

The Effect of Human Resource Quality on Employee Performance at the Public Works and Spatial Planning Office of North Sumatra Province

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Abstract

This study examined the effect of Human Resource Quality on Employee Performance at the Public Works and Spatial Planning Office of North Sumatra Province, Indonesia. In public sector organizations, the quality of human resources plays a crucial role in supporting organizational effectiveness and improving the quality of public services. Therefore, this study aimed to provide empirical evidence regarding the contribution of employee performance to improving human resource quality within the institution. A quantitative approach was employed using survey data collected from 70 employees through a questionnaire-based method. The validity and reliability of the research instrument were tested using Pearson's correlation and Cronbach's Alpha, confirming that all questionnaire items were valid and reliable. Descriptive analysis indicated that both Human Resource Quality and Employee Performance were positively perceived by respondents, as reflected in favorable mean scores and consistent responses. Furthermore, simple linear regression analysis and a t-test were conducted to test the proposed hypothesis. The results demonstrated a positive and statistically significant effect of Human Resource Quality on Employee Performance ($p\text{-value} = 0.000$). The coefficient of determination ($R^2 = 0.406$) showed that Employee Performance explained 40.6% of the variance in Human Resource Quality, while the remaining 59.4% was influenced by other factors not examined in this study. These findings indicate that improving the quality of human resources plays an important role in enhancing the employee performance within the organization.

Keywords: Employee Performance, Human Resource Quality

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Introduction

Employee performance is a critical factor in determining the effectiveness of public service delivery, particularly in government institutions responsible for infrastructure development and spatial planning (1). In the context of modern bureaucracy, public organizations are expected to provide efficient, transparent, and accountable services to society (2). The success of these responsibilities largely depends on the ability of employees to perform their duties effectively. High employee performance contributes directly to the quality of public infrastructure, spatial management, and the level of public trust in government institutions. Previous studies emphasize that organizational performance in the public sector is closely related to the quality of human resources, which includes employees' knowledge, skills, and professional attitudes (3).

Human resource quality has become one of the most important determinants of employee performance in public organizations (4). Employees who possess strong competencies are generally more capable of completing tasks accurately, efficiently, and in accordance with organizational standards (5);(6). In technical institutions such as public works agencies, the complexity of tasks requires employees to have adequate technical knowledge, professional skills, and the ability to adapt to organizational demands. Empirical research indicates that the quality of human resources significantly influences employee performance in government institutions, particularly in organizations with high operational and technical complexity (7).

Despite the importance of human resource quality, many public organizations still face challenges in ensuring that employees consistently demonstrate optimal performance. Variations in competence levels, professional skills, and work attitudes among employees may lead to differences in work outcomes and productivity (8). In addition, the effectiveness of human resource quality is often influenced by organizational factors such as work discipline, which reflects employees' compliance with rules, punctuality, and responsibility in carrying out tasks. Strong work discipline can strengthen the relationship between employee competence and performance outcomes within public organizations (4).

A preliminary survey conducted at the Public Works and Spatial Planning Office of North Sumatra Province revealed that employee performance has not yet reached optimal levels. The survey assessed several indicators, including work quality, timeliness in completing tasks, responsibility, and work discipline. The results showed that the average performance score was 68.0 percent, which falls into the "moderate" category. Among the indicators measured, work discipline showed the lowest percentage, suggesting that improvements in employee discipline and professional behavior are necessary to enhance overall performance.

Previous studies have widely examined factors affecting employee performance in public organizations, particularly those related to motivation, leadership, and organizational culture (9);(10);(11). However, limited research specifically focuses on the relationship between human resource quality and employee performance within technical government institutions such as public works agencies. Furthermore, the complexity of infrastructure management and spatial planning tasks requires employees with high competence and professional discipline to achieve optimal organizational outcomes (12).

Based on these considerations, this study aims to examine the influence of human resource quality on employee performance at the Public Works and Spatial Planning Office of North Sumatra Province. The findings of this research are expected to provide empirical insights into how improving human resource quality can enhance employee performance and support the effectiveness of public sector organizations.

Literature Review Human Resource Quality

Human resource quality refers to the level of capability possessed by employees, which is reflected through their knowledge, skills, work attitudes or ethics, physical condition, and

adaptive capacity that enable them to perform their duties effectively, efficiently, and sustainably in achieving organizational goals (13).

In this study, the operational indicators used to measure human resource quality refer to the framework proposed by (13) which includes the following aspects:

1. Mastery of job tasks or position

The level of employees' understanding and competence in performing the duties and responsibilities associated with their position.

2. Specific job-related skills

The technical and professional skills required to perform work tasks effectively in accordance with job demands.

3. Ability to use relevant tools and technology

The capability of employees to operate work equipment, digital systems, or technologies that support job performance and organizational productivity.

Employee Performance

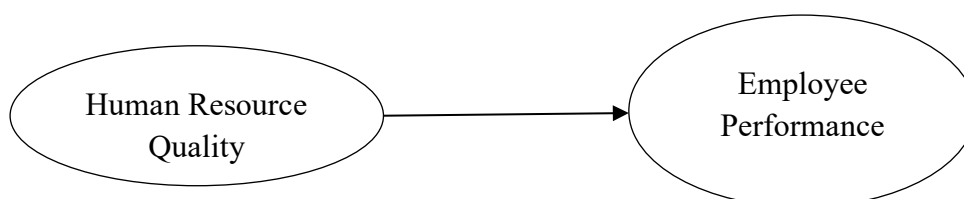
Employee performance refers to the work outcomes achieved by employees in carrying out their duties and responsibilities in accordance with their roles within an organization. Performance can be evaluated from several aspects, including the quality and quantity of work results, timeliness in completing tasks, responsibility toward assigned duties, and compliance with organizational standards and procedures (14).

In the context of public organizations, employee performance also reflects the ability of government officials to produce effective and accountable public service outputs and outcomes that contribute to organizational objectives and community welfare (15)

In this study, employee performance is measured using indicators proposed by (15). These indicators include the quality of work results, which reflects the level of accuracy, neatness, and conformity of employees' work outcomes with established standards and procedures. Employee performance is also assessed based on the quantity of work results, referring to the amount of work completed by employees within a specific period in accordance with predetermined targets. Another important indicator is the timeliness of task completion, which describes the ability of employees to complete assigned tasks within the specified deadlines without unnecessary delays. In addition, responsibility for work represents employees' awareness and commitment in performing their duties and their willingness to be accountable for their work outcomes. Employee performance is further evaluated through compliance with procedures and organizational policies, indicating the extent to which employees carry out their work in accordance with rules, standard operating procedures (SOP), and organizational policies. The ability to work independently and in teams also reflects employees' capability to accomplish tasks both individually and collaboratively with colleagues in order to achieve organizational objectives. Finally, service and result orientation describes employees' focus on producing useful work outcomes and delivering services that are oriented toward user satisfaction, particularly in the context of public service delivery.

Conceptual Framework and Hypothesis

This study conceptualizes Human Resource Quality as the independent variable (X) and Employee Performance as the dependent variable (Y) as shown on the following figure.



The hypothesis is:

Ha : Human resource quality has a positive and significant effect on employee performance at the Public Works and Spatial Planning Office of North Sumatra Province.

Ho : Human resource quality does not have a positive and significant effect on employee performance at the Public Works and Spatial Planning Office of North Sumatra Province.

Research Methodology

This study employed a quantitative associative research design, which aims to examine the relationship between two or more variables (16); (17). The quantitative approach was selected to statistically test the hypothesized relationships among the research variables. However, in the present study, the primary focus is on analyzing the influence of human resource quality on employee performance effectiveness.

The research was conducted at the Public Works and Spatial Planning Office of North Sumatra Province, located at Jl. Sakti Lubis No. 7R, Sitirejo II; Medan, North Sumatera. The study was carried out over a three-month period, from December 2025 to February 2026.

The population of this study consisted of all employees working at the Public Works and Spatial Planning Office of North Sumatra Province. According to (18); (19), a population refers to the entire group of subjects or objects that possess specific characteristics relevant to the research problem and serve as the basis for data collection and generalization of findings. In this study, the total population comprised 36 employees, all of whom were civil servants (ASN).

Given the relatively small size of the population, this research applied a saturated sampling technique (census sampling), in which all members of the population were included as research respondents. As defined by (19), a sample represents a subset of the population selected to reflect the characteristics of the entire population. However, since the population in this study was limited to 70 employees, all individuals were involved as respondents. Therefore, the total sample size was 70 employees.

The study relied on primary data collected through a structured questionnaire distributed to all respondents. The questionnaire items were developed based on established theoretical indicators of service speed and service optimization. Responses were measured using a fivepoint Likert scale ranging from strongly disagree to strongly agree. In addition, secondary data were obtained from institutional documents, official reports, and relevant administrative records to complement and support the primary data.

The collected data were analyzed using quantitative statistical methods with the assistance of SPSS version 26.0. The analysis was conducted in several stages. First, a validity test was performed to assess whether each questionnaire item accurately measured the intended variable (20). An item was considered valid if the calculated correlation coefficient (r-count) exceeded the r-table value. Second, a reliability test was conducted using Cronbach's Alpha, where a coefficient greater than 0.70 indicated that the instrument was reliable.

The regression model applied in this study is formulated as follows: $Y = a + bX$, Where:

Y = Employee performance

X = Human resource quality

a = Constant

b = Regression Coefficient

The t-test is used to determine whether service speed has a significant effect on service optimization. The hypothesis is accepted if the t-count value is greater than the t-table value or if the significance level (p-value) is less than 0.05. Additionally, the coefficient of determination (R^2) is calculated to measure the proportion of variance in service optimization explained by service speed. The R^2 value ranges from 0 to 1, with values closer to 1 indicating a stronger influence of the independent variable.

Results Validity and Reliability Tests

Validity was assessed using Pearson's correlation coefficient (r-value) by correlating each individual item score with the total composite score of its respective variable. With a

sample size of $N = 70$ and a significance level of 5% (two-tailed), the critical r-table value was 0.2352. An item was considered valid if its r-value exceeded the r-table value.

Based on the results of the validity test using Pearson Correlation, the correlation coefficients obtained were 0,977, 0.966 and 0,954, with a significance value (Sig. 2-tailed) of 0.000 for all indicators of the Human Resource Quality variable. .

Since all correlation coefficients are very high and the significance values are below 0.05, it can be concluded that all indicators are statistically significant and valid in measuring the Human Resource Quality variable.

The results of the validity test using Pearson Correlation of Employee Performance Effectiveness variable, obtained were 0.686, 0.686, 0.680, 0.535, 0.565 and 0.462 with a significance value (Sig. 2-tailed) of 0.000 for all indicators of the Employee Performance variable.

According to (17) since all correlation coefficients are above the commonly accepted minimum threshold ($r > 0.30$) and fall within the moderate to very strong correlation range, and because the significance values are below 0.05, it can be concluded that all indicators are statistically significant and valid in measuring the Employee Performance Effectiveness variable.

Reliability was evaluated using Cronbach's Alpha to measure the internal consistency of each variable. A research instrument is generally considered reliable if its Cronbach's Alpha value exceeds 0.60 (21).

Table 1. Reliability Results

Variable	Cronbach's Alpha	Benchmark	Result
Human Resource Quality	0.954	> 0.60	Reliable
Employee Performance	0.653	> 0.60	Reliable

The Human Resource Quality variable achieved a Cronbach's Alpha value of 0.954, while the Employee Performance variable obtained a value of 0.654. Both values were well above the 0.60 benchmark, indicating strong internal consistency. These findings confirmed that the measurement instruments were both valid and reliable.

Descriptive Analysis

The first step in the descriptive analysis was to examine the summary statistics of the two main variables (Human Resource Quality and Employee Performance). The analysis was conducted to provide an overview of respondents' perceptions based on the composite scores obtained from the questionnaire items. Each variable score represents the total accumulation of responses across its respective indicators.

Table 2. Descriptive Statistics

Variable	Mean	Std. Deviation	N
Human Resource Quality	12.2958	2.04516	70
Employee Performance	24.7606	2.53245	70

As shown in Table 2, the mean score for Human Resource Quality was 12.2958, with a standard deviation of 2.04516, based on 36 respondents. This result indicates that, on average, employees perceived the quality of human resources at a relatively favorable level. The standard deviation, which is lower than the mean, shows that the responses were fairly homogeneous, meaning that most respondents had relatively similar perceptions regarding the quality of human resources. Although slight differences in responses existed, the variation was not substantial.

Meanwhile, the mean score for Employee Performance Effectiveness was 24.7606, with a standard deviation of 2.53245, also based on 36 respondents. This finding suggests that

employee performance was generally perceived to be at a good level. However, compared to Human Resource Quality, the higher standard deviation indicates a greater variation in respondents' perceptions. This means that while the overall assessment was positive, there were more noticeable differences in how employees evaluated performance effectiveness.

Overall, the descriptive statistics demonstrate that both Human Resource Quality and Employee Performance were positively assessed by respondents. The relatively consistent perception of human resource quality, along with the generally good level of performance effectiveness, provides an initial indication that the existing human resource conditions may contribute to effective employee performance. These results serve as a foundation for further inferential analysis to examine the relationship and influence between the two variables.

These findings are consistent with previous studies (22);(4);(23) which indicate that the quality of human resources has a significant relationship with employee performance effectiveness. The findings highlighted that competency development, skills enhancement, and human resource quality significantly contribute to improved employee performance outcomes. Similarly, a study in the Journal of Human Resources Management Research found that higher human resource capability positively influences organizational performance through improved individual effectiveness. These studies support the present findings, confirming that strong human resource quality is closely associated with higher employee performance (24).

Regression Analysis Simple Linear Regression

A simple linear regression analysis was conducted to examine the effect of Human Resource Quality on Employee Performance at the Public Works and Spatial Planning Office of North Sumatra Province. The analysis used composite scores derived from the three indicators of each variable based on the questionnaire data from 70 respondents. **Table 3. Regression Results**

Model	B	Std. Error Beta	t	Sig. (p)
(Constant)	.447	1.865	.239	.811
Employee Performance	.515	.075	.637	.000

a. Dependent Variable: Human Resource Quality

A simple linear regression analysis was conducted to examine the effect of Employee Performance on Human Resource Quality at the Secretariat of the Regional House of Representatives of Dairi Regency. The analysis was based on questionnaire data collected from respondents, with Human Resource Quality as the dependent variable and Employee Performance as the independent variable.

Based on the regression output presented in Table 3, the regression equation can be formulated as:

$$Y = 0.447 + 0.515X$$

The constant value ($B = 0.447$) indicates that when Employee Performance is assumed to be zero, the predicted value of Human Resource Quality is 0.447. Meanwhile, the regression coefficient for Employee Performance ($B = 0.515$) shows that every one-unit increase in the Employee Performance score will increase the Human Resource Quality score by 0.515 units, assuming other variables remain constant.

The significance value ($\text{Sig} = 0.000$), which is lower than the significance level of 0.05, indicates that Employee Performance has a positive and statistically significant effect on Human Resource Quality. Furthermore, the standardized coefficient ($\text{Beta} = 0.637$) indicates that Employee Performance has a moderately strong positive relationship with Human Resource Quality.

The t-value obtained ($t = 6.868$) is considerably higher than the critical t-table value, indicating that the influence of Employee Performance on Human Resource Quality is statistically significant. These findings suggest that improvements in Employee Performance

contribute significantly to enhancing Human Resource Quality at the Secretariat of the Regional House of Representatives of Dairi Regency.

Therefore, the research hypothesis stating that Employee Performance has a positive and significant effect on Human Resource Quality is supported.

Coefficient of Determination (R^2)

The coefficient of determination (R^2) was calculated to measure the proportion of variance in Human Resource Quality that could be explained by Employee Performance s at the Public Works and Spatial Planning Office of North Sumatra Province. **Table 4.** Coefficient of Determination

<u>Model</u>	<u>R</u>	<u>R²</u>	<u>Adjusted R²</u>
1	.637a	.406	.397

a. Predictors: (Constant), Employee Performance

Based on Table 4, the coefficient of determination (R^2) is 0.406, indicating that 40.6% of the variance in Human Resource Quality is explained by Employee Performance, while the remaining 59.4% is influenced by other factors not included in this model. The correlation coefficient ($R = 0.637$) shows a moderately strong positive relationship between Employee Performance and Human Resource Quality. Additionally, the Adjusted R^2 value of 0.397 indicates that after adjustment, 39.7% of the variation in Human Resource Quality can still be explained by Employee Performance. These results suggest that Employee Performance contributes positively to improving Human Resource Quality, although other organizational factors also play an important role (8).

Hypothesis Testing (t-Test)

Hypothesis testing was conducted using a t-test to determine whether the independent variable, Human Resource Quality, had a positive and significant effect on the dependent variable, Employee Performance

Table 5. t- Test Result

<u>Model</u>	<u>B</u>	<u>Std. Error</u>	<u>Beta</u>	<u>t</u>	<u>(Constant)</u>	<u>.447</u>	<u>1.865</u>
Employee Performance	.515	.075		.637	6.868		

a. Dependent Variable: Human Resource Quality

Based on Table 5, the calculated t-value ($t = 6.868$) for the Employee Performance variable was compared with the critical t-table value at a significance level of $\alpha = 0.05$ with $df = 68$ ($N = 70$, $k = 2$), which is approximately 1.66757. Since the calculated t-value (6.868) is greater than the t-table value (1.66757), the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted.

This result indicates that Human Resource Quality has a positive and significant effect on Employee Performance at the Secretariat of the Regional House of Representatives of Dairi Regency. The positive regression coefficient ($B = 0.515$) shows that an increase in Human Resource Quality will lead to an increase in Employee Performance. Therefore, improving quality of human resources plays an important role in enhancing the overall employee performance within the institution (25).

Conclusion

Based on the results of the simple linear regression analysis, it can be concluded that Employee Performance has a positive and significant effect on Human Resource Quality at the Public Works and Spatial Planning Office of North Sumatra Province. The regression analysis produced the equation $Y = 0.447 + 0.515X$, indicating that every one-unit increase in Human

Resource Quality will increase Employee Performance by 0.515 units. The statistical results show a significance value of 0.000, which is lower than the significance level of 0.05, confirming that the effect is statistically significant.

Furthermore, the t-test result ($t = 6.868$) is greater than the t-table value (1.66757), which leads to the rejection of the null hypothesis and acceptance of the alternative hypothesis. This finding demonstrates that quality of human resources plays an important role in improving the Employee Performance within the organization.

The coefficient of determination analysis also shows that Human Resource Quality explains 40.6% of the variation in Employee Performance, while the remaining 59.4% is influenced by other factors not examined in this study. The correlation coefficient ($R = 0.637$) indicates a moderately strong positive relationship between the two variables. Therefore, improving Human Resource Quality is an important factor in enhancing employee performance Quality, although other organizational factors should also be considered in future research.

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