

Study of Employee Motivation and Performance by Focusing on the Work Environment and Laboratory Facilities at the Aviation Technology Center

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ABSTRACT

Employee motivation and performance are key factors in organizational success. In the context of aviation technology centers, where innovation and accuracy are top priorities, the role of work motivation and the quality of the work environment and laboratory facilities become very important. However, to date, research investigating the relationship between these factors in aviation technology centers has been limited. This study aims to explore the influence of the work environment and laboratory facilities on employee motivation and how this motivation impacts their performance at the Aviation Technology Center. With a better understanding of these factors, it is expected that organizations can take concrete steps to increase employee productivity and satisfaction. This research was designed using a descriptive method with a quantitative approach. The study used a saturated sampling technique contained in non-probability sampling, where the population in this study was 124 employees as engineers at the Center for Aviation Technology. The results of this study show that a comfortable work environment, adequate laboratory facilities, and high work motivation contribute significantly to the performance of employees at the Aviation Technology Center.

Keywords: **Work Motivation, Employee Performance, Work Environment, Laboratory Facilities, Productivity**

INTRODUCTION

The Center for Aviation Technology is a very vital institution in the global aviation industry. In this turbulent modern era, air transport has become the backbone of global connectivity, facilitating convenient and efficient long-distance travel, and playing an important role in the global economy. Innovations and technological advancements in the aviation sector continue to evolve rapidly, allowing aircraft to become safer, efficient, and environmentally friendly. Amidst these developments, the Center for Aviation Technology is emerging as a center of excellence that plays a key role in supporting the research, development and testing of aviation technology.

Aviation Technology Centers are often hotbeds of the latest innovations in aviation, including improvements in aircraft design, development of new materials, improvements in air navigation, as well as many other technical aspects affecting the industry. The employees at this center are pioneers in overcoming the complex challenges faced by the aviation industry (Dewi, 2019). Within this framework, the motivation and performance of employees in this center become crucial, because they play a major role in realizing the goals and vision of this organization.

Work motivation is a key factor that affects employee performance in any context (Ibrahim, et, al., 2022). In aviation technology centers, work motivation is a very important factor because work here is often complex, requiring creativity, dedication, and a deep understanding of aviation technology. Employees who are fully engaged, have a high intrinsic drive, and are satisfied with their work tend to perform better. Work motivation is an internal driver that drives a person to achieve goals and give their best in their work (Budi, & Miska, 2021). In the center of aviation technology, where advanced projects and high demands in terms of technical accuracy are the norm, the level of work motivation can greatly influence the extent to which a project is successful.

In addition, a good working environment and adequate laboratory facilities also play a key role in supporting work motivation and, ultimately, employee performance. Factors such as the quality of the workspace, means of communication, and good testing facilities, all contribute to conditions that allow employees to work efficiently and effectively (Hermanto, et, al., 2019). Therefore, an understanding of the relationship between the work environment, laboratory facilities, work motivation, and employee performance becomes very important in the context of aviation technology centers. A comfortable, organized, and equipped environment with adequate laboratory facilities can increase productivity, enable efficient experimentation and research, and encourage creativity in the development of new technologies (Madani, et, al., 2022).

Over the past few years, aviation technology centers may have faced significant changes in terms of technology, regulation, and competition. Various aspects such as the development of drones, digital transformation, and improvements in the use of other advanced technologies have changed the industrial landscape. Therefore, research that focuses on the relationship between the work environment, laboratory facilities, work

motivation, and employee performance in aviation technology centers has significant relevance. In addition, increasingly stringent safety regulations and standards have become a major focus in the aviation industry. In this ever-changing environment, a better understanding of the impact of the work environment and laboratory facilities on employee motivation and performance is becoming increasingly important.

THEORETICAL BASIS

Employee Performance

Employee performance is a measure or evaluation of the extent to which an individual fulfills tasks, responsibilities, or targets set by the organization in the workplace. It covers various aspects that describe how an employee excels in carrying out his duties and contributes to organizational goals (Budi, et, al., 2019). An employee's ability to provide new ideas, innovations, or creative solutions is also an aspect of performance. Innovation can help organizations to thrive and stay competitive. Employee performance also includes the ability to work in teams, communicate with colleagues, and build positive working relationships. Good collaboration can increase organizational effectiveness and productivity.

Employee performance measurement is usually done through a performance evaluation process that can involve direct supervisors, colleagues, or employees themselves. These evaluations often include assessments based on predefined objectives, competencies, or established criteria. It is important to remember that employee performance is dynamic, can change over time, and can be influenced by various factors, including motivation, work environment, training, and support from management (Putri, & Nuryati, 2020). Improving employee performance is often an organizational priority in order to achieve goals and create a productive and satisfying work environment for all parties involved.

Work Motivation

Work motivation is an internal drive or force that drives a person to behave, act, or strive to achieve certain goals or results in the context of work or work environment (Yahya, 2022). Work motivation is a key factor in determining the extent to which a person will be dedicated, passionate, and a high performer in his work. An understanding of work motivation is very important, because high motivation can

increase productivity, job satisfaction, and achievement of individual and organizational goals. Work motivation is often related to individual goals and expectations. When a person has a clear goal and feels that achieving that goal will bring benefits or satisfaction, they tend to be more motivated to strive to achieve it.

A good understanding of work motivation enables management and organizations to create a work environment that supports, motivates, and satisfies employees (Jufrizen, 2021). As a result, productivity increases, job satisfaction is improved, and organizational goals can be more effectively achieved. Conversely, lack of work motivation can lead to low productivity, high absenteeism rates, and performance problems within the organization. Therefore, understanding and managing work motivation is an important element in human resource management and organizational development. Management plays an important role in motivating employees. This includes providing constructive feedback, providing recognition, providing training and development, as well as creating a motivating work environment.

Work Environment

Work environment is a term used to describe the entire context or situation in which an individual works, be it within any company, organization, or workplace (Deni, et, al., 2022). The work environment includes various aspects, including physical, social, and psychological aspects that affect the experience, behavior, and performance of workers. By creating and maintaining a healthy and productive work environment, organizations can improve performance, employee retention, and job satisfaction, ultimately positively impacting their long-term success.

A positive work environment is one that supports employees' physical and mental well-being, motivates them to perform high, and creates a comfortable working atmosphere (Rangkuti, et, al., 2021). In a good work environment, employees feel valued, have opportunities to grow and develop, and can contribute to organizational goals. Conversely, a poor or unhealthy work environment can have a negative impact on employees' well-being, motivation, and performance. This can result in stress, conflict, low job satisfaction, and even physical and mental health problems.

Facilities

A laboratory facility is a place or space designed and equipped with special equipment, instruments, and resources needed to conduct various experiments, research,

analysis, and scientific experiments (Rahmawati, & Listiadi, 2019). The primary purpose of laboratory facilities is to provide a controlled and safe environment in which scientists, researchers, technicians, or students can conduct experimental studies, collect data, and develop scientific understanding. Facilities can vary in form and be used for a variety of purposes, including meeting physical needs, comfort, productivity, or specific activities (Giawa, & Gaho, 2022).

Facilities can play an important role in supporting a variety of activities and objectives. Facilities can include various features, such as physical space, equipment, maintenance, security, and additional services that are appropriate to their intended use (Utama, & Fauzi, 2022). It is important to plan, design, and manage facilities well in order to meet user needs, maintain sustainability, and deliver optimal value. Good facilities can increase productivity, comfort, and user satisfaction, while poor facilities can result in problems and dissatisfaction. Therefore, facility management is an important aspect in various sectors, including business, government, education, and public services.

METHOD

This study was designed using associative descriptive methods with a quantitative approach, used to explain the phenomena that occur regarding research data. While quantitative methods are used to explain the influence of dependent variables on this study. This research was conducted at the National Institute of Aeronautics and Space Flight Technology Center. The population in this study is the number of permanent employees who are engineers at the aviation technology center as many as 124 people. In this study using saturated sampling techniques contained in Non-Probability Sampling. With a relatively small population of the Center for Aviation Technology, a sample of 124 employees at the Center for Aviation Technology as a whole as respondents in this study. The analytical technique in this study uses path analysis, statistical hypotheses, and coefficients of determination.

RESULT

The Influence of the Work Environment on Work Motivation

From the results of statistical calculations, the Work Environment variable (X1) has no influence and is not significant on the Work Motivation variable (Y). This can be proven by the magnitude of the path coefficient of 0.036 with a calculated value of 0.345 and a ttable of 1.979, then $0.036 < 1.979$ with a probability of 0.730 ($0.730 > 0.050$). This shows that the Work Environment variable (X1) has no influence and is not significant on Work Motivation (Y).

These results suggest that changes or variations in work environment factors do not have a significant impact on employee motivation. These results are supported by statistical analyses showing that the relationship between work environment and work motivation is not statistically strong enough to be considered significant. Although these results imply that the work environment does not have a significant influence on work motivation, it does not mean that other factors do not play a role in employee motivation.

The Effect of Laboratory Facilities on Work Motivation

From the results of statistical calculations, the variable Laboratory Facility (X2) has a significant influence on the variable Work Motivation (Y). This can be proven by the magnitude of the path coefficient of 0.393 with a calculated value of 3.741 and a ttable of 1.979, then $3.741 > 1.979$ with a probability of 0.000 ($0.000 < 0.050$). This shows that the variable Laboratory Facility (X2) has a significant influence on Work Motivation (Y).

These results indicate that changes or differences in laboratory facilities have a clear and strong influence on employee motivation levels. In other words, a better or more adequate level of laboratory facilities tends to increase employee motivation. These results are supported by statistical analysis which shows that the relationship between laboratory facilities and employee work motivation is quite strong statistically. In addition, these results can be used as a basis for taking action to improve laboratory facilities and, thus, motivate larger employees in a work environment that requires laboratory facilities.

The Effect of the Work Environment on Employee Performance

From the results of statistical calculations, the Work Environment variable (X1) has a significant influence on the employee performance variable (Z). This can be proven by the magnitude of the path coefficient of 0.285 with a calculated value of 4.180 and a ttable of 1.979, then $4.180 > 1.979$ with a probability of 0.000 ($0.000 < 0.05$). This shows that the Work Environment variable (X1) has a significant influence on employee performance (Z).

These results show that work environment factors have a clear and strong impact on employee performance. That is, the quality and characteristics of the work environment, such as physical, social, and psychological aspects, can affect the extent to which employees can achieve good work results. This result is supported by statistical analysis which shows that the relationship between the work environment and employee performance has a statistically strong level of significance. These results highlight the importance of attention to the work environment in human resource management and organizational management. A positive work environment, which includes aspects such as comfortable physical condition, supportive organizational culture, and effective communication, can encourage better employee performance.

The Effect of Laboratory Facilities on Employee Performance

From the results of statistical calculations, the variable Laboratory Facility (X2) has a significant influence on the variable Employee Performance (Z). This can be proven by the magnitude of the path coefficient of 0.600 with a calculated value of 8.811 and a ttable of 1.979, then $8.811 > 1.979$ with a probability of 0.000 ($0.000 < 0.05$). This shows that the variable Laboratory Facility (X2) has a significant influence on employee performance (Z).

These results show that laboratory facilities have a clear and strong impact on employee performance. This means that the quality and availability of laboratory facilities, including relevant equipment, instruments, and other resources, can affect the extent to which employees can achieve good work results. This result is supported by statistical analysis which shows that the relationship between laboratory facilities and employee performance has a statistically strong level of significance. These results have important implications for management and leadership in organizations. Improving laboratory facilities through investment in good equipment, maintenance, and

maintenance can help improve the performance of employees working in a laboratory environment.

The Effect of Work Environment, Laboratory Facilities and Work Motivation on Employee Performance

The amount of contribution of the variables Work Environment (X1), Laboratory Facilities (X2) and Work Motivation (Y) can be seen from the Adjusted R Square, which is 0.647. This means that 64.7% of employee performance variables (Z) are influenced by their independent variables, namely Work Environment (X1) and Laboratory Facilities (X2). While the remaining 35.3% of employee performance variables (Z) are influenced by other variables that are not discussed in this study.

These results indicate that the three factors, namely Work Environment (X1), Laboratory Facilities (X2), and Work Motivation (Y), have a clear and significant influence on Employee Performance (Z). That is, changes in these independent variables will have an impact on changes in overall employee performance. These results show that in a good work environment, with adequate laboratory facilities, and with a high level of work motivation, employee performance is more likely to achieve a better level. This suggests a positive relationship between these factors and employee performance. By understanding these significant relationships, organizations can more effectively manage human resources and ensure that the work environment, facilities, and motivation support the achievement of high employee performance.

CONCLUSION

The conclusion of the research analysis shows that the variables Work Environment (X1), Laboratory Facilities (X2), and Work Motivation (Y) have a significant influence on Employee Performance (Z). As much as 64.7% of the variation in employee performance. The results showed that the factors of Work Environment, Laboratory Facilities, and Work Motivation had a positive influence on employee performance. That is, when the Work Environment is supportive, Laboratory Facilities are adequate, and Work Motivation is high, employee performance tends to be better. With a significance rate of 64.7%, this study was able to explain most of the variation in employee performance. This shows that the factors studied have a strong influence in determining the extent to which employee performance can achieve good results.

This conclusion has implications for the management of the organization. Management needs to prioritize improving the Work Environment, Laboratory Facilities, and Work Motivation as part of the strategy to improve employee performance. This could include investments in better infrastructure and facilities, the development of a supportive organizational culture, and efforts to motivate and influence employees in positive ways. These conclusions can be the basis for taking better actions in improving the work environment and increasing employee motivation, ultimately impacting better performance at the organizational level.

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