

The Association Between Training Perceptions and Self-Reported Performance: A Case Study of Social Forestry Employees in Indonesia

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ABSTRACT

This study examines the association between training perceptions and employee performance in a social forestry administration in Indonesia. A quantitative, cross-sectional survey was conducted at the Balai Perhutanan Sosial dan Kemitraan Lingkungan Sulawesi, Section One, Bili-Bili, Gowa, involving all forty employees who had participated in formal training programs. Data were collected through a structured questionnaire and supported by brief interviews and document review. Results indicate generally favorable perceptions of training and high self-reported performance levels. Regression analysis shows a strong positive correlation between training and performance, suggesting that well-delivered and relevant training is associated with higher perceived effectiveness, timeliness, and initiative. However, as the data are cross-sectional and self-reported from a single organization, causality cannot be inferred. The findings are preliminary and should be interpreted as indicative rather than conclusive. They highlight potential areas for further investigation on how communicative instruction, relevant materials, and interactive methods contribute to improved workplace outcomes. Future research employing longitudinal and multi-source designs is needed to verify these relationships and support evidence-based policy development in public sector training.

Keywords: *Employee Performance; Human Resource Development; Public Sector; Social Forestry; Training Effectiveness*

INTRODUCTION

Public sector organizations that steward forests and the environment stand at the front line of accelerating ecological and social change. In many emerging economies, including Indonesia, these agencies face strong pressure to deliver governance that is inclusive, accountable, and sustainable while adapting to evolving regulations, advancing technologies, and shifting expectations among communities. Meeting this mandate requires more than innovative policy designs. It demands a capable and committed workforce whose knowledge, skills, and professional values are aligned with complex operational realities. Within this context, employee training functions as a strategic lever for strengthening state capacity and improving service delivery, especially in social forestry and community centered environmental management (Baporikar, 2022; Rahayu et al., 2024).

The literature establishes that training can be a powerful instrument for public value, yet effectiveness is not automatic. Programs that are well designed, responsive to local context, and sustained over time are more likely to produce durable changes in behavior and performance. This requirement is particularly salient in forestry and environmental agencies where personnel must navigate ecological uncertainty, manage multi actor relationships, and translate fast changing scientific and regulatory knowledge into daily operations that are often dispersed and resource constrained (Baporikar, 2022; Amalia, 2021; Rahayu et al., 2024). Training that focuses mainly on technical content while overlooking communication, collaboration, and socio ecological sensitivity rarely achieves intended results. This mismatch between organizational needs and training designs represents an initial expression of the problem addressed in this study.

While training represents an important organizational mechanism to improve employee competence, it does not operate in isolation. A range of complementary and alternative explanations can influence performance outcomes. Leadership quality, organizational support, and intrinsic motivation are known to shape the extent to which employees apply newly acquired skills (Nguyen et al., 2023; Madale & Mwakalila, 2024). Cultural and structural factors such as bureaucratic hierarchy, workload, and incentive systems may also moderate the relationship between training and performance. Moreover, reverse causality

remains plausible, as employees who already perform well may report more favorable perceptions of training quality. Recognizing these possibilities allows the present study to adopt a more nuanced and theoretically balanced stance. Although the dataset cannot empirically test these multiple pathways, the conceptual framework acknowledges that training effects unfold within broader socio-organizational systems rather than through a single causal channel.

A deeper look at organizational conditions shows why training outcomes vary. Resistance to change, divergent understandings among stakeholders, and weaknesses in program design and evaluation are common impediments. Recent research points to the importance of ethical leadership and managerial practices that foster job satisfaction and commitment as enabling conditions for effective implementation of training programs. When employees experience supportive leadership and meaningful participation in planning, they are more likely to engage with training and apply new competencies at work (Nguyen et al., 2023; Madale & Mwakalila, 2024). Conversely, content that lacks relevance, methods that fit poorly with learner needs, and limited organizational support often turn training into a routine ritual with little transfer of learning to daily tasks (Sabar et al., 2025). These findings highlight a second layer of the problem, namely that effectiveness is rarely a property of the classroom alone. It emerges from the alignment of needs analysis, curriculum relevance, delivery methods, workplace supports, and performance systems.

Within Indonesia, several studies have explored the relationship between training and employee performance in public organizations. Hasibuan and Aisyah (2023) reported that structured training positively influenced staff productivity in local government offices, while Yulianti et al. (2023) highlighted that training effectiveness depends strongly on organizational culture and leadership commitment. Ningrum et al. (2024) examined human resource training in forestry agencies across South Sulawesi and found that digital learning tools improved technical readiness but required stronger managerial follow-up. Despite these contributions, empirical research that simultaneously considers both technical and relational competencies within Indonesia's social forestry administration remains limited. This study seeks to fill that gap by analyzing perceived training quality and self-reported performance among employees of the Balai Perhutanan Sosial dan Kemitraan Lingkungan (BPSKL) Sulawesi.

Established instructional design scholarship provides frameworks to build such alignment. The ADDIE model encourages systematic movement from analysis through design, development, and implementation to evaluation. Kirkpatrick's four level framework clarifies evaluation targets by tracing a chain from participant reaction and learning to behavioral change and organizational results (Amalia, 2021; Baran, 2024; Ebrahimi et al., 2025). Studies indicate that participant satisfaction often correlates with gains in knowledge and skills, and that these gains can translate into better organizational performance when evaluation is conducted rigorously and when follow up mechanisms are in place (Zhao et al., 2023). Frequency and continuity also matter. Programs delivered at appropriate intervals and accompanied by feedback loops, coaching, and structured opportunities for post training application produce stronger transfer and more workplace innovation. In contrast, weak evaluation and absent follow up frequently lead to negligible effects on behavior and outcomes (Fatmawati et al., 2024; Alsalamah & Callinan, 2021). This body of work provides a theoretical foundation and recent empirical support for the proposition that training quality depends on the full cycle of design and evaluation rather than on isolated events.

Although these general insights are well established, gaps remain when they are applied to the Indonesian context of social forestry. The Government of Indonesia uses the Balai Perhutanan Sosial dan Kemitraan Lingkungan as a strategic arm for inclusive, participatory, and sustainable forest governance. In the Sulawesi Regional Office, especially Section One in Bili Bili, Bontomarannu District, Gowa Regency, empirical observations indicate persistent challenges in timely task completion, service quality, and innovation in program delivery. These field realities suggest that existing training has not fully addressed competency needs across technical, communicative, and socio ecological dimensions. The gap here is twofold. There is a gap between expected outcomes articulated in policy and the behaviors observed on the ground. There is also a research gap, since relatively few studies examine training effectiveness inside Indonesia's forestry administration while simultaneously integrating technical and soft skill development and linking both to tangible performance indicators that matter for social forestry implementation (Rahayu et al., 2024; Alsalamah & Callinan, 2021).

The present article claims novelty in three related ways. First, it advances a context specific analysis of training and performance within a concrete public organization responsible for social forestry rather than treating the issue at a generic level. Second, it operationalizes effectiveness using outcome relevant indicators connected to service timeliness, service quality, and innovation, rather than relying primarily on

administrative outputs such as attendance or certificates. Third, it brings together the ADDIE logic of design with the multi level logic of Kirkpatrick evaluation to build an integrated lens that begins with needs analysis and ends with organizational results measured in the field (Amalia, 2021; Baran, 2024; Ebrahimi et al., 2025). By doing so, the article seeks to bridge the gap between theory and practice and to respond to the scarcity of empirical research focused on forestry administration in Indonesia.

The stance of the study is both supportive and corrective. It supports the core proposition in prior work that well designed and well supported training can improve individual and organizational performance in public settings. It also supports evidence that continuity through periodic sessions and coaching strengthens transfer and innovation (Fatmawati et al., 2024; Wibowo & Augustine, 2023; Mastur, 2021; Ningrum et al., 2024). At the same time, the study corrects common assumptions that classroom instruction on its own is sufficient. It questions evaluation practices that prioritize satisfaction forms and attendance records over learning, behavior, and results, and it argues that effectiveness should be assessed within performance management systems that track outcomes over time (Nurdin et al., 2023; Hayati & Yulianto, 2021; Gamin, 2021). Finally, the study extends earlier conclusions by emphasizing the joint role of technical and relational competencies in social forestry, where frontline staff must communicate with communities, resolve conflicts, and adapt policy to local socio ecological conditions (Rahayu et al., 2024; Indrayati & Suhariadi, 2023).

These arguments have practical implications. If training is to function as an engine for public value in social forestry, organizations must invest in learning architectures rather than isolated courses. Leadership should align training plans with strategic objectives and provide time and resources for application. Managers should support transfer through coaching, feedback, and workload adjustments. Performance systems should reward the use of new skills. Evaluation infrastructures should track knowledge, behavior, and results and feed findings back into program design. In the BPSKL Sulawesi context, such an approach would involve calibrating curricula to local conditions, equipping staff with tools for community dialogue and conflict resolution, and tying post training projects to measurable outputs in service delivery and engagement (Nurdin et al., 2023; Hayati & Yulianto, 2021; Gamin, 2021; Firdausy et al., 2023).

This focus is locally grounded but broadly relevant. Forestry governance and environmental management present complex policy arenas with multiple stakeholders, competing values, and significant uncertainty. Agencies that succeed often combine technical proficiency with relational competence and a commitment to adaptive learning. By examining how training shapes these capacities in a specific organizational setting, the study contributes evidence for agencies facing similar mandates and constraints elsewhere.

The introduction therefore culminates in a clear statement of objectives. The study asks whether training influences the performance of employees at BPSKL Sulawesi, Section One, Bili Bili, Bontomarannu, Gowa. To answer this question, the article pursues two objectives. The first objective is descriptive. It maps the current state of training and employee performance in the focal office, including content, methods, frequency, and perceived relevance, and it documents organizational supports and barriers that condition training outcomes. The second objective is analytical. It examines the relationship between training and performance using indicators aligned with organizational outputs and, where feasible, outcome oriented measures of service timeliness, quality, and innovation. By linking design features such as needs analysis, interactivity, and follow up to observed performance patterns, the study aims to generate actionable recommendations for human resource development policy in BPSKL and comparable public agencies.

In sum, the article addresses a significant practical problem, builds on established theory, engages with recent empirical findings, and proposes an integrated and context sensitive approach to evaluating training effectiveness in social forestry administration. The intended contribution is to support reforms that make training more relevant, adaptive, and accountable so that public organizations can meet the rising demands of sustainable forest and environmental governance in Indonesia and beyond (Baporikar, 2022; Rahayu et al., 2024; Amalia, 2021; Baran, 2024; Ebrahimi et al., 2025; Zhao et al., 2023; Fatmawati et al., 2024; Alsalamah & Callinan, 2021; Nurdin et al., 2023; Hayati & Yulianto, 2021; Gamin, 2021; Firdausy et al., 2023; Indrayati & Suhariadi, 2023; Wibowo & Augustine, 2023; Mastur, 2021; Ningrum et al., 2024).

The introduction therefore culminates in a clear statement of objectives. The study asks whether and how perceived training quality is associated with self-reported performance among employees at BPSKL Sulawesi, Section One, Bili Bili, Bontomarannu, Gowa. The objectives are twofold: first, to describe the

existing condition of training and performance perceptions, and second, to examine their statistical association rather than infer causality. By linking design features such as needs analysis, interactivity, and follow-up to perceived performance outcomes, the study aims to provide preliminary insights that may inform, but not yet determine, human resource policy development in BPSKL and similar public agencies.

METHOD

This study used a quantitative, positivist, cross sectional survey design to test the hypothesis that training predicts employee performance. The research took place at the Balai Perhutanan Sosial dan Kemitraan Lingkungan Sulawesi, Seksi Wilayah Satu, Bili Bili, Bontomarannu, Gowa, during May to June 2025. The population comprised all employees who had participated in at least one formal training activity at the site. The study employed a saturated sampling technique, meaning that all members of the accessible population who met the inclusion criteria were invited to participate. This approach was selected because the population size was relatively small and manageable, and the research aimed to capture comprehensive perceptions within a single organizational unit rather than to generalize to a wider population. Out of the total of forty eligible employees, all agreed to participate, resulting in a 100 percent response rate. The sample size of forty was therefore determined by the total number of employees meeting the inclusion criteria at the time of data collection, which makes it suitable for a census-based descriptive correlation study of this scope. A saturated sampling strategy was applied so that all eligible employees were invited, yielding 40 respondents.

Primary data were collected with a structured self administered questionnaire. Items measured two constructs, namely training as the independent variable and employee performance as the dependent variable. Training was captured through indicators such as instructor, participant readiness, material relevance, methods, objectives, and target coverage. Performance referred to work results of employees in terms of quality, quantity, timeliness, effectiveness, and independence. All items used a five point Likert scale from 1 for strongly disagree to 5 for strongly agree. Field observation, brief semi structured interviews, and document review were conducted to contextualize and corroborate the survey but were not used for hypothesis testing. The questionnaire blueprint and sample items are provided in the appendix.

Instrument quality was ensured before analysis. Construct validity was assessed with item total Pearson correlations, and items with coefficients above 0.30 were retained. Reliability was evaluated with Cronbach alpha, with values above 0.60 considered acceptable. Descriptive statistics summarized respondent characteristics and scale distributions. Classical assumptions for regression were checked, including normality of residuals using the Kolmogorov Smirnov test at the five percent level and assessment of heteroskedasticity based on significance criteria. The hypothesis was tested using simple linear regression, with statistical significance evaluated by the t test at the 0.05 level and explanatory power reported as R squared. All analyses were conducted using SPSS.

RESULT AND DISCUSSION

This section reports the empirical results for forty respondents from the Balai Perhutanan Sosial dan Kemitraan Lingkungan Wilayah Sulawesi, Seksi Wilayah Satu, Bili Bili, Gowa. Results are presented in the following order: sample profile, descriptive statistics for the two focal variables, instrument tests, model assumptions, the simple linear regression model, and model diagnostics.

Result

The respondent pool was balanced but slightly female-dominated: 18 men and 22 women which corresponds to 45 percent and 55 percent respectively. Age was well spread, with the largest groups at twenty to twenty-five years old, twelve people or 30 percent, and forty-one years or older, thirteen people or 32.5 percent. Intermediate age bands were smaller in size, namely four people aged twenty-six to thirty years, eight people aged thirty-one to thirty-five years, and three people aged thirty-six to forty years.

Table 1 Sample characteristics (N = 40)

Characteristic	Category	n	%
Gender	Male	18	45.0

	Female	22	55.0
Age (years)	20–25	12	30.0
	26–30	4	10.0
	31–35	8	20.0
	36–40	3	7.5
	≥ 41	13	32.5
Rank/Grade	P3K	5	12.5
	IIa/IIb/IIc/IId	9	25.0
	IIIa/IIIb/IIIc/IIId	19	45.0
	IVa/IVb/IVc/IVd/IVe	7	17.5
Education	Senior high/vocational (SMA/SMK)	7	17.5
	Diploma (D3)	2	5.0
	Bachelor/Applied Bachelor (S1/D4)	27	67.5
	Master (S2)	4	10.0
Tenure	≤ 1–5 years	18	45.0
	6–10 years	13	32.5
	11–15 years	3	7.5
	≥ 15 years	6	15.0

Table 2 Response distributions for training (X) and performance (Y) items (N = 40)

Item	SS n	SS pts	S n	S pts	KS n	KS pts	TS n	TS pts	STS n	STS pts	Total n	Total pts	Mean
X.1.1	13	65	27	108	0	0	0	0	0	0	40	173	4.33
X.1.2	14	70	26	104	0	0	0	0	0	0	40	174	4.35
X.1.3	12	60	27	108	1	3	0	0	0	0	40	171	4.28
X.2.1	8	40	30	120	2	6	0	0	0	0	40	166	4.15
X.2.2	12	60	28	112	0	0	0	0	0	0	40	172	4.30
X.3.1	10	50	30	120	0	0	0	0	0	0	40	170	4.25
X.3.2	12	60	28	112	0	0	0	0	0	0	40	172	4.30
X.3.3	10	50	29	116	1	3	0	0	0	0	40	169	4.23
X.4.1	13	65	25	100	2	6	0	0	0	0	40	171	4.28
X.4.2	10	50	30	120	0	0	0	0	0	0	40	170	4.25
X.5.1	11	55	29	116	0	0	0	0	0	0	40	171	4.28
X.5.2	9	45	31	124	0	0	0	0	0	0	40	169	4.23
X.6.1	9	45	30	120	1	3	0	0	0	0	40	168	4.20
Y.1.1	11	55	27	108	2	6	0	0	0	0	40	169	4.23
Y.2.1	10	50	20	80	6	18	4	8	0	0	40	156	3.90
Y.3.1	9	45	30	120	1	3	0	0	0	0	40	168	4.20
Y.4.1	8	40	32	128	0	0	0	0	0	0	40	168	4.20
Y.5.1	5	25	21	84	11	33	3	6	0	0	40	148	3.70
Y.5.2	12	60	26	104	2	6	0	0	0	0	40	170	4.25

Civil service rank was concentrated in the middle levels. Nineteen respondents or 45 percent were in group IIIa to IIId, seven respondents or 17.5 percent were in group IVa to IVe, nine respondents or 25 percent were in group IIa to IId, and five respondents or 12.5 percent were P3K. Educational attainment was high: twenty seven respondents or 67.5 percent held a bachelor degree or applied bachelor, four respondents or 10 percent held a master degree, seven respondents or 17.5 percent completed senior high school or vocational equivalents, and two respondents or 5 percent held a diploma three. Tenure also showed breadth. Eighteen respondents or 45 percent had one to five years of service, thirteen or 32.5 percent had six to ten years, three or 7.5 percent had eleven to fifteen years, and six or 15 percent had at least fifteen years.

Two constructs were measured using five point Likert items. At the item aggregation level, the Training construct scored a grand mean of 4.26, which places overall training quality in a very high category. The highest item mean was 4.35 for the statement that instructors or speakers use good communication techniques, whereas the lowest item mean was 4.15 for the statement on personal

enthusiasm to register independently for training. The Performance construct scored a grand mean of 4.08, which indicates a high level. The highest item mean was 4.25 for the statement about initiative in attempting to solve problems encountered, and the lowest was 3.70 for the statement about accomplishing work well without guidance. When computed as composite scale means in the statistical output, Performance had a mean of 4.20 with a standard deviation of 0.56387 and Training had a mean of 4.25 with a standard deviation of 0.43853. The two sets of descriptive results are mutually consistent and reflect minor differences in aggregation and rounding.

Validity was assessed using Pearson product moment correlations between item scores and their respective total scores with a critical table value of 0.304 for N equals forty at the five percent significance level. All thirteen Training items were valid with observed correlations exceeding 0.304. The smallest correlation among Training items was 0.352 for the item about dialogue or discussion space, and the largest was 0.898 for the item about clarity of training objectives delivered before sessions began. All six Performance items were also valid, with item-total correlations ranging from 0.679 to 0.849. Reliability was excellent for Training with a Cronbach's alpha of 0.948 and good for Performance with an alpha of 0.829. Since both alphas exceed the common threshold of 0.60, the instruments were considered internally consistent and trustworthy for analysis.

A simple linear regression was estimated with Performance as the dependent variable and Training as the sole predictor. The model summary yielded R equal to 0.830, which indicates a very strong positive association between Training and Performance at the individual level. The coefficient of determination was 0.688; hence, 68.8 percent of the variance in Performance was explained by Training. The adjusted coefficient of determination was 0.680, confirming that the explanatory power remained stable when adjusting for model parsimony. The standard error of the estimate was 0.31899.

The analysis of variance confirmed model significance. The regression sum of squares was 8.533, the residual sum of squares was 3.867, and the total sum of squares was 12.400 across thirty nine degrees of freedom. The F statistic was 83.862 with a corresponding significance value less than 0.001. This means the null hypothesis that Training does not explain Performance can be rejected with very high confidence.

The Training slope coefficient was 1.067 with a standard error of 0.116 and a standardized beta of 0.830. The t statistic for Training was 9.158 and its p value was less than 0.001. Therefore, increases in Training scores are associated with statistically significant increases in Performance scores. The negative constant of negative 0.333 was not statistically different from zero with p equal to 0.507, which is common in standardized scales and does not affect the substantive conclusion regarding the predictor.

In substantive terms, a one unit increase in the Training scale corresponds to an expected increase of roughly 1.067 units on the Performance scale, holding other factors constant. Given that both scales run from one to five, this effect magnitude is large and practically meaningful. The strong bivariate relationship also corroborates the descriptive pattern wherein Training items received very high ratings, and Performance items (especially initiative, timeliness, and output quality) were also rated highly.

Table 3 Validity and Reliability

Variable	Items tested (n)	r-table	r-values (min-max)	Validity status	Cronbach's alpha	Reliability interpretation
Training (X)	7	0.304	0.352–0.898	All items valid	0.948	Very high
Performance (Y)	6	0.304	0.679–0.849	All items valid	0.829	High

Table 4 Model Summary, ANOVA, and Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	-0.333	0.498	-	-0.670	0.507
Pelatihan	1.067	0.116	0.830	9.158	0.000
ANOVA	Regression	F = 83.862	Sig. = 0.000		
Model Summary	R = 0.830	R Square = 0.688	Adj. R Square = 0.680		

Autocorrelation in the residuals was assessed using the Durbin Watson statistic, which equaled 2.052.

Values near two indicate no serial correlation, a result consistent with the cross sectional nature of the data. Multicollinearity was not a concern because the model included a single predictor. For completeness, the reported tolerance and variance inflation factor were both 1.000, values that rule out collinearity issues. Visual inspections of the histogram and normal probability plot of residuals showed patterns consistent with normality, complementing the earlier assumption checks.

The results provide a coherent, internally consistent picture. The sample is predominantly at bachelor level education with substantial representation across tenure and rank, which supports the generalizability of the training effects within this organizational unit. The measurement instruments demonstrated strong validity and reliability. Descriptive statistics placed Training in the very high category and Performance in the high category, and the composite means from statistical output closely matched the item-level aggregates. The simple linear regression indicated that Training explains approximately two thirds of the variance in Performance and that the Training coefficient is both large and highly significant. Model assumptions and diagnostics were satisfied, including normal residuals, absence of autocorrelation, and absence of multicollinearity.

Taken together, these results confirm that better designed and delivered training programs, featuring communicative instructors, relevant and up to date materials, engaging methods, clear objectives, and appropriate targeting are strongly associated with higher employee performance in this agency context. The magnitude of the relationship suggests that gains in training quality and participation are likely to translate into meaningful improvements in output quality, timeliness, effectiveness in using available resources, and initiative or independence at work. In turn, these performance dimensions are central to executing social forestry and community partnership mandates at the field level. The evidence therefore provides a robust empirical basis for treating training as a strategic lever for performance enhancement in the studied organization.

The relatively lower score for the item “accomplishing work well without guidance” (mean 3.70) deserves further interpretation beyond a training-based explanation. In a public bureaucracy, limited autonomy may not primarily indicate a lack of skill or motivation but rather a lack of opportunity or institutional encouragement to exercise independent judgment. Hierarchical approval chains, rigid standard operating procedures, and a culture of risk avoidance can restrict employees’ ability to act without prior authorization. Under such conditions, autonomy is structurally constrained rather than individually deficient. This alternative explanation aligns with classical public administration theory, which emphasizes compliance, accountability, and procedural control as defining features of bureaucratic systems. Recognizing this context broadens the interpretation of the results: the observed pattern may reflect systemic characteristics of public institutions rather than insufficient post-training reinforcement alone.

Discussion

The study set out to interpret whether and how training relates to employee performance in a social-forestry administration context. The empirical picture is coherent. Respondents appraised training very highly and performance highly, and the simple linear model showed a strong positive association between the two constructs. The correlation was large and the explained variance reached two-thirds of performance, while diagnostics supported a well-behaved model. Item patterns help to interpret mechanisms. On the training side, the strongest endorsement concerned instructor communication, followed by relevance and up-to-date content and engaging, dialogic methods. On the performance side, initiative in solving problems was rated highest, whereas autonomous work without guidance received the lowest mean. The instruments exhibited solid psychometric properties, with all items passing item–total validity thresholds and both scales showing acceptable to excellent internal consistency. Taken together, these results imply that well-delivered and well-targeted training is not only well received but also closely aligned with behaviors that the organization values.

Interpreting these patterns through established theory yields a consistent account. The ADDIE logic suggests that careful analysis and design, coupled with relevant development and disciplined implementation, should culminate in measurable changes that evaluation can detect. High ratings for material relevance and alignment with regulatory developments point to a needs analysis that captured actual task demands in BPSKL Sulawesi, while strong ratings for communication and interactive methods indicate effective choices at the design and delivery stages (Amalia, 2021; Baran, 2024; Ebrahimi et al., 2025). The Kirkpatrick chain further clarifies the pathway from reaction and learning to behavior and results. The observed association between training and performance suggests that positive reactions and learning gains likely translated into on-the-job behavior that improved outputs measured by the

performance scale, such as timeliness, quality, and effectiveness (Zhao et al., 2023). Transfer of training theory also helps explain the slopes. Transfer is strongest when three conditions are present: content–task fit, high instructional quality, and support after training. The data provide evidence for the first two conditions through item patterns, while the relatively lower mean for independent work implies that post-training reinforcement can be strengthened through coaching and feedback cycles, so that autonomy consolidates beyond initial gains (Fatmawati et al., 2024; Alsalamah & Callinan, 2021).

The results are consistent with and extend prior research in public human resource development. Studies reviewed in the manuscript report that training improves knowledge and skills and can raise performance when programs are contextualized, evaluated beyond satisfaction, and supported by leadership that cultivates motivation and commitment (Baporikar, 2022; Amalia, 2021; Rahayu et al., 2024). Evidence on ethical leadership and job satisfaction as enabling conditions resonates with the present context, where field implementation depends on trust building and communication with communities (Nguyen et al., 2023; Madale & Mwakalila, 2024). Sectoral syntheses also argue that technical competence and soft skills should be developed jointly for frontline environmental agencies. The high endorsement of instructor communication, together with strong ratings on initiative, supports this joint-development view and agrees with arguments advanced by Indrayati and Suhariadi (2023) as well as Wibowo and Augustine (2023). In short, the present findings do not stand in isolation; they integrate well with results already reported in reputable national and international outlets, while adding focused evidence from a forestry administration that is underrepresented in existing datasets.

The findings can be integrated into a practice-oriented model that views training as a system rather than a discrete event. The first element is needs analysis that is anchored in the socio-ecological realities of social forestry, including evolving regulations, community engagement demands, and multi-actor coordination requirements. The second element is communicative, problem-centered delivery that leverages scenario-based activities and dialogue to mirror the ambiguity and interdependence of field tasks. The third element is structured post-training reinforcement through after-action reviews, short coaching sprints, and calibrated workloads that create space for application. The fourth element is outcome-focused evaluation that connects learning objectives to behavioral indicators and unit outputs, and that is embedded within performance management routines rather than appended as an administrative afterthought. This four-element model synthesizes the design discipline of ADDIE with the evaluative chain of Kirkpatrick and operationalizes transfer principles in public organizations.

Theoretical refinement follows from the item contours. In stakeholder-intensive services, relational features of pedagogy appear to be central mechanisms of transfer. Instructor communication, dialogic space, and method variety are not merely facilitative attributes; they act as primary drivers that convert learning opportunities into behavior change when tasks require negotiation, persuasion, and collaborative problem solving with communities. Existing frameworks already acknowledge instructor quality and interaction, yet the present evidence suggests elevating these relational features to core design parameters in forestry and environmental governance settings. A second refinement concerns autonomy. Gains in initiative can occur without symmetrical gains in independent performance, which suggests that transfer may initially manifest as effortful problem engagement but requires deliberate reinforcement to mature into stable autonomous practice. This pattern points to a two-stage transfer process in public bureaus with complex oversight structures: early behavioral activation driven by engaging delivery, followed by consolidation through managerial scaffolding and incentive alignment.

The results also carry clear implications for program governance and management practice. Instructor development should remain a priority, with emphasis on communication, facilitation, and the use of cases that reflect local terrain, regulatory shifts, and community dynamics. Curriculum maintenance should be iterative and evidence-informed, ensuring that materials remain current with policy and that assessments capture the skills staff need in the field. Post-training reinforcement should be institutionalized. Short, structured coaching cycles focused on the lowest scoring performance facet, namely working well without guidance, can help translate initiative into durable autonomy. Performance systems should link training objectives to appraisal criteria, for instance by embedding indicators related to service timeliness, problem-solving initiative, and resource effectiveness that supervisors can rate and discuss during routine reviews. These adjustments align with calls in the literature to move away from attendance-based metrics toward outcome-oriented evaluation in the public sector.

The study addresses a research gap identified in the manuscript, namely the scarcity of empirical work that quantifies training effects within Indonesia’s forestry bureaucracy. By documenting strong effects

in a concrete operational unit and by employing reliable measures, the analysis provides a grounded contribution that connects training design features to performance in an agency charged with community-facing environmental mandates. This contribution is relevant beyond the local site, since many public organizations with similar mandates must solve the same capability puzzle: how to equip staff for technical tasks while enabling relational and adaptive performance in fluid field conditions.

Several caveats temper interpretation and point to directions for cumulative knowledge building. The cross-sectional design and the use of single-source self-reports limit causal claims and may introduce common-method bias. Future work can adopt panel designs that trace behavior change after training, triangulate performance with supervisor ratings and administrative outputs, and incorporate mediators and moderators that the literature identifies as consequential, such as motivation, learning climate, leadership ethics, and workload. Multilevel models would allow variance partitioning across individuals, units, and supervisors, which is valuable in bureaucracies where line management practices shape transfer opportunities. Even with these caveats, the internal consistency of the measures, the strength of the association, and the supportive diagnostics provide credible evidence for a substantive link between training and performance in this setting.

Finally, the discussion underscores a practical synthesis that can guide policy and research. Training that is tightly coupled to local tasks, delivered through communicative and interactive methods, and reinforced through managerial systems is likely to lift the dimensions of performance that matter in social forestry, including timeliness, quality, effectiveness in using resources, and problem-solving initiative. Embedding this synthesis within a learning-oriented performance regime answers long-standing critiques about formalistic training in the public sector and aligns with contemporary views that human capital development must be integrated with accountability and continuous improvement. By aligning these strands, agencies can convert training from a compliance activity into an engine of public value creation within the forestry and environmental governance domain (Baporikar, 2022; Amalia, 2021; Baran, 2024; Ebrahimi et al., 2025; Zhao et al., 2023; Fatmawati et al., 2024; Alsalamah & Callinan, 2021; Rahayu et al., 2024; Indrayati & Suhariadi, 2023; Wibowo & Augustine, 2023; Nguyen et al., 2023; Madale & Mwakalila, 2024).

It is also important to acknowledge that the response distributions for both training and performance variables are heavily skewed toward the positive end of the scale. The prevalence of “agree” and “strongly agree” responses suggests a potential ceiling effect and limited variance. Such skewness can artificially inflate correlation coefficients, making relationships appear stronger than they may truly be. This pattern is common in self-report surveys within hierarchical public institutions where social desirability and conformity pressures can influence response behavior. The results should therefore be interpreted with caution, emphasizing patterns of association rather than precise effect magnitudes.

CONCLUSIONS

The present study examined the association between employees’ perceptions of training and their self-reported performance in a social forestry administration context. The findings indicate a strong positive correlation between perceived training quality and reported performance outcomes. In practical terms, employees who rated their training experiences more positively also tended to report higher levels of timeliness, effectiveness, and initiative in their work. These results suggest that training experiences are meaningfully related to how employees perceive their own capability to perform, although the nature of this relationship cannot be interpreted as causal.

The conclusions drawn from this study should therefore be regarded as tentative and context-bound. The analysis was based on self-report data from a single office section within the Balai Perhutanan Sosial dan Kemitraan Lingkungan (BPSKL) Sulawesi, using a cross-sectional design that limits causal inference. The external validity of these findings is low, and the specific challenges, managerial practices, and training cultures present in other regions or agencies may differ substantially. Consequently, the results should not be generalized to all public organizations or used as a direct basis for broad policy decisions.

Nevertheless, the study provides preliminary insight into the possible linkage between employees’ perceptions of training and perceived performance outcomes in a public-sector setting. It highlights the importance of aligning training materials, delivery methods, and post-training support with the realities of field operations. For BPSKL and comparable agencies, these findings can serve as a diagnostic reference for identifying potential areas of improvement, rather than as prescriptive guidance for large-scale policy formulation.

Future research should employ longitudinal and multi-site designs, include objective performance indicators and supervisor assessments, and examine additional factors such as leadership quality, motivation, and institutional culture that may moderate or mediate the relationship between training and performance. Only through such broader and more rigorous inquiry can evidence-based recommendations for public sector training policy be reliably developed.

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