
**EFFECT OF COMPETENCY AND EDUCATION LEVEL ON
EMPLOYEE PERFORMANCE IN BIREUEN REGENCY TRADE
INDUSTRY COOPERATIVES AND SMES SERVICE**

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ABSTRACT

This study seeks to examine the effect of competency and educational attainment on employee performance at the Department of Trade, Industry, Cooperatives, and SMEs in Bireuen Regency. The primary issue addressed is the less-than-optimal performance of employees, which is assumed to be related to their level of competency and education. A quantitative method with an associative approach was employed in this research. The population consisted of all employees, and a saturated sampling technique was applied. Data were gathered through questionnaires, observations, and documentation, and subsequently analyzed using validity and reliability tests, multiple linear regression, t-tests, F-tests, and the coefficient of determination with the assistance of SPSS software. The findings reveal that competency has a positive and significant influence on employee performance, whereas educational level shows a positive but not statistically significant effect. Collectively, competency and education level significantly influence employee performance. These results suggest that enhancing competency plays a more dominant role in improving employee performance.

Keywords: Competence, Education Level, Employee Performance

INTRODUCTION

In the current era of globalization and increasingly intense competition, government institutions are expected to possess high-quality human resources. Employee performance serves as a key indicator in evaluating the effectiveness of public service delivery. Along with rapid technological advancements, public sector organizations are required to continuously enhance the quality of services provided to society. One of the most critical elements determining the success of government institutions is their human resources (HR), as they play a direct role in realizing organizational vision and mission.

According to Hasibuan (2019), employee performance refers to the results achieved by an individual in carrying out assigned tasks based on their skills, experience, dedication, and time. In the context of public organizations, employee performance is closely associated with the quality of services delivered to the community. Two main factors considered to influence performance are competence and educational level. Competence encompasses the knowledge, skills, and abilities possessed by employees and represents a fundamental characteristic that supports effective individual performance. Employees with strong competence are expected to perform their duties professionally, responsibly, and efficiently. It reflects not only technical capabilities but also work attitudes and understanding in executing tasks. Meanwhile, educational level represents an individual's analytical capacity and breadth of knowledge.

The Department of Trade, Industry, Cooperatives, and SMEs of Bireuen Regency holds a strategic role in supporting regional economic development. Therefore, it is important to examine how competence and educational level contribute to employee performance within this institution.

Competence is one of the primary factors affecting employee performance, as it includes the knowledge, skills, and work attitudes required to perform tasks effectively. Employees with higher competence tend to better understand their responsibilities, make appropriate decisions, and complete their work efficiently. In contrast, employees with lower competence often face difficulties in task completion, require more time, and tend to produce lower-quality outcomes.

In general, management can be defined as the process of planning, organizing, directing, and controlling resources to achieve organizational objectives effectively and efficiently. Terry (2017) describes management as a systematic process consisting of planning, organizing, actuating, and controlling activities to accomplish predetermined goals through the optimal use of human and other resources.

Competence, as discussed in *Future Competencies in Human-Machine Interaction: An Interdisciplinary Approach* (2022), refers to an individual's ability to apply knowledge, skills, and other attributes to successfully perform tasks, particularly in new or complex situations with uncertain outcomes. It involves a combination of knowledge, skills, attitudes, and personal characteristics such as values and behavior, which can be observed through actual work performance. In a modern context, competence is not limited to technical abilities but also includes managerial, socio-cultural, and digital competencies, which are essential in addressing the challenges of technological advancement and digital transformation.

Educational level also plays an important role in shaping employee performance. Formal education influences an individual's way of thinking, analytical skills, and ability to adapt to new technologies and work methods. It reflects the level of knowledge and capability acquired through formal or informal learning processes,

indicating the extent to which an individual has completed stages of education within the national education system.

EXPERIMENTAL

This research adopts a quantitative approach, where data are collected through structured questionnaires designed to obtain objective and measurable information. The study also employs a survey method as a primary technique for data collection.

Research Design

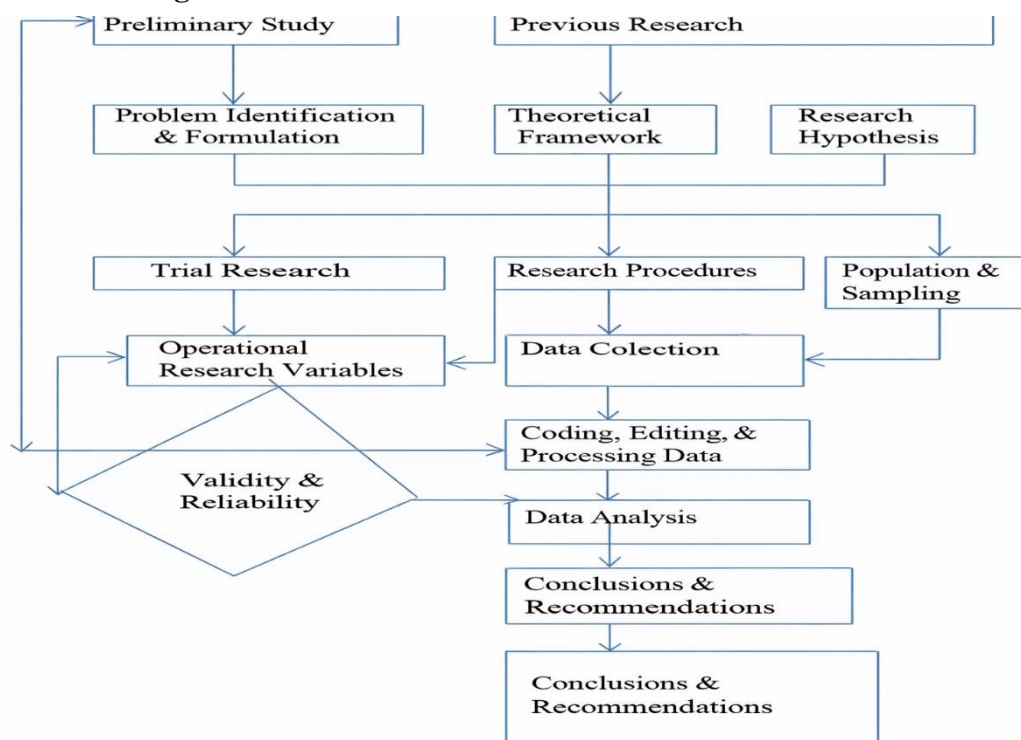


Figure 1.Research Design

This study examines two categories of variables, namely independent and dependent variables. Competence (X1) and education level (X2) are treated as independent variables, while employee performance (Y) is considered the dependent variable. The relationship among these variables is illustrated as follows:

The independent variable is a variable that is changed or manipulated in a study, this variable is the cause or factor suspected of having an influence on the dependent influence.

The dependent variable is a variable that is influenced by the independent variable, this variable is the result or response to changes that occur in the independent variable.

Data Determination Techniques

- **Research Population**

According to Sugiyono (2021), a population refers to a group of objects or subjects with specific characteristics and qualities determined by the researcher for investigation, from which conclusions can be drawn. In this study, the population consists of employees of the Department of Trade, Industry, Cooperatives, and SMEs of Bireuen Regency, totaling 70 individuals..

- **Research Sample**

Research samples are the process of selecting a number of samples to be used as research objects. The samples in this research are determined with the total sampling technique or saturated sample, according to Sugiyono (2019) saturated sampling is a sample determination technique when all or some of the population categories number <100 people.

Research Instrument Testing

- **Validity Test**

Validity test is a test used in measuring statements and questions included in a questionnaire, whether the validity/validity of the questions in the questionnaire can reveal something that will be measured from the creation of the questionnaire (Sugiyono 2019), the validity agreement is generally considered to be quite satisfactory if > 0.30 , the validity testing criteria are as follows:

If the calculated r is negative and the calculated $r >$ table r then the question item is said to be invalid.

- **Reliability Test**

Reliability test is a tool in questionnaire measurement which is said to be an indicator of variables and constructs (Rosita Hidayat & Yuliani 2021), a questionnaire can be considered reliable if a person's answers to the questions are consistent or stable over time, the high or low reliability can be seen empirically from a number called the reliability coefficient value, high reliability is evidenced by the r_{xx} value approaching 1, the reliability agreement is generally considered quite satisfactory if > 0.60 .

- **Normality Test**

The test is conducted to determine whether the dependent and independent variables in the aggression model are normally distributed (Usmadi 20220). A good regression model is one with normally distributed residual values. Another method

is the one-simple Kolmogorov-Smirnov statistical test. The basis for the one-simple Kolmogorov-Smirnov decision-making process is:

1. If the results of one simple Kolmogorov-Smirnor test above the 0.05 significance level indicate a normal distribution pattern, then the regression model meets the normality assumption.
2. If the one-simple Kolmogorov-Smirnov results below the 0.05 significance level do not show a normal distribution pattern, then the regression model does not meet the normality assumption.

- **Heteroscedasticity Test**

Heteroscedasticity test is conducted to determine whether there is heteroscedasticity in the regression model, which can be done by looking at the scatterplot graph or from the predicted value of the related variable (SRESID) with residual error (ZPERED). If the graph shows a certain pattern and does not spread above or below the zero number on the y-axis, then it can be concluded that there is no symptom of heteroscedasticity, or it can be interpreted that the research model used is good (Ghozali 2019).

- **Multicollinearity Test**

Multicollinearity was first introduced by Ragner Frisch, which refers to a very strong linear relationship in a regression model across all independent variables. The presence of multicollinearity can lead to inaccurate regression methods due to unstable regression estimates and large regression coefficients. Several factors can be observed to detect multicollinearity, including (Anggryenny, 2020), which explains:

1. The high Risquared value and the F-stat value are significant, but most of the t-stats are not significant.
2. The correlation between the two independent variables is quite high (usually > 0.8)
3. The conditionnumber value is more than 20 or 30.
4. Apart from the three things above, the data is said to have high collinearity if the resulting VIF value is greater than 10.00 and the resulting TOL value is smaller than 0.10

- **Data conversion**

In measuring the answers to the questionnaire that has been given to respondents, the measurement scale used is the Likert scale, the Likert scale is a scale to measure the attitudes of an individual or group of people about the social

phenomena that occur, by using Likert, the variables are then used as benchmarks in compiling items. The questionnaire research score according to Sugiyono (2019) can be calculated as follows:

Table 1. Likert Scale

No	Information	Scale Value
1	Strongly agree	5
2	Agree	4
3	Neutral	3
4	Don't agree	2
5	Strongly disagree	1

RESULTS AND DISCUSSION

Respondent Characteristics

To obtain a general overview of the respondents in this study, several basic characteristics were identified, including age, education level, and gender. This information aims to understand the demographic background of the respondents who contributed to completing the questionnaire. The distribution of respondent characteristics is presented in the following table:

Table 2. Respondent Characteristics Based on Age

No	Age (Years)	Frequency	Percentage
1.	30 years	0	0%
2.	30 - 40 Years	7	4.3%
3.	> 40 years	63	95.71%
	Amount		100%

Source: Research Data, 2026

Based on the table above, it can be seen that the majority of respondents aged 30-40 years were 7 people (4.3%), while respondents aged > 40 years were 63 people (95.71%), this shows that the composition of employees in the Trade, Industry, Cooperatives and SMEs Department of Bireuen Regency is relatively unbalanced between those aged 30-40 years and > 40 years.

Table 3. Respondent Characteristics Based on Gender

No	Gender	Frequency	Percentage
1.	Man	15	21.43%
2.	Woman	55	78.57%
	Amount	70	100%

Source: Research Results, 2026

Based on the table above, it can be seen that the majority of female respondents, 55 people (78.57%), while male respondents were 15 people (21.43%), this shows that the composition of employees in the Trade, Industry, Cooperatives and SMEs Department of Bireuen Regency is relatively unbalanced between women and men.

Table 4. Respondent Characteristics Based on Education Level

No	Level of education	Frequency	Percentage
	High	8	11.43%
1.	School/Vocational School		
2.	Diploma / D3	12	17.14%
3.	Bachelor's Degree / S1	45	64.29%
4.	Masters Degree / S2	5	7.14%
	Amount		Total 100%

Source: Research Results, 2026

Based on the table above, it can be seen that the majority of respondents' educational level, high school level 8 people with a percentage of 11.43%, Diploma 3 level 12 people with a percentage of 17.14%, S1 level 45 people with a percentage of 64.29%, and for S2 5 people with a percentage of 7.14%.

Data Instrument Testing

The research instrument is in the form of a questionnaire, this test is first to determine the quality of each statement in measuring the variables of competency, education level, and employee performance.

- **Validity test**

Validity testing was conducted using person correlation (corrected clem-total correlation). The decision-making criteria were:

- If $r - \text{count} > r - \text{table}$ (0.235) the item is valid
- If $r - \text{count} \leq r - \text{table}$ the item table is invalid

The number of respondents was 70 people, so the r table value = 0.235 at a significance level of 5

- **Results of Competency Variable Validity Test.**

Table 5. Results of the competency variable validity test

Item	r- count	r- table	Information
X1.1	0.877	0.235	Valid
X1.2	0.854	0.235	Valid

X1.3	0.811	0.235	Valid
X1.4	0.854	0.235	Valid
X1.5	0.631	0.235	Valid
X1.6	0.493	0.235	Valid
X1.7	0.590	0.235	Valid

Source: SPSS Output, 2026

Based on the table above, the results of the validity test show that all statement items in the Competency variable have a calculated r-value greater than the table r-value (0.235). Thus, all statement items in the competency variable are declared valid and suitable for use in research.

- **Results of the validity test of the education level variable**

Table 6. Results of the validity test of the education level variable

Item	r- count	r- table	Information
X2.1	0.708	0.235	Valid
X2.2	0.552	0.235	Valid
X2.3	0.780	0.235	Valid
X2.4	0.804	0.235	Valid
X2.5	0.718	0.235	Valid
X2.6	0.330	0.235	Valid
X2.1	0.708	0.235	Valid

Source: SPSS Output, 2026

Based on the table above, the validity test results show that all statement items for the education level variable have a calculated r-value greater than the table r-value (0.235). Thus, all statement items for the competency level variable are declared valid and suitable for use in research.

- **Results of the validity test of the Employee Performance variable**

Table 7. Results of the validity test of the education level variable

Item	r- count	r- table	Information
Y 1	0.708	0.235	Valid
Y2	0.552	0.235	Valid
Y3	0.780	0.235	Valid

Table 7. Results of the validity test of the education level variable (continued)

Item	r- count	r- table	Information
Y4	0.804	0.235	Valid
Y5	0.718	0.235	Valid
Y6	0.330	0.235	Valid
Y7	0.310	0.235	Valid

Source: SPSS Output, 2026

Based on the table above, the validity test results show that all statement items on the employee performance variable have a calculated r-value greater than the table r-value (0.235). Thus, all statement items on the employee performance variable are declared valid.

Reliability Test

- **Methods and criteria**

The reliability test was conducted using Cronbach's Alpha with the following criteria: Cronbach's Alpha ≥ 0.60 - reliable

- **Reliability test results**

Table 8. Results of the reliability test of the research instrument variables. Cronch's Alpha

Variables	Cronbach's Alpha	Number of items	Information
Competence (X1)	0.847	7	Reliable
Education Level (X2)	0.736	6	Reliable
Employee Performance (Y)	0.797	7	Reliable

Source: SPSS Output, 2026

Based on the test results table above, the Cronch's alpha value for all research variables was greater than 0.60. This indicates that the research instrument is consistent and reliable, making it suitable for use in this study.

Classical Assumption Test

TestClassical assumptions were used to ensure that the regression model used in this study met the requirements of multiple linear regression analysis. The classical assumption tests used included normality, multicollinearity, and heteroscedasticity tests.

- **Normality Test**

The normality test aims to determine whether the residual data in a regression model is normally distributed. Meeting the normality assumption is crucial in regression analysis because it affects the accuracy of parameter estimates and the validity of hypothesis testing conducted in the study.

The normality test method in this study was carried out using a graphical approach, namely through the residual histogram and the Normal PP Plot of Regression Standardized Residual. The decision-making criteria are if the histogram forms a bell-shaped pattern and in the Normal PP Plot graph the data points spread around the diagonal line and follow the direction of the line, then the data can be said to be normally distributed. The Probability Plot graph in this study can be seen in Figure 4.1.

Normal P-P Plot of Regression Standardized Residual

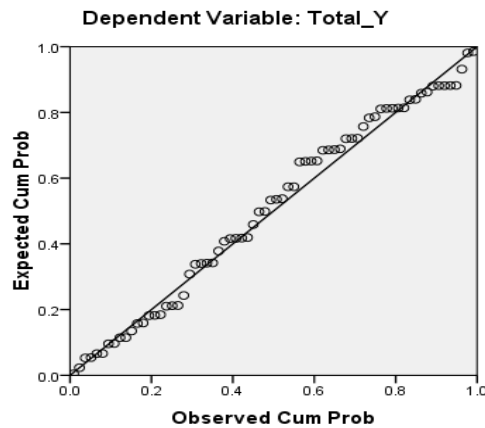


Figure 2. Normal PP Plot Graph

Based on the SPSS output, the histogram graph shows that the residuals form a bell-shaped pattern and do not skew significantly to the left or right. Furthermore, the Normal PP Plot graph shows that the residual points are spread around the diagonal line and follow the direction of the line. Therefore, it can be concluded that the residual data in this research's regression model is normally distributed, thus meeting the assumption of normality.

- **Multicollinearity Test**

The multicollinearity test aims to determine whether there is a strong relationship between the independent variables in a regression model. The presence of multicollinearity can cause instability in the estimation of regression coefficients, so it is important to ensure that the independent variables are not highly correlated to ensure the analysis remains valid and can be interpreted correctly.

The multicollinearity test method is performed by examining the Tolerance and Variance Inflation Factor (VIF) values. The decision-making criteria are: if the Tolerance value is greater than 0.10 and the VIF value is less than 10, it can be concluded that there is no multicollinearity in the regression model. Conversely, if the Tolerance value is less than or equal to 0.10 and the VIF value is greater than or equal to 10, it indicates the presence of multicollinearity.

Table 9. Multicollinearity test results

variables	tolerance	VIF	Information
Competence (X1)	0.688	1,454	There is no multicollinearity
Education Level (X2)	0.688	1,454	There is no multicollinearity

Source: SPSS Output, 2026

Based on the table above, the tolerance value for each independent variable is greater than 0.10 and the VIF value is less than 10. This shows that there are no

symptoms of multicollinearity between the independent variables in the regression model.

- **Heteroscedasticity test**

The heteroscedasticity test was performed using a scatterplot graph between the predicted values (ZPRED) and residuals (SRESID). This test aims to determine whether there is inequality in the variance of the residuals in the regression model. The decision-making criterion is if the points on the graph are randomly distributed, do not form a specific pattern, and are spread above and below zero on the Y-axis, then it can be concluded that heteroscedasticity does not occur.

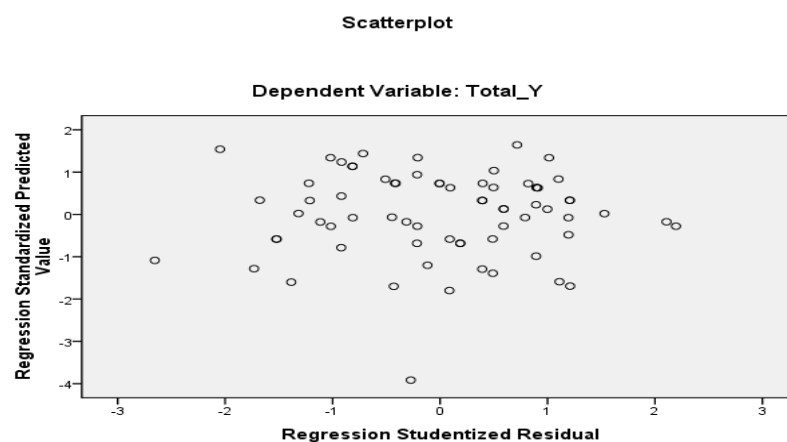


Figure 3. Heteroscedasticity Test Results

Based on the SPSS scatterplot, the points are randomly distributed and do not form a specific pattern, and are spread both above and below the zero axis. This indicates that the residual variance is constant. Therefore, it can be concluded that there is no heteroscedasticity in the regression model in this study, thus meeting the classical assumptions.

Multiple Linear Regression Analysis

Based on the normality, collinearity, and heteroscedasticity tests, it can be concluded that all classical assumptions have been met. Therefore, the multiple linear regression model in this study is suitable for further hypothesis testing.

Based on the results of SPSS data processing, the results of multiple linear regression analysis were obtained as shown in the following table:

Table 10. Results of the multiple linear regression analysis test

Variables	B	Std.Error	Beta	T-count	Sig.
(Constant)	8,892	2,481	-	3,583	0.001
Competence (X1)	0.251	0.073	0.389	3,482	0.001
Level of education	0.405	0.113	0.438	4196	0,000

Source: SPSS Output, 2026

Based on the results of the multiple linear regression analysis in the table above, the following regression equation is obtained:

$$Y=8.802 + 0.251 X1+0.405 X2$$

Based on the results of the regression analysis, a constant value of 8.892 was obtained, which means that if the competency and education level variables are considered constant or have a value of zero, then employee performance remains at 8.892. The competency regression coefficient of 0.251 indicates that every increase in competency by one unit will increase employee performance by 0.251 assuming a constant education level, and a significance value of 0.001 <0.05 indicating that competency has a positive and significant effect on employee performance. Meanwhile, the regression coefficient of education level of 0.405 indicates that every increase in education level by one unit will increase employee performance by 0.405 assuming a constant competence, and a significance value of 0.000 <0.05 indicating that education level also has a positive and significant effect on employee performance.

Hypothesis Testing

- **t-test (partial test)**

The t-test is used to partially recognize the influence of each independent variable on the dependent variable. The guidelines used are: if the significance value is <0.05, or the calculated t value is > t-table, then there is an influence of the independent variable on the dependent variable. Conversely, if the significance value is >0.05, or the calculated t value is < t-table, then there is no influence of the independent variable on the dependent variable. The results of the t-test can be seen in the following table:

Table 11. Results of the t-test (partial)

Variables	t-count	Sig.	description
Competence	3,482	0.001	Significant
Level of education	4,196	0.0000	Significant

Source: SPSS Output, 2026

Based on the table above, it can be explained that the influence of competence on employee performance shows a t-count value of 3.482 with a significance level of 0.001 <0.005, so it can be concluded that competence has a positive and significant effect on employee performance, thus H1 is accepted. In addition, the influence of education level on employee performance shows a t-count value of 4.196 with a significance level of 0.000 <0.005, so it can be

concluded that education level also has a positive and significant effect on employee performance, thus H2 is accepted.

- **F test (simultaneous)**

The simultaneous test (F test) is used to test whether there is an influence of independent variables on the dependent variable simultaneously or not. This can be determined using the F test. The guideline used is $F_{count} > F_{table}$, then the hypothesis is accepted and the independent variables have a simultaneous influence on the dependent variable. However, if the significance value is < 0.05 or $F_{count} > F_{table}$, then the hypothesis is rejected and the independent variables do not have a simultaneous influence on the dependent variable. The results of the F test with the help of SPSS version 23 can be seen in the following table:

Table 12. Simultaneous test results

Model	f - count	Sig.
Regression	54,321	0.0000

Source: SPSS output, 2026

Based on table 4.13, the f-value obtained is 54.321 with a significance of $0.0000 < 0.05$, so it can be concluded that competence and education level simultaneously have a significant effect on employee performance. Thus, H3 is accepted.

- **Coefficient of Determination**

The coefficient of determination (R^2) is used to indicate the extent of the influence of the independent variable on the dependent variable. To determine the extent of the influence of trust and service quality, a coefficient of determination test can be used. The results of the coefficient of determination test using SPSS version 23 can be seen in the following table:

Table 13. Determination Test Results

Model R	R Square	Adjusted R square
0.789	0.623	0.612

Source: SPSS Output, 2026

Based on the table above, the R square value of 0.623 shows that 62.3% of the variation in employee performance variables can be explained by competency and education level variables, while 37.7% is influenced by other variables not examined in this study.

Discussion

- **The influence of competence on employee performance**

ResultsResearch shows that competence has a positive and significant impact on employee performance. This means that the better an employee's competence, the higher their performance. Good competence reflects an employee's ability, skills, and knowledge to carry out their duties effectively and efficiently according to job demands. This is in line with Spencer and Spencer's opinion, which states that competence is a basic individual characteristic that is causally related to effective or superior performance in a job.

Competence encompasses knowledge, skills, and work attitudes integrated into an employee's behavior in carrying out their duties. Wibowo explained that competence relates not only to technical abilities but also to behavioral abilities that influence how an individual works. In the context of the Bireuen Regency Trade, Industry, Cooperatives, and SMEs Office, highly competent employees are able to complete work on time, understand work procedures, and provide optimal service to the public.

- **The influence of education level on employee performance.**

Based on the test results, the level of education is also proven to have a positive and significant effect on employee performance, education plays an important role in shaping insight, thought patterns, and analytical skills, as well as employee understanding of their duties and responsibilities so as to improve the quality of employee performance. According to Hasibuan, education is one of the main factors that determine the quality of human resources, because through education a person gains broader knowledge and insight in working.

Employees with higher levels of education are more likely to adapt better to policy changes and developments in work systems. Mangkunegara stated that education influences work ability because the higher a person's education, the easier it is for them to absorb and develop knowledge relevant to their work. This is evident in civil servants who are able to understand regulations, prepare reports, and carry out administrative and technical tasks more systematically.

- **The influence of competence and education level on employee performance**

Based on the results of simultaneous testing (F-Test), it was found that competence and education level simultaneously have a significant effect on employee performance at the Department of Trade, Industry, Cooperatives, and SMEs of Bireuen Regency. This is evidenced by the F-test significance value which is less than 0.05, so the hypothesis stating that competence and education level have

an effect on employee performance can be accepted. This indicates that improving employee performance is not only determined by one variable separately, but is the result of a combination of several mutually supporting factors.

Theoretically, the results of this study are in line with the opinion Robbins and Judge stated that individual performance is influenced by ability, knowledge, and skills in carrying out the job. Competence reflects an employee's ability to complete tasks, while education plays a role in shaping their thinking, understanding, and mastery of work concepts. Therefore, if employees possess both of these factors well, their performance will be optimal.

In practice, employees with high competencies and adequate education tend to be more capable of carrying out their duties effectively, understanding work procedures, and adapting to organizational policies and demands. Mangkunegara stated that employee performance is the result of a work process influenced by individual abilities and other supporting factors, including education and training. This is reflected in civil servants who are able to work professionally and responsibly in serving the public.

Thus, the F-test results in this study confirm that competence and education level are important factors that simultaneously influence employee performance. Improving employee performance at the Bireuen Regency Department of Trade, Industry, Cooperatives, and SMEs can be achieved through continuous competency development efforts and employee placements that align with their educational backgrounds. This strategy is expected to encourage more effective and high-quality employee performance.

CONCLUSION

This study aims to analyze the influence of competence and education level on employee performance at the Department of Trade, Industry, Cooperatives, and SMEs in Bireuen Regency. The results show that competence has a positive and significant effect on employee performance, meaning that the higher the competence possessed by employees, the better their performance. Education level has also been shown to have a positive and significant effect on employee performance, thus indicating that education plays a significant role in improving employee work quality.

Simultaneously, competence and education level significantly influence employee performance, indicating that both variables together are important factors in determining performance levels. The coefficient of determination shows that 62.3% of employee performance can be explained by competence and education level, while the remaining 37.7% is influenced by other variables outside this study.

Theoretically, these findings reinforce the concept of human resource management, which emphasizes that individual abilities, both in terms of competency and educational level, are key factors in improving organizational performance. Therefore, it is recommended that relevant agencies continue to improve employee competency through training and development programs, as well as encourage higher educational levels. Future research is expected to examine other factors influencing employee performance, such as motivation, leadership, and organizational culture.

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