

The Effect of Leadership, Work Discipline, Work Motivation, Occupational Health and Safety (K3) on Employee Productivity

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ABSTRACT

This study aims to analyze the influence of leadership, work discipline, work motivation, and occupational health and safety (OHS) on employee productivity at the Solo Balapan Locomotive Depot. The focus of this study is to determine the extent to which each of these variables contributes to improving the productivity of operational employees. This research employs a quantitative approach using a survey method. Data were collected through the distribution of questionnaires to 66 operational employees as respondents and analyzed using multiple linear regression analysis to examine the effect of independent variables on employee productivity. The results indicate that leadership, work discipline, work motivation, and occupational health and safety (OHS) each have a significant effect on employee productivity. Simultaneously, all independent variables in the regression model are considered feasible and capable of explaining variations in employee productivity, indicating that integrated management of leadership, discipline, motivation, and OHS implementation plays an important role in enhancing employee productivity.

Keywords: *leadership, work discipline, work motivation, occupational health and safety (OHS), employee productivity.*

INTRODUCTION

Employee productivity is a key factor in the success of public transportation operations, such as trains. Several factors influence employee productivity, including leadership, work discipline, motivation, and occupational health and safety (OHS). A company's process output is influenced by the reliability of its trains, the primary means of operation.

Reliability of train operations includes optimal facility availability, punctuality of operational schedules, and minimal technical and non-technical disruptions that could disrupt travel. Technical disruptions in operations result in several losses for the company, such as train delays, customer complaints, and ultimately, the company's reputation. An unreliable fleet can lead to stress, fatigue, and a decrease in overall employee productivity.

Conversely, when a fleet operates reliably and efficiently, employees can complete their work more smoothly and in an organized manner. Operational staff are less likely to handle numerous passenger complaints, technicians are less burdened with emergency repairs, and the company's reputation is maintained, all of

which can improve workplace safety and well-being, ultimately boosting employee morale and productivity.

Maintenance management and upkeep of railway facilities are closely linked to the reliability of the railway fleet. Through preventive maintenance methods and appropriate monitoring systems, potential breakdowns can be detected early to minimize damage. The company not only ensures quality public services but also provides a work environment that supports overall employee productivity.

The management of PT. Kereta Api Indonesia (Persero) Operational Area 6 Yogyakarta needs to understand and evaluate employee productivity and the factors that influence it, which impact the reliability of facilities, especially at the Solo Balapan Locomotive Depot. This research will be an important basis for making policies to improve the quality of the railway fleet reliability and better human resource management. It is hoped that more efficient and high-quality public transportation services will be produced through synergy between systems and individuals.

Employee productivity is influenced by the right leadership style. Leadership style not only determines the strategic direction of the organization but also the work culture and motivation of each team member. A good leader can adapt his or her leadership approach to meet the needs and circumstances of his or her team members, enabling them to work well together and create positive synergy within the organization. Inspirational leadership is crucial for fostering teamwork. Leaders not only issue orders and instructions but also inspire and motivate the team. Research Wasiman & Wangdra (2023) stated that leadership style and employee competency influence work productivity. Such leaders can motivate team members to work harder and more enthusiastically by providing a clear vision and demonstrating a strong commitment to shared goals. Inspiring leaders make everyone feel important, valued, and involved in achieving organizational goals.

Research conducted Asrama et al., (2021) stated that leadership has a positive effect on employee productivity. One of the outcomes of a good leadership style is a conducive and enjoyable work environment. A healthy and productive work environment can be achieved through leaders who are open to communication, listen to input, and allow creativity within the team to flourish. Employees are more motivated to contribute optimally, unleash their full potential, feel comfortable expressing their ideas, and are able to resolve conflict more wisely.

The success of employees in carrying out their duties depends largely on the support and direction of their leaders. Overall work quality will be enhanced by leaders who can provide consistent guidance, support, and feedback, and who can instill self-confidence in each member. An inspirational and exemplary leadership style not only significantly impacts overall individual performance but also builds a strong, efficient, and results-oriented team. This is consistent with research findings. Inggriet (2023) which states that leadership influences employee performance simultaneously

Employee productivity can be increased with high work discipline. Research conducted by Samahati (2020) states that work discipline significantly influences

work productivity. The extent to which employees value time, adhere to rules, and fulfill their responsibilities within their work environment is indicated by their level of work discipline. Team success depends on commitment and consistency in carrying out daily tasks. Without work discipline, organizational management efforts will be difficult to achieve.

Work discipline according to research conducted Ika & Sitompul (2022) positively impacts employee productivity. Highly disciplined employees behave well and consistently when performing their duties, such as arriving on time, completing tasks by deadlines, and adhering to applicable work SOPs (Standard Operating Procedures). Discipline is reflected in adhering to rules and demonstrating honesty and a sense of responsibility for their respective roles within the organizational structure.

Research conducted by Kusumawati & Ratnagun (2024) states that there is a significant influence between work discipline and employee productivity. Increased efficiency can be achieved by improving work discipline. Research on work discipline has also been conducted on employees who have work discipline and regular work habits. Employees are able to manage their time well and are more focused on completing their responsibilities. This directly impacts productivity because work can be completed more quickly and with the same quality. Employees are also more independent and less dependent on constant supervision.

A culture of discipline within an organization also helps create a professional work environment. When discipline is implemented comprehensively and consistently by all team members, it creates a positive, enjoyable, and mutually supportive work environment. This reduces internal conflict, enhances teamwork, and increases trust between superiors and subordinates. Through the widespread implementation of work discipline, the organization will maintain high and optimal work standards. This is in line with research conducted Waluyo et al., (2022) which concludes that there is an influence between work discipline and organizational commitment

An organization that can build and maintain discipline among its employees will be better prepared to face challenges, maintain productivity, and gain a competitive advantage. Management must continuously instill work discipline through training, refreshing knowledge about work discipline implementation, monitoring and treating employees fairly, and rewarding those who demonstrate high levels of work discipline.

Research conducted Dinanda et al., (2023) states that there is a positive and significant relationship between motivation and employee work productivity. Motivation originates from within and outside a person, directing and sustaining behavior toward achieving specific goals. Without strong motivation, an employee may not complete a job effectively, even if they possess sufficient skills or experience.

The two main categories of work motivation are extrinsic and intrinsic. Extrinsic motivation comes from outside the individual, such as salary, benefits, recognition, promotion opportunities, and a positive work environment. Intrinsic

motivation, on the other hand, comes from within the employee, such as a desire for growth, a sense of responsibility, or satisfaction with their accomplishments. It's crucial for an organization to find a way to balance these two types of motivation to keep employees motivated and engaged in the long run.

Research conducted Xie (2023) states that there is a positive relationship between employee motivation and employee performance. Motivated employees will exhibit positive and positive behavior in the workplace. Motivated employees are more enthusiastic in carrying out their tasks, more responsive to challenges, and demonstrate higher levels of productivity. They will also be more solution-oriented, more persistent, and have a strong desire to achieve the best results.

Strong work motivation can spark creativity and innovation in the workplace. Employees feel valued and have the opportunity to develop, and are more encouraged to think critically to create new ideas. This is invaluable and beneficial for companies facing competition and rapid change in the modern world. Companies are expected to foster an innovative work environment, with a well-designed motivation system that can be tailored to employee needs.

Research conducted Ikhsan & Hatta (2024) states that there is an influence between work motivation and employee productivity. Organizations need to actively create systems that encourage motivation, whether through fair rewards, a healthy work environment, career development opportunities, or open communication between superiors and subordinates. Well-maintained and managed employee motivation will increase productivity, foster innovation, and enable the achievement of organizational goals more effectively and sustainably.

One important component in increasing employee productivity includes the implementation of good and sustainable occupational health and safety (K3) standards. Research by Samahati (2020) states that occupational health and safety (K3) significantly impacts work productivity. This standard is not only concerned with complying with government regulations or legal requirements, but also reflects a company's commitment to the protection and well-being of its workforce. A safe and healthy workplace is essential for productivity and efficiency.

Research conducted Asrama et al., (2021) stated that the Occupational Health and Safety (K3) program has a positive impact on work productivity. Workplace accidents, injuries, and occupational diseases can be prevented in workplaces that meet occupational health and safety (K3) standards. This prevention not only impacts the physical safety of employees but also the continuity of company operations. Companies that can mitigate occupational risks can also avoid potential production disruptions, financial losses, and reputational damage that can result from workplace incidents.

In addition to protecting employees, implementing OHS also makes them feel safer and more comfortable when performing their daily tasks. When employees believe that their safety and health are a top priority for the company, this creates a positive psychological environment. This sense of security will increase management trust and strengthen the relationship between the company and its employees.

Companies that prioritize the health and safety of their employees will impact their morale and productivity. When employees feel valued and satisfied with their work, they tend to be more enthusiastic about their work. A sense of belonging is fostered in a workplace that prioritizes safety and security.

The consistent and comprehensive implementation of occupational health and safety standards is crucial for companies. This will protect the workforce, contribute to operations, efficiency, and long-term sustainability. Research by Kemer et al., (2021) Perceptions of organizational trust are influenced by Occupational Health and Safety. Companies must establish a comprehensive OHS system through training, outreach, provision of personal protective equipment, and routine supervision to ensure a safe and healthy work environment.

Employee productivity is one of the main indicators of an organization's success in achieving its goals, so it is important to conduct research on the components that influence employee productivity. High productivity indicates the effective and efficient use of human resources, which impacts company performance and competitiveness. This is in line with research conducted by Tobamba et al., (2023) which states that employee productivity is influenced by the quality of human resources. Companies can develop appropriate management strategies to improve overall employee productivity by understanding key elements such as leadership, discipline, work ethic, work motivation, and the implementation of occupational health and safety.

One of PT. Kereta Api Indonesia (Persero)'s priorities is maintaining punctuality in train journeys as a form of excellent service to customers. The Solo Balapan Locomotive Depot has a strategic responsibility to ensure the locomotive fleet is in reliable condition through routine inspections and maintenance, both daily and monthly. This is expected to minimize technical problems in the fleet that could potentially disrupt train schedules. Achieving this goal is inseparable from the role of workforce productivity in implementing maintenance procedures consistently and optimally.

Despite regular maintenance efforts, significant fluctuations in the number of fleet disruptions were recorded in the first half of 2025. In January, there were 39 disruptions, then a sharp increase to 64 disruptions in February, dropping to 47 in March. In April, the number increased slightly to 48, then jumped again to 64 disruptions in May, and then dropped again to 39 disruptions in June. These fluctuations reflect issues with employee productivity, likely influenced by various factors, both internal and external. These fleet disruptions indicate inconsistent employee productivity, which is suspected to be influenced by factors such as leadership, discipline, motivation, and occupational health and safety (K3). This phenomenon is important to further investigate to identify the root causes of this productivity instability and find appropriate solutions to improve work effectiveness. This can support the target of on-time train travel and minimize fleet disruptions on an ongoing basis.

Conducting research on the extent to which leadership, work discipline, work motivation, and occupational safety and health influence employee productivity is a strategic step that can provide an empirical basis for managerial policy making. The results of this study are expected to contribute to the formulation of strategies for sustainable human resource performance improvement and serve as evaluation material for companies in creating a more productive and competitive work environment. This research, which serves as a critical basis for decision-making, will enable companies to continue to thrive amidst the challenges and dynamics of the ever-changing workplace.

RESEARCH METHODS

A quantitative descriptive approach was used in this study. This approach is based on a theoretical framework, expert ideas, and the researcher's understanding based on his experience, developed into problems and solutions proposed to obtain justification (verification) in the form of empirical data support in the field (Sedarmayanti 2017:198). The author chose to use a quantitative descriptive method to determine the magnitude of the influence and significance between the variables of leadership, work discipline, work motivation, occupational health and safety (K3) on employee productivity. This study lasted for six months, starting from April to September 2025. All series of activities, from initial observations to the preparation of final conclusions, were carried out entirely in the Surakarta area. This study was conducted at the Solo Balapan Locomotive Depot located at Jl. RM. Said, Banjarsari, Surakarta City, Central Java 57137, Indonesia. The population in this study were all employees working at the Solo Balapan Locomotive Depot, totaling 66 employees. The number of samples in this study was 66 employees or respondents. The sampling technique used in this study was saturated sampling, which means the entire population is sampled. Saturated sampling is a sample that represents the population if the population is considered small, or less than 100 (Mustafidah & Suwarsito, 2021: 152). In this study, there are four independent variables: leadership, work discipline, work motivation, and occupational health and safety (K3). The dependent variable in this study is employee productivity. Multiple linear regression was used as the analysis tool.

RESULTS AND DISCUSSION

Multiple Linear Regression Test

Table 1 Test Results Multiple Linear Regression

No	Variables	Unstandardized B	Information
1	(Constant)	0.938	Positive
2	Leadership	-0.129	Negative
3	Work Discipline	0.072	Positive
4	Work motivation	0.072	Positive
5	K3	-0.121	Negative

Source: Primary data processed in 2026

Here is a brief explanation of each variable:

- a) Constant: The constant value of 0.938 indicates that employee productivity at the Solo Balapan Locomotive Depot has a baseline value of 0.938 when the variables of leadership, work discipline, work motivation, and K3 are considered constant. This means that productivity is still formed even without the direct influence of the variables studied, which indicates the presence of other factors outside the research model that also influence productivity.
- b) Leadership: The leadership variable has a regression coefficient of -0.129, indicating a negative influence on employee productivity in the multiple regression model. This means that every one-unit increase in the leadership variable, assuming other variables remain constant, is followed by a 0.129 decrease in productivity. This finding indicates that the influence of leadership does not stand alone, but rather interacts with other variables such as discipline, motivation, and K3 in influencing productivity.
- c) Work Discipline: Work discipline has a regression coefficient of 0.072, indicating a positive influence on employee productivity. This means that every one-unit increase in work discipline will increase productivity by 0.072, assuming other variables remain constant. This finding indicates that compliance with regulations, punctuality, and consistency in work are factors that drive increased productivity in the depot environment.
- d) Work Motivation: The work motivation variable also has a regression coefficient of 0.072, indicating a positive effect on employee productivity. This means that every one-unit increase in work motivation will increase productivity by 0.072, assuming other variables remain constant. Good motivation encourages employees to work more optimally, focused, and results-oriented.
- e) K3: The Occupational Health and Safety variable has a regression coefficient of -0.121, indicating a negative influence on productivity in the multiple regression model. This means that every one-unit increase in K3 implementation is followed by a 0.121 decrease in productivity, assuming other variables remain constant. However, this result does not mean that K3 is detrimental to productivity, but rather indicates that K3 implementation is more oriented towards risk prevention and occupational safety aspects, the impact of which on productivity is indirect.

The results of multiple linear regression analysis show that employee productivity at the Solo Balapan Locomotive Depot is influenced by a combination of leadership factors, work discipline, work motivation, occupational Health and Safety. Work discipline and work motivation show a positive influence, indicating that compliance with regulations and internal employee work motivation contribute directly to increased productivity. Leadership and OHS variables have negative coefficients in the multiple regression model, indicating that the influence of these two variables does not stand alone, but rather works indirectly and interacts with other variables in shaping productivity. This finding confirms that

employee productivity in the depot environment is not determined by only one dominant factor, but is the result of the integration of managerial aspects, work behavior, motivation, and the implementation of occupational safety as a whole.

Negative regression coefficients for several variables in a multiple linear regression model cannot be interpreted separately but must be viewed in the context of the simultaneous influence between the independent variables. Negative coefficients appear in the simultaneous model due to the interplay between the independent variables, while partial test results indicate that each variable still has a significant influence on employee productivity.

Model Feasibility Test / F Test

Table 2. Test ResultsF

Model	F count	Ftable	Sig.	Standard	Information
Regression	37,623	2.52	0,000	0.05	Eligible Model

Source: Primary data processed in 2025

From the results of the model feasibility test, it was obtained $F_{count} > F_{table}$ which is $37.623 > 2.52$ with a significance level of 0.000, meaning that this analysis is significant with a significance level of less than 0.05, so H_0 is rejected and H_a is accepted. The influence of Leadership, Work Discipline, Work Motivation, Occupational Health and Safety simultaneously and significantly on Employee Productivity of Solo Balapan Locomotive Depot and meets the feasibility test of the model.

Partial Hypothesis Test / t-Test

Table 3 Test Resultst

Hypothesis	thitung	ttable	Sig.	Standard	Information
H1	9,511	1,998	0,000	0.05	Ha Accepted
H2	11,177	1,998	0,000	0.05	Ha Accepted
H3	6,996	1,998	0,000	0.05	Ha Accepted
H4	7,912	1,998	0,000	0.05	Ha Accepted

Source: Primary data processed in 2025

Based on the results of the t-test in the table above, it can be explained in the following hypothesis:

- a. The Influence of Leadership on Employee Productivity at the Solo Balapan Locomotive Depot

The Leadership variable has a calculated t value $> t$ table ($9.511 > 1.998$) and a significance of $0.000 < 0.05$, so H_0 is rejected and H_a is accepted. It can be concluded that leadership has a positive and significant effect on employee productivity.

- b. The Influence of Work Discipline on the Productivity of Employees at the Solo Balapan Locomotive Depot

The Work Discipline variable has a calculated t value > t table ($11.177 > 1.998$) and a significance of $0.000 < 0.05$, so H_0 is rejected and H_a is accepted. It can be concluded that work discipline has a positive and significant effect on employee productivity.

- c. The Influence of Work Motivation on Employee Productivity at the Solo Balapan Locomotive Depot

The Work Motivation variable has a calculated t value > t table ($6.996 > 1.998$) and a significance of $0.000 < 0.05$, so H_0 is rejected and H_a is accepted. It can be concluded that work motivation has a positive and significant effect on employee productivity.

- d. The Influence of Occupational Health and Safety on the Productivity of Employees at the Solo Balapan Locomotive Depot

The Occupational Health and Safety variable has a calculated t value > t table ($7.912 > 1.998$) and a significance of $0.000 < 0.05$, so H_0 is rejected and H_a is accepted. It can be concluded that occupational health and safety have a positive and significant effect on employee productivity.

Coefficient of Determination Test (R^2)

Table 4 Test Results Determinant Coefficient

Model	R	R Square	Adjusted R Square	Information
1	0.844a	0.712	0.693	Eligible Model

Source: Primary data processed in 2025

Based on the calculation, the adjusted R square value was 0.712. This means that the variable kLeadership, work discipline, work motivation, and occupational health and safety contribute to employee productivity by 71.2%. The remaining 28.9% is influenced by other variables not included in this study.

DISCUSSION

1. The Influence of Leadership on Employee Productivity at the Solo Balapan Locomotive Depot

Based on the SPSS results in Table 3 shows that the leadership variable has t count > t table ($9.511 > 1.998$) with a significance value of $0.000 < 0.05$, it is concluded that leadership has a positive and significant effect on employee productivity. Solo Balapan Locomotive Depot.

The results of this study are in line with research Waskito & Kartini (2021) which stated that leadership has a significant influence on the productivity of production employees at PT. Trimuti Karya Cipta. These results are in line with research Inggriet et al (2023) which states that leadership has a significant influence on the productivity of BRI Bank employees.

Leadership at the Solo Balapan Locomotive Depot plays a crucial role in shaping employee work behavior. Leaders who provide clear direction, consistently supervise, and lead by example in implementing work procedures

encourage employees to work more regularly and focus on their tasks. In a depot environment that demands high levels of precision and safety, good leadership helps maintain work coordination and smooth operational processes, thereby increasing employee productivity.

The influence of leadership on productivity is also evident in how employees respond to their superiors' attitudes and leadership styles. Open communication, support in completing work, and leadership involvement in operational activities make employees feel more valued and responsible for their work. This creates a more conducive work environment, where employees are motivated to perform optimally and consistently to support the achievement of the Solo Balapan Locomotive Depot's operational targets.

2. The Influence of Work Discipline on the Productivity of Employees at the Solo Balapan Locomotive Depot

Based on the SPSS results in Table 3 shows that the work discipline variable has $t_{count} > t_{table}$ ($11.177 > 1.998$) with a significance value of $0.000 < 0.05$, it is concluded that work discipline has a positive and significant effect on employee productivity. Solo Balapan Locomotive Depot.

The results of this study are in line with research Samahati (2020) stated that work discipline has a significant influence on the productivity of outsourced employees at PT. PLN (Persero) UP3 Manado. These results are in line with research Ika & Sitompul (2022) with the results of work discipline having a significant influence on employee productivity at Bank Kalbar Pontianak.

Good work discipline is linked to increased employee productivity at the Solo Balapan Locomotive Depot. Work discipline is reflected in employee compliance with regulations, punctuality, and seriousness in carrying out tasks according to established procedures. The depot's work environment demands precision and safety, and discipline helps ensure every job is completed effectively and meets set targets.

Consistent work discipline encourages employees to be more organized and responsible in carrying out their daily tasks. Employees who habitually adhere to established work rules, schedules, and procedures tend to have better work focus and manage their time effectively. Disciplined work habits also help reduce errors and delays in operational processes, allowing work to be completed more smoothly.

3. The Influence of Work Motivation on Employee Productivity at the Solo Balapan Locomotive Depot

Based on the SPSS results in Table 3 shows that the work motivation variable has $t_{count} > t_{table}$ ($6.996 > 1.998$) and a significance of $0.000 < 0.05$, it is concluded that work motivation has a positive and significant effect on employee productivity. Solo Balapan Locomotive Depot.

The results of this study are in line with research Dinanda et al., (2023) found that there is a positive and significant relationship between work motivation and employee productivity. Employee productivity of employees at PT Kereta Api

Indonesia (Persero) Divre III Palembang. This is in line with research Kusumawati & Ratnagunung (2024) namely there is a significant influence between work motivation and employee productivity at PT Pos Indonesia Tangerang Selatan.

Work motivation is a crucial factor in boosting employee productivity at the Solo Balapan Locomotive Depot. Employees with a strong work drive tend to demonstrate enthusiasm, sincerity, and commitment in completing daily tasks. In a depot environment that demands high work targets and punctuality, work motivation helps employees stay focused and consistent in carrying out their work according to established standards.

Maintaining work motivation also encourages employees to work optimally and beyond simply fulfilling work obligations. Leadership support, a conducive work environment, and recognition for performance are factors that strengthen employee motivation in carrying out their duties. This creates a more positive work attitude and a sense of ownership of job responsibilities.

4. The Influence of Occupational Health and Safety on the Productivity of Employees at the Solo Balapan Locomotive Depot

Based on the SPSS results in Table 3 shows that the K3 variable has t count $> t$ table ($7.912 > 1.998$) and a significance of $0.000 < 0.05$, it is concluded that K3 has a positive and significant effect on employee productivity. Solo Balapan Locomotive Depot.

The results of this study are in line with research Asrama et al., (2021) with the results of K3 (Occupational Health and Safety) having a positive effect on employee productivity at PT. Telkom Akses STO Jimbaran. This is in line with research Kemer, et al (2021) stated that occupational health and safety have an impact on hotel company organizations.

The implementation of occupational health and safety significantly contributes to employee productivity at the Solo Balapan Locomotive Depot. A safe work environment, the availability of personal protective equipment, and the consistent implementation of safety procedures help employees work with greater peace of mind and confidence. In depot activities involving high technical risks, safe working conditions allow employees to focus on completing tasks without worrying about potential workplace accidents.

The role of K3 also fosters employee awareness of the importance of working according to safety standards. Employees who understand occupational risks and how to prevent them tend to be more careful and responsible in carrying out their duties. This not only reduces the potential for operational disruptions due to accidents but also maintains the continuity of work processes.

CONCLUSION AND SUGGESTIONS

Based on the results of the research that has been conducted, it can be concluded that leadership, Discipline, Motivation, Health and occupational safety have a significant influence on employee productivity. The results of the regression model show that the four independent variables together are able to explain the variation in

employee productivity by 71.2%, while the remaining 28.8% is influenced by other factors outside the research model. Suggestions from the author It is better for the Solo Balapan Locomotive Depot to focus more on improving the quality of leadership through strengthening the communication skills of leaders, providing clear work directions, and increasing work supervision consistently so that employee productivity can increase optimally. The implementation of work discipline at the Solo Balapan Locomotive Depot should continue to be strengthened through consistent enforcement of work rules, providing role models by leaders, and continuous work discipline development to support increased employee productivity.

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