasizes that employees in high-pressure industries, such as manufacturing, highly value both their work environment and personal development opportunities. The combination of these factors has been shown to improve morale, reduce turnover, and increase productivity. This study aims to further explore the relationship between the work environment and employee development in West Java's manufacturing sector, examining how these factors jointly contribute to job satisfaction and productivity.

Hypothesis Development

While numerous studies have explored the relationship between the work environment, employee development programs, productivity, and job satisfaction, limited research has focused specifically on the manufacturing sector in West Java. Additionally, previous studies have primarily focused on either the work environment or employee development programs in isolation. This study seeks to fill this gap by analyzing the combined effects of these two variables on both productivity and job satisfaction, providing insights that are directly applicable to the manufacturing industry in this region.

Based on the review of the literature, the following hypotheses are proposed:

- H1: There is a positive and significant relationship between the work environment and employee productivity.
- H2: There is a positive and significant relationship between the work environment and job satisfaction.
- H3: There is a positive and significant relationship between employee development programs and employee productivity.
- H4: There is a positive and significant relationship between employee development programs and job satisfaction.

These hypotheses will be tested using SEM-PLS to assess the strength of the relationships between the variables in the manufacturing industry in West Java.

METHODS

Research Design

This study employs a quantitative research design to examine the relationships between the work environment, employee development programs, productivity, and job satisfaction in the manufacturing industry in West Java. The research aims to quantify the effects of these variables using statistical methods, with data collected through a structured questionnaire. A quantitative approach was chosen to allow for the measurement of relationships between variables and to provide empirical evidence that can be generalized across the manufacturing industry in the region. Additionally, the use of Structural Equation Modeling-Partial Least Squares (SEM-PLS) enables the assessment of direct and indirect relationships between multiple variables in a single model.

Population and Sample

The population for this study comprises employees working in manufacturing companies located in West Java, Indonesia. West Java is a major industrial hub, making it an ideal region for this research, particularly due to its large and diverse manufacturing workforce. The sample for this study consists of 100 employees from various manufacturing companies in the region, representing different levels of experience and positions within their respective organizations. The sample was selected using purposive sampling, targeting employees who had experience with development programs and were actively engaged in the work environment of their respective companies. This sampling technique ensures that the respondents are well-informed about the topics under investigation, providing meaningful data for analysis.

Data Collection

Primary data were collected through a structured questionnaire distributed to 100 employees, designed using validated scales from previous studies to ensure data reliability and validity. It covered demographic details, work environment aspects (Sundstrom, 2019; Ajayi, 2020), employee development programs (Noe, 2021), and productivity and job satisfaction (Locke, 2018). Responses were rated on a Likert scale from 1 (strongly disagree) to 5 (strongly agree), allowing for analysis of perceptions and attitudes on the factors studied.

Data Analysis Technique

To analyze the data, Structural Equation Modeling-Partial Least Squares (SEM-PLS 3) was used, ideal for evaluating complex relationships with a sample of 100. The measurement model's reliability and validity were assessed through Cronbach's Alpha, Composite Reliability, Average Variance Extracted, and Fornell-Larcker criteria. Next, the structural model was tested by calculating path coefficients, R^2 values, and t-statistics to determine the significance of relationships. Hypothesis testing, using bootstrapping with 5000 resamples, evaluated the effects of the work environment and development programs on productivity and job satisfaction. Finally, effect size (f^2) and Stone-Geisser's Q^2 were calculated to assess impact and predictive relevance.

RESULTS AND DISCUSSION

Descriptive Statistics

The data collected from 100 employees in the manufacturing sector of West Java were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS 3). Before diving into the results, it is important to present the descriptive statistics, which provide an overview of the respondents' demographic characteristics and their general perceptions regarding the work environment, employee development programs, productivity, and job satisfaction.

The sample consists of 62% male and 38% female employees, with an average age of 35 years. The respondents' work experience ranged from 2 to 20 years, with an average of 8.5 years in the industry. In terms of job position, 60% of the respondents were in operational roles, while 40% held

managerial or supervisory positions. The majority of respondents (70%) reported having participated in at least one employee development program in the past year.

Measurement Model Assessment

The measurement model was assessed to ensure the reliability and validity of the constructs. The evaluation was conducted using Cronbach’s Alpha, Composite Reliability (CR), Average Variance Extracted (AVE), and loading factors to assess internal consistency and convergent validity.

All constructs demonstrated good internal consistency reliability, with Cronbach’s Alpha values ranging from 0.785 to 0.893, exceeding the 0.70 threshold. Composite reliability scores were also strong, between 0.82 and 0.91, indicating consistency in the measurement items. Convergent validity was confirmed as the Average Variance Extracted (AVE) values for each construct ranged from 0.565 to 0.723, surpassing the 0.50 threshold, meaning that a significant portion of the variance in the indicators is explained by the underlying constructs. Additionally, the individual measurement items had loading factors ranging from 0.725 to 0.892, above the acceptable threshold of 0.70, indicating strong reliability as indicators of their respective constructs.

Discriminant validity was assessed using the Fornell-Larcker criterion, which confirmed that the square root of the AVE for each construct was greater than the correlations between the constructs. This indicates that the constructs are distinct from each other and measure different aspects of the research model.

Structural Model Assessment

After confirming the reliability and validity of the measurement model, the structural model was evaluated to test the hypothesized relationships between the work environment, employee development programs, productivity, and job satisfaction. Path coefficients, R² values, and t-statistics were analyzed to assess the strength and significance of these relationships. The R² value for productivity was 0.54, indicating that 54% of the variance in productivity is explained by the work environment and employee development programs, while the R² value for job satisfaction was 0.62, showing that 62% of its variance is explained by the same factors. These values suggest that the model has moderate to strong explanatory power. The path coefficients and their significance levels are provided in Table 1.

Table 1. Hypothesis Testing

Hypothesis	Path Coefficient	t-statistic	p-value	Result
H1: Work Environment → Productivity	0.45	5.32	0.000	Supported
H2: Work Environment → Job Satisfaction	0.50	6.14	0.000	Supported
H3: Employee Development → Productivity	0.40	4.87	0.000	Supported
H4: Employee Development → Job Satisfaction	0.42	5.29	0.000	Supported

Source: Processed by author, 2024

All the hypothesized relationships were significant, with p-values less than 0.05, providing strong evidence to support the hypotheses. Each path exhibited a positive coefficient, indicating that improvements in the work environment and employee development programs lead to increases in productivity and job satisfaction. Specifically, the work environment had a significant positive effect on both productivity ($\beta = 0.45$) and job satisfaction ($\beta = 0.50$), supporting H1 and H2, while employee development programs significantly positively impacted productivity ($\beta = 0.40$) and job satisfaction ($\beta = 0.42$), supporting H3 and H4.

Discussion

The Effect of Work Environment on Productivity

The findings reveal a significant and positive relationship between the work environment and productivity. This is consistent with previous studies that highlight the critical role of a safe and conducive work environment in fostering employee efficiency and output [13], [18], [19]. In the manufacturing industry, where employees are often exposed to physically demanding tasks, a well-

structured and comfortable environment can significantly reduce stress and fatigue, leading to higher levels of productivity. This result emphasizes the need for manufacturing companies in West Java to invest in improving the physical and psychological aspects of the work environment. Providing ergonomic equipment, maintaining clean and safe facilities, and fostering positive peer relationships are key strategies for enhancing employee performance. Moreover, effective management practices that promote open communication and employee well-being can further motivate workers to perform at higher levels.

The Effect of Work Environment on Job Satisfaction

The study also found a significant positive relationship between the work environment and job satisfaction. This supports the idea that employees who work in a supportive and comfortable environment are more likely to be satisfied with their jobs [15], [22], [23]. In the manufacturing sector, job satisfaction is closely tied to how employees perceive their work conditions, including safety, support from supervisors, and overall work-life balance. The high path coefficient for this relationship indicates that the work environment is a major determinant of job satisfaction in the manufacturing industry. Companies that invest in improving workplace conditions can expect to see an increase in employee morale and loyalty. This is particularly important in industries like manufacturing, where turnover can be high due to challenging work conditions. Creating a positive and engaging work environment can help retain valuable talent and reduce turnover rates.

The Effect of Employee Development Programs on Productivity

Employee development programs were found to have a significant positive effect on productivity. This aligns with existing literature, which suggests that employees who are provided with opportunities to enhance their skills and knowledge are more productive [25], [26]. In the manufacturing sector, where technological advancements are constantly reshaping production processes, ongoing training and development are essential in ensuring that employees remain competent and efficient. Manufacturing companies in West Java should focus on offering targeted development programs that are aligned with both organizational goals and employee needs. This includes providing training in new technologies, fostering innovation, and creating clear paths for career advancement. By investing in employee development, companies can ensure that their workforce is well-equipped to handle the challenges of modern manufacturing, leading to higher productivity.

The Effect of Employee Development Programs on Job Satisfaction

The results also indicate a significant positive relationship between employee development programs and job satisfaction. Employees who participate in development programs tend to feel more valued and motivated, as these programs signal that the organization is committed to their personal growth and career advancement [27], [28], [29]. This finding is particularly relevant in the manufacturing industry, where the repetitive nature of tasks can lead to job dissatisfaction if employees do not see opportunities for advancement. By offering continuous learning and development opportunities, manufacturing companies in West Java can boost employee satisfaction and loyalty. Development programs not only improve the skills of employees but also enhance their sense of belonging and purpose within the organization. This, in turn, can lead to lower turnover rates and higher levels of employee engagement [25], [26].

Practical Implications

The findings of this study have important practical implications for managers and decision-makers in the manufacturing sector in West Java. First, improving the work environment, particularly in terms of safety, facilities, and management practices, should be a priority for companies aiming to increase both productivity and job satisfaction. Second, investing in employee development programs is essential for enhancing employee skills and promoting career growth, which can lead to higher job satisfaction and productivity.

Manufacturers should also consider integrating feedback mechanisms to continuously monitor and improve workplace conditions and development programs. By doing so, they can

ensure that their workforce remains motivated, productive, and satisfied, contributing to the long-term success of the organization.

CONCLUSION

This study concludes that both the work environment and employee development programs significantly and positively affect productivity and job satisfaction in the manufacturing industry in West Java. The findings suggest that manufacturing companies should prioritize creating a safe, supportive, and engaging work environment to foster employee motivation and performance. Moreover, offering continuous employee development opportunities is crucial for enhancing job satisfaction and productivity. These initiatives can lead to reduced turnover rates, increased employee engagement, and overall improved organizational performance. Therefore, managers and decision-makers should invest in improving workplace conditions and development programs to sustain competitiveness and achieve long-term success in the industry.

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