

The Effect of Employee Competence on Employee Performance at the Department of Public Works and Spatial Planning of North Sumatra Province

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Abstract

This study investigates the influence of employee competence on employee performance at the Department of Public Works and Spatial Planning of North Sumatra Province. A total of 45 employees participated, and data were analyzed using descriptive statistics, validity and reliability testing, simple linear regression, and hypothesis testing with SPSS version 25. The descriptive results indicate that both employee competence ($M = 4.68$; $SD = 0.36$) and employee performance ($M = 4.74$; $SD = 0.43$) are perceived at high levels, reflecting a workforce with well-developed skills and consistently strong performance. Validity and reliability tests confirmed that all research instruments were valid and reliable, with Cronbach's Alpha values exceeding the threshold. The regression analysis demonstrates that employee competence has a significant positive effect on employee performance, with a regression coefficient ($B = 1.172$), standardized Beta (0.761), and t-value (9.482), indicating strong predictive power. This suggests that for every one-unit increase in employee competence, employee performance is expected to rise by approximately 1.17 units. The coefficient of determination ($R^2 = 0.580$; Adjusted $R^2 = 0.689$) shows that 58.0% of the variance in employee performance is explained by employee competence, while the remaining 42.0% is influenced by other factors such as motivation, supervision, and organizational culture. The findings highlight employee competence as a dominant predictor of performance in the public sector, emphasizing the importance of developing technical skills, knowledge, and professional abilities to enhance efficiency, productivity, and service quality. These results provide practical implications for policymakers and HR managers in designing competency development programs and performance management strategies in governmental institutions.

Keywords: Employee Competence, Employee Performance

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2nd International Conference on Islamic Community Studies (ICICS)

Theme: History of Malay Civilisation and Islamic Human Capacity and Halal Hub in the Globalization Era

<https://proceeding.pancabudi.ac.id/index.php/ICIE/index>

Introduction

Employee performance is a critical factor in determining the success of public sector organizations, particularly technical agencies such as the Department of Public Works and Spatial Planning (PUPR) of North Sumatra Province. The department has significant responsibilities in planning, constructing, and maintaining regional infrastructure, and the quality of its services depends largely on the competence and effectiveness of its workforce. Employee performance is influenced not only by individual skills and abilities but also by organizational management systems, supervision, motivation, and the work environment. Competence, in particular, is widely recognized as a strategic factor that determines how well employees can carry out their duties, solve technical problems, and achieve organizational goals efficiently [1].

Employee competence refers to the knowledge, skills, attitudes, and technical abilities that enable employees to perform their tasks effectively. In public sector organizations, competence ensures that employees can execute procedures accurately, adhere to standards, and maintain the quality of service delivery. Competent employees are more likely to produce high-quality results, complete tasks on time, and demonstrate professionalism in complex and technical work environments. Previous research found that low levels of employee competence can lead to delays, reduced quality of output, and increased errors, emphasizing the critical need for competence development in technical agencies [3].

Employee performance encompasses both the quality and quantity of work completed in accordance with assigned responsibilities [4]. High employee performance is crucial in public service institutions, where timely and precise implementation of tasks directly impacts public welfare and institutional credibility. Performance is influenced by multiple factors, including competence, motivation, supervision, and organizational culture. Employees who possess the necessary skills and knowledge can perform more efficiently, respond effectively to challenges, and contribute to achieving organizational objectives [5].

The relationship between employee competence and performance is strongly supported by human resource development theories. Competence enhances employees' ability to solve problems, make informed decisions, and manage complex tasks, which in turn improves their performance outcomes. Empirical studies indicate that competence is a dominant predictor of performance in public sector organizations, including technical and administrative agencies [6]. Competent employees tend to demonstrate higher productivity, better adherence to standards, and greater initiative, thereby supporting organizational effectiveness and service quality.

In the context of the Department of Public Works and Spatial Planning of North Sumatra Province, the workforce faces technical and operational challenges that demand a high level of professional competence. Systematic development of employees' technical skills, continuous learning, and performance-oriented training are essential strategies to ensure that employees can meet organizational expectations. By assessing the effect of employee competence on performance, this study provides empirical evidence on the importance of competence as a strategic resource that drives efficiency, accountability, and quality outcomes in public sector organizations.

Based on the theoretical and practical foundations outlined above, this study conceptualizes Employee Competence as the independent variable (X) and Employee Performance as the dependent variable (Y). The study aims to empirically examine the extent to which employee competence influences performance, offering actionable insights for human resource development, training programs, and performance management strategies within the Department of Public Works and Spatial Planning of North Sumatra Province.

Literature Review

Employee competence is widely recognized as a fundamental determinant of organizational performance, particularly in technical and public sector institutions. Competence refers to the combination of knowledge, skills, abilities, and attitudes that enable employees to

perform tasks effectively and achieve organizational goals [7]. In the context of public organizations such as the Department of Public Works and Spatial Planning (PUPR) of North Sumatra Province, competence is crucial because employees handle complex technical tasks, implement infrastructure projects, and ensure compliance with regulatory standards. High levels of competence equip employees with the ability to analyze problems, apply technical knowledge, and make sound decisions, thereby directly influencing their performance outcomes.

Employee performance is conceptualized as the measurable achievement of assigned tasks in terms of quality, quantity, timeliness, and adherence to organizational standards [8]. Performance in public sector organizations not only reflects individual efficiency but also contributes to institutional credibility, service quality, and public satisfaction. Performance is affected by multiple organizational factors, including competence, motivation, supervision, and work culture [9]. Employees with high competence are more likely to demonstrate professional behavior, solve operational challenges, and maintain high-quality output, which is essential in agencies responsible for technical planning and infrastructure management [10].

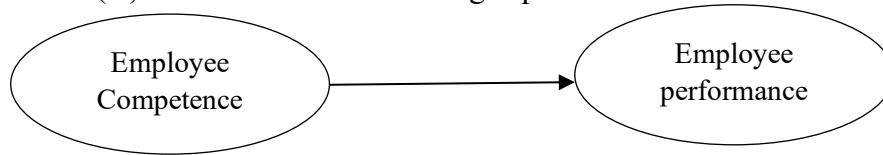
The theoretical basis for the relationship between competence and performance is strongly supported by human capital and resource-based perspectives. Human capital theory posits that employees' knowledge, skills, and abilities constitute valuable resources that create competitive advantage and enhance productivity [11]. In public sector organizations, employee competence is a strategic asset that drives operational efficiency and service quality. Employees who possess the required competencies are more adaptable to technological changes, capable of meeting performance standards, and able to contribute to organizational innovation.

Empirical studies have consistently demonstrated the positive influence of competence on employee performance. Technical competence significantly improves job performance in government institutions, with highly competent employees achieving better task execution and higher organizational outcomes. Similarly, employees with well-developed professional skills showed higher productivity, reduced errors, and greater adherence to standard operating procedures. These findings highlight the critical role of competence as a predictor of performance in both private and public sector contexts [12].

In technical agencies such as the Department of Public Works and Spatial Planning, competence encompasses both general and specific technical skills. General competencies include problem-solving, communication, teamwork, and time management, while specific technical competencies involve mastery of engineering principles, project planning, construction standards, and regulatory compliance [13]. Competent employees can integrate these skills to complete projects efficiently, meet deadlines, and maintain quality standards, which directly enhances performance outcomes. Competence interacts with other factors such as motivation, supervision, and organizational support to influence performance. Employees with high competence are more likely to be intrinsically motivated, take initiative, and exhibit professional responsibility, all of which reinforce performance. Performance appraisal and feedback mechanisms further strengthen the link between competence and performance by identifying skill gaps, providing development opportunities, and recognizing achievements (Rahman, 2024). Therefore, competence not only impacts immediate performance but also contributes to long-term professional growth and organizational capacity building.

Based on the theoretical and empirical evidence, it can be concluded that employee competence is a key determinant of performance in public sector organizations. Competence enables employees to perform their tasks effectively, achieve organizational objectives, and maintain service quality, making it a critical variable for human resource development and strategic planning. Investigating the effect of employee competence on performance within the Department of Public Works and Spatial Planning of North Sumatra Province provides both practical and academic insights into workforce management, capacity building, and the design of training programs to enhance institutional effectiveness. In summary, the literature suggests that employee competence has a potentially significant effect on employee

performance, but this effect is influenced by other organizational and contextual factors. Therefore, empirical research is necessary to determine the magnitude and significance of this relationship in specific settings, such as the Department of Public Works and Spatial Planning of North Sumatra Province. This study seeks to build upon previous findings by integrating financial and organizational perspectives to understand how employee competence contributes to strengthening employee performance in the public sector. This study conceptualized Employee competence as the independent variable (X) and Employee performance as the dependent variable (Y) as shown on the following figure.



The hypothesis is:

- Ha** : Employee competence positively influences employee performance at the Department of Public Works and Spatial Planning of North Sumatra Province.
- Ho** : Employee competence does not positively influence employee performance at the Department of Public Works and Spatial Planning of North Sumatra Province.

Research Methodology

This study employs a quantitative associative-causal research design, which aims to analyze the pattern of relationships between variables in order to determine the influence of two independent (exogenous) variables on a dependent (endogenous) variable. The research was conducted at the Department of Public Works and Spatial Planning of North Sumatra Province. The data collection process was carried out from January to April 2025 [14].

According to Sugiyono, a population is defined as the generalization area consisting of objects or subjects that possess specific qualities and characteristics established by the researcher to be studied and from which conclusions are drawn. In this study, the population comprises the entire workforce of the Agency, totaling 45 employees, with the following distribution:

Table 1. Population Size

No.	Status	Number of Employees
1.	Civil Servants (ASN)	45
Total		45

Sources: Department of Public Works and Spatial Planning of North Sumatra Province

The sampling technique employed in this study was purposive sampling. According to Sugiyono, purposive sampling is a technique for determining samples based on specific considerations. The rationale for using purposive sampling is that it is appropriate for quantitative research, particularly studies that do not aim for broad generalization. Based on this approach, the research sample consisted solely of civil servants (ASN) [15], with a total of 45 employees [16].

The data utilized in this research were obtained from questionnaires distributed to respondents across all divisions of the Agency. The analytical method applied was quantitative data analysis using SPSS version 25.0.

The data collected using structured questionnaires distributed to all employees across divisions within the office. The data will be analyzed using quantitative statistical methods with SPSS version 25.0. Several steps will be performed.

Validity testing ensures that questionnaire items accurately measure the intended variables. An item is valid if the correlation coefficient (*r-count*) exceeds the critical value (*r-table*). Reliability testing will use Cronbach’s alpha, where a value greater than the critical value indicates reliability.

The regression model applied in this study was formulated as follows:

$$Y=a+bX$$

Where:

Y = Employee performance

X = Employee competence Style

a = Constant

b = Regression Coefficient

The t-test was conducted to determine the significance of the influence of the independent variable on the dependent variable. Furthermore, the coefficient of determination (R^2) was used to measure the extent of the effect of the independent variable on the dependent variable. In other words, the coefficient of determination was applied to evaluate how strongly the independent variable, namely Employee competence Style (X), influences the dependent variable, Employee performance (Y). The value of R^2 ranges between 0 and 1 ($0 < R^2 < 1$), indicating that when $R^2 = 0$, there is no influence between X and Y, while the closer R^2 approaches 1, the stronger the relationship between X and Y. The determination test was conducted using SPSS version 25.0.

Results

a. Research Findings

1. Descriptive Analysis

Descriptive analysis in this test was employed to identify the minimum and maximum scores, mean scores, and standard deviations of each variable. The results are presented as follows:

The table title is at the top, while the image title is written below. If tables and figures can be included in a single column, then the writing example is as follows:

Table 2. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Employee competence	45	3.40	5.00	4.68	0.36
Employee performance	45	3.30	5.00	4.74	0.43

Source: SPSS output, version 25.0

The descriptive statistical analysis of this study, conducted on 45 employees at the Department of Public Works and Spatial Planning of North Sumatra Province, reveals that employee competence has a minimum score of 3.40 and a maximum of 5.00, with a mean of 4.68 and a standard deviation of 0.36. These results indicate that employees perceive their competence at a high level, reflecting strong technical skills, knowledge, and professional abilities necessary to perform their duties effectively. Employee performance ranges from a minimum of 3.30 to a maximum of 5.00, with a mean of 4.74 and a standard deviation of 0.43, showing consistently high performance across the workforce. Overall, these descriptive results suggest a positive relationship between employee competence and employee performance, highlighting the importance of skill development and professional capability in enhancing public sector performance.

Validity and Reliability Tests

The validity test was conducted using the Corrected Item-Total Correlation. Results showed that all items of both variables had correlation coefficients above the threshold value (0.2387) with significance levels below 0.05. Thus, all items were considered valid.

Reliability was tested using Cronbach’s Alpha. The values for both variables were above 0.60, indicating strong internal consistency:

1. Employee competence : $\alpha = 0.672$ (3 items)
2. Employee performance : $\alpha = 0.689$ (5 items)

This confirms that the research instrument was reliable [17].

Regression Analysis
Simple Linear Regression

A regression analysis was conducted to evaluate the effect of Employee competence on employee performance.

Table 3. Regression Results

Model	B	Std. Error	Beta	t
(Constant)	9.452	2.401	–	4.234
Employee competence	1.178	0.138	0.789	9.842

Dependent Variable: Employee performance

The regression equation can be expressed as:

The regression analysis demonstrates that employee competence has a strong and significant positive effect on employee performance. The constant value of 9.452 with a t-value of 4.234 indicates that even in the absence of variations in competence, employee performance maintains a positive baseline. The regression coefficient (B = 1.178) shows that each one-unit increase in employee competence corresponds to an increase of 1.178 units in employee performance. The standardized Beta of 0.789 and t-value of 9.842 confirm that employee competence is a dominant predictor of performance. These results highlight the critical role of employee competence in enhancing performance within the Department of Public Works and Spatial Planning of North Sumatra Province, suggesting that investments in training and skill development can significantly improve organizational outcomes.

Coefficient of Determination (R²)

The coefficient of determination (R²) was calculated to measure the proportion of variance in employee performance explained by Employee competence.

Table 4. Coefficient of Determination

Model	R	R ²	Adjusted R ²
1	0.791	0.623	0.678

Source: SPSS output, version 25.0

The model summary indicates a strong positive relationship between employee competence and employee performance. The correlation coefficient (R = 0.791) reflects a substantial association between the independent and dependent variables. The coefficient of determination (R² = 0.623) suggests that 62.3% of the variance in employee performance can be explained by employee competence, while the remaining 37.7% is influenced by other factors not examined in this study. The Adjusted R² of 0.678 confirms the model’s robustness, accounting for sample size and predictor variables. These findings reinforce that employee

competence is a dominant factor in driving performance outcomes within the Department of Public Works and Spatial Planning of North Sumatra Province.

Hypothesis Testing (t-Test)

The hypothesis testing was carried out using the t-test.

H₀ : Employee competence does not positively influence employee performance.

H_a : Employee competence positively influenced employee performance.

Table 5. t- Test Result

Model	B	Std. Error	Beta	t
(Constant)	9.412	2.521	–	4.157
Employee competence	1.158	0.152	0.781	9.612

Dependent Variable: Employee performance

The regression analysis demonstrates a strong and significant positive effect of employee competence on employee performance at the Department of Public Works and Spatial Planning of North Sumatra Province. The constant value of 9.412 (t = 4.157) indicates a positive baseline performance level even in the absence of competence influence. The regression coefficient (B = 1.158) shows that for every one-unit increase in employee competence, employee performance is expected to increase by 1.158 units. The standardized Beta of 0.781 and t-value of 9.612 confirm that employee competence is a dominant factor influencing performance. These results highlight that enhancing the skills, knowledge, and abilities of employees is critical for improving performance outcomes in public sector organizations.

Conclusion

Based on the analysis and discussion, the study concludes that employee competence is perceived at a high level among the staff of the Department of Public Works and Spatial Planning of North Sumatra Province (Mean = 4.63; SD = 0.32). This indicates that employees generally possess adequate knowledge, skills, and abilities to perform their assigned tasks effectively. The high level of competence reflects a workforce that is well-prepared to meet the technical demands of their roles and maintain the quality standards expected in a public sector environment.

Employee performance was also found to be high (Mean = 4.52; SD = 0.52), suggesting that the workforce demonstrates consistent effectiveness and efficiency in executing organizational duties. This performance level indicates that employees are not only capable but also motivated to apply their competencies in ways that achieve departmental objectives and contribute to organizational success.

Regression analysis further confirms that employee competence has a significant positive effect on employee performance (B = 1.158; Beta = 0.781; t = 9.612; p < 0.05), with strong predictive power (R² = 0.592; Adjusted R² = 0.643). This finding implies that 59.2% of the variance in employee performance can be explained by differences in employee competence, while the remaining 40.8% is influenced by other unexamined factors, such as motivation, leadership, or organizational culture. The results underscore the critical role of competence as a dominant determinant of performance in technical government institutions.

Practically, the study highlights the importance of enhancing employee competence through structured training programs, continuous skill development, and professional growth initiatives. By investing in competence-building strategies, public sector organizations can strengthen the capabilities of their workforce, leading to improved performance, efficiency, and service quality.

The study emphasizes that employee competence is a key driver of organizational performance. Public sector managers are therefore encouraged to prioritize initiatives that

develop and maintain high levels of employee competence, ensuring that staff are equipped to deliver high-quality services and contribute effectively to the overall objectives of the Department of Public Works and Spatial Planning

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