

Performance Determinants of Public-Sector Employees: The Effects of Education Level, Training, and Job Satisfaction on Employee Performance at the Public Works and Spatial Planning (PUPR) Department of North Sulawesi Province

Deicy Paath^{1*}, Joulanda A. M. Rawis¹, Shelly D. Sumual¹, Jenny N. Kaligis¹, Ruth Umbase¹

¹Doctoral Program in Educational Management, Graduate School, Universitas Negeri Manado, Indonesia

*Corresponding author: deicypaath7@gmail.com

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ABSTRACT

Employee performance is a strategic issue in public organizations because it directly affects the quality, timeliness, and accountability of public services. In regional government institutions, performance improvement is frequently linked to human resource development efforts especially improving educational qualifications, implementing relevant training, and maintaining job satisfaction. This study investigates the influence of education level, training, and job satisfaction on employee performance at the Public Works and Spatial Planning (PUPR) Department of North Sulawesi Province. This research employed a quantitative correlational design. The population consisted of 145 employees, while the sample comprised 94 respondents selected through purposive sampling with a minimum tenure criterion of three years. Data were collected using a structured questionnaire and analyzed using descriptive statistics, classical assumption testing, and regression analysis with IBM SPSS. The results indicate that education level, training, and job satisfaction significantly affect employee performance both partially and simultaneously. The multiple regression model obtained was $Y = 11.086 + 0.135X_1 + 0.137X_2 + 0.018X_3$, where Y is employee performance, X_1 is education level, X_2 is training, and X_3 is job satisfaction. Partial tests showed significant effects for education level ($t = 47.089$, $\text{sig} = 0.002$), training ($t = 50.328$, $\text{sig} = 0.000$), and job satisfaction ($t = 34.241$, $\text{sig} = 0.003$). Simultaneously, the three predictors significantly influenced performance ($F = 69.534$; $\text{sig} = 0.001$), with Adjusted $R^2 = 0.812$, meaning 81.2% of the variance in employee performance was explained by the three variables. The findings suggest that public agencies seeking to strengthen performance should prioritize (1) structured

educational development aligned with job demands, (2) equitable access to relevant training programs supported by evaluation, and (3) organizational policies that enhance job satisfaction through work environment improvements, fair compensation perceptions, supervisory support, and clear career pathways.

Keywords: education level, employee performance, job satisfaction, public sector, training

INTRODUCTION

Human resources remain the most decisive element in organizational success, including within government agencies. Even in an era of rapid technological development, organizational goals cannot be achieved solely through systems, funding, or infrastructure if employees do not have adequate competence and motivation. In the context of Indonesia's bureaucratic reform and increasing public expectations, employee performance is a central indicator of whether government organizations can implement programs effectively and deliver quality services. The dissertation underlying this article emphasizes that national development outcomes are strongly dependent on the seriousness and performance of state apparatus, particularly civil servants and other government employees.

Employee performance can be understood as the quality and quantity of work achieved by an employee in carrying out tasks and responsibilities. In practice, organizational performance challenges often emerge when employees demonstrate low initiative, limited work skills, inconsistent quality, or reduced productivity. Within PUPRD North Sulawesi Province, preliminary observations identified key issues: uneven educational backgrounds among employees, limited training opportunities for implementing staff, and varying levels of job satisfaction related to workload, income, and career development opportunities.

The educational profile of employees illustrates a structural challenge: out of 145 workers, 61 employees (42.07%) had only a high school education, while the remainder were diploma, bachelor, or postgraduate graduates. This matters because education level is expected to shape analytical capacity, procedural understanding, and the ability to innovate. Meanwhile, training participation was reportedly still limited for staff at the operational level, reducing opportunities for competency strengthening and performance improvement.

Job satisfaction is also relevant because it reflects employees' emotional responses to compensation, work environment, recognition, and growth opportunities. When employees experience persistent dissatisfaction, their work commitment and performance may decline even if formal procedures are in place. The dissertation's problem formulation explicitly asks whether education level, training, and job satisfaction influence employee performance partially and simultaneously. Therefore, this article aims to present the dissertation findings in a journal-article format, focusing on the empirical contribution: quantifying the magnitude and significance of education level, training, and job satisfaction as predictors of employee performance in a provincial public-sector organization.

LITERATURE REVIEW

Employee Performance

Performance is commonly defined as an employee's work achievement over a certain period against agreed standards, targets, and criteria (Veithzal, 2005). Mangkuprawira and Hubeis (2017) emphasize that performance is the result of a planned work process shaped by both employee factors and organizational context. This dual emphasis matters in public organizations because employee behavior is strongly influenced by leadership, procedures, resource adequacy, and accountability demands.

Armstrong (2014) highlights that performance should not be evaluated only from outputs, but also from behaviors and competencies demonstrated in the process of delivering work. Mangkunegara (2018) explains that performance is reflected in employees' ability to meet work standards, make correct decisions, work efficiently, and be accountable for outcomes covering quality, quantity, timeliness, and effectiveness. In measurement terms, performance indicators can be operationalized through (a) quality, (b) quantity, (c) timeliness, (d) effectiveness, and (e) independence (Bernardin, 2014). These dimensions are consistent with the study's operationalization where performance was measured using indicators such as meeting targets, working according to time/quality standards, productivity/efficiency, and responsibility.

Education Level and Human Capital Logic

Education level reflects the formal educational attainment achieved by an individual and is closely related to cognitive capacity, analytical thinking, and problem-solving skills. In organizational contexts, education can be considered a foundational component of human capital, influencing how employees interpret tasks, adapt to change, and generate improvement ideas. In the dissertation context, lower educational attainment among operational employees was associated with work patterns emphasizing compliance with instructions rather than initiative and innovation. This aligns with the logic that higher education tends to strengthen procedural understanding and strategic thinking, which can support performance in public-sector tasks requiring accuracy, planning, and accountability.

In the instrument design, education level was operationalized through dimensions such as relevance of educational background to job demands, cognitive capacity to absorb new knowledge, motivation for further education, and suitability of educational specialization with core duties.

Training as Competency Development

Training is a planned, systematic effort to enhance employee competencies relevant to current job performance. Bernardin and Russell (2013) define training as an organized and continuous effort designed to improve individual performance in present tasks. Robbins (2016) frames training as a process facilitating learning of job-related skills, behaviors, and knowledge needed to increase effectiveness. Goldstein and Ford (2012) emphasize the psychological learning process motivation, perception, experience, and learning environment which determines whether training produces sustained behavioral change.

The dissertation indicates that training opportunities were not evenly distributed, with many programs targeted toward supervisory levels rather than operational staff. This situation can weaken organizational performance because frontline task execution depends heavily on practical competence and updated technical knowledge. Operationally, training in this study was measured through perceived relevance of training content to work, improvements in work capability, positive training impacts on tasks, mandatory participation enforcement, and whether the agency evaluates training effectiveness.

Job Satisfaction as an Affective–Evaluative Response

Job satisfaction represents an emotional and evaluative response to different aspects of work. Kreitner and Kinicki (2011) define job satisfaction as an affective or emotional response to various job facets. Davis and Newstrom (2015) describe it as employees' feelings of pleasure or displeasure about their work. Robbins (2013) explains job satisfaction as a general attitude toward work reflecting the difference between rewards employees receive and rewards they believe they should receive. A key theoretical point is that job satisfaction is subjective and multidimensional. Robbins and Judge (2019) argue that employees in similar conditions can experience different satisfaction levels due to differences in perceptions and expectations.

Smith, Kendall, and Hulin's Job Descriptive Index (JDI) suggests core satisfaction dimensions including the work itself, pay, supervision, coworkers, and promotion opportunities. This multidimensionality is relevant for public organizations where compensation systems may be standardized, but perceptions of fairness, supervisory support, and growth opportunities vary widely across units. In this study's operational definition, job satisfaction was measured using indicators such as adequacy of facilities, compensation suitability, conducive work environment, supervisory support for workload, clarity of career pathways, and job–competency fit.

Conceptual Relationship Between Variables

The core logic of this study is that employee performance (Y) is influenced by:

- Education level (X_1): supporting knowledge base, reasoning ability, and task comprehension;
- Training (X_2): strengthening job-specific skills and adaptive competence;
- Job satisfaction (X_3): shaping motivation, commitment, and willingness to sustain effort and responsibility.

This relationship was empirically tested through regression modeling, consistent with correlational quantitative design principles.

METHOD

Research Design

The study used a quantitative correlational method (ex-post facto orientation), intended to identify relationships and the strength of relationships among variables without manipulating conditions.

Location

The research was conducted at the Public Works and Spatial Planning (PUPRD) Department of North Sulawesi Province.

Population and Sample

The population comprised 145 employees. The sample included 94 respondents selected through non-probability purposive sampling, with a minimum tenure requirement of three years.

Instruments and Measurement

Data were collected using questionnaires with Likert-scale scoring. The study developed an instrument blueprint (kisi-kisi) to ensure indicator clarity and item alignment.

Key operational indicators included:

- Employee Performance (Y): target achievement, work quality/timeliness, efficiency/productivity, responsibility.
- Education Level (X_1): relevance of education, cognitive capacity, motivation to continue education, job-education fit.
- Training (X_2): relevance, capability improvement, positive impact, mandatory participation, evaluation of training.
- Job Satisfaction (X_3): facilities adequacy, compensation suitability, work environment, supervisory support, career clarity, job-competency fit.

Data Analysis

The analysis included descriptive statistics, classical assumption tests, and regression (simple and multiple). Multiple linear regression was applied to test the simultaneous influence of X_1 , X_2 , and X_3 on Y.

RESULTS AND DISCUSSION

Regression Model and Explanatory Power

The multiple regression equation obtained was:

$$Y = 11.086 + 0.135X_1 + 0.137X_2 + 0.018X_3$$

This model implies that, holding other predictors constant, employee performance increases by 0.135 units per unit increase in education level, 0.137 units per unit increase in training, and 0.018 units per unit increase in job satisfaction. The model's explanatory power is strong: Adjusted $R^2 = 0.812$, meaning education level, training, and job satisfaction jointly explain 81.2% of the variance in employee performance. In public-sector HR research, this magnitude indicates that the selected predictors are highly relevant to performance improvement strategies in the studied institution.

Simultaneous Effect (F-Test)

The F-test confirms that the independent variables simultaneously influence performance: $F = 69.534$; $\text{Sig} = 0.001$. This result supports the strategic view that performance improvement requires integrated HR development not isolated interventions. In practical terms, improving education pathways without addressing training equity and job satisfaction conditions may produce limited outcomes, and vice versa.

Partial Effects (t-Tests)

Partial tests showed each predictor is statistically significant:

- Education level \rightarrow performance: $t = 47.089$; $\text{sig} = 0.002$
- Training \rightarrow performance: $t = 50.328$; $\text{sig} = 0.000$
- Job satisfaction \rightarrow performance: $t = 34.241$; $\text{sig} = 0.003$

These findings align with the conceptual framework:

- a. **Education level matters** because it supports employees' capacity to understand procedures, interpret technical instructions, and potentially develop initiative. The dissertation describes how lower education levels at the operational layer were associated with task completion that focused mainly on following instructions rather than proactive improvement.
- b. **Training matters** because it functions as the organization's direct mechanism to shape task-relevant competence. When training is limited or concentrated among supervisors, operational staff may lack updated skills or standardized methods to perform efficiently. The positive significant coefficient for training suggests that expanding training access and relevance should directly enhance performance outcomes.
- c. **Job satisfaction matters** because it shapes employees' willingness to sustain effort, demonstrate responsibility, and maintain consistency. In PUPRD, job satisfaction concerns were described as subjective but often linked to workload, income adequacy perceptions, and career development opportunities.

The significant effect reinforces that performance management must include work-environment policies (facilities, support, clarity of career pathways), not only competence building.

Implications for Public HR Management in PUPRD

Given the results, several practical implications follow:

- a. Education development as structured capacity-building:
Agencies can support performance by enabling educational upgrading aligned with job needs (scholarship schemes, study permits, competency recognition). This is especially relevant where the workforce composition still includes a substantial high-school segment.
- b. Training equity and evaluation:
Training should be distributed fairly across functional levels, especially operational staff, because they execute routine technical and administrative tasks that determine service speed

and accuracy. The training system should include evaluation mechanisms to ensure transfer-of-training into daily work.

c. Satisfaction-oriented organizational design:

Satisfaction indicators used in the study facilities, compensation suitability, supportive supervision, clear career rules, and job-competency fit should become part of internal HR policy targets.

CONCLUSION

This study concludes that education level, training, and job satisfaction significantly influence employee performance at the Public Works and Spatial Planning (PUPRD) Department of North Sulawesi Province both partially and simultaneously. The regression model $Y = 11.086 + 0.135X_1 + 0.137X_2 + 0.018X_3$ demonstrates positive contributions from all three predictors, while the model fit is strong (Adjusted $R^2 = 0.812$). The simultaneous significance ($F = 69.534$; $\text{sig} = 0.001$) confirms that performance improvement requires a combined HR strategy rather than single-variable interventions. Policy recommendations include strengthening education pathways aligned with job demands, ensuring equitable and relevant training supported by evaluation, and building organizational conditions that increase job satisfaction through improved facilities, supportive supervision, fair compensation perceptions, and clear career structures.

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