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RESEARCH

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Coaching-Based Academic Supervision, Organizational Climate, and Primary School Teacher Performance

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Abstract

This cross-sectional survey examined associations of teachers' perceptions of coaching-based principal academic supervision and organizational climate with self-reported performance among public primary-school teachers in Ketanggungan District, Brebes Regency, Indonesia. The population comprised 424 teachers in 53 schools. Proportionate stratified random sampling produced 138 participants; 138 questionnaires were distributed and all were returned usable (100% response), with every school represented. Three 40-item Likert scales measured coaching-based supervision, organizational climate, and teacher performance. Internal consistency was high (Cronbach's α = .962, .967, and .968). Coaching-based supervision correlated moderately with performance ($r = .639$, $R^2 = .408$, $p < .001$), whereas organizational climate showed a smaller bivariate association ($r = .285$, $R^2 = .081$, $p = .001$). In the joint model, R^2 was .418 (adjusted $R^2 = .410$), $F(2, 135) = 48.51$, $p < .001$. Coaching-based supervision retained a positive adjusted coefficient (B = .658, 95% CI (.512, .804), $p < .001$); the climate coefficient was negative and uncertain (B = −.097, 95% CI (−.228, .034), $p = .143$). Adding climate after supervision increased explained variance by approximately one percentage point ($\Delta R^2 = .010$; F-change(1, 135) = 2.17, $p = .143$). These results support a coaching-focused pilot but do not establish causal effectiveness. The climate estimate remains compatible with small negative or positive adjusted associations and should not be interpreted as proof of no contribution.

Keywords: Academic Supervision; Coaching; Instructional Leadership; Organizational Climate; Teacher Performance.

Introduction

Teacher performance connects curriculum intentions with lesson planning, classroom interaction, assessment, feedback, and professional responsibility. Anwar (2019) explains that pedagogical competence positions teachers as active agents of learning rather than as administrative implementers. This perspective makes performance a professional construct that should be examined through planning, instructional practice, assessment, and continuing responsibility. Sulastri et al. (2020) likewise associate teachers' professional competence with the continuing improvement of education quality.

Principals influence these activities when leadership remains close to teaching and learning. Vogel (2018) identifies instructional leadership as a set of practices that connects school purposes,

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supervision, and the learning program. Gümüş et al. (2018) emphasize that leadership for learning becomes meaningful when principals focus attention and organizational resources on the core work of instruction. Liu and Hallinger (2018) found that principal instructional leadership was associated with teacher self-efficacy and professional learning.

Coaching-based academic supervision is a bounded and episodic mechanism. A principal and teacher identify an instructional need, observe practice, discuss evidence, reflect on possible improvement, and agree on follow-up. Desimone and Pak (2017) position instructional coaching as professional development that is job embedded, focused on practice, and sustained through interaction rather than delivered as a single training event.

Empirical coaching research supports the value of structured feedback while also showing that implementation quality matters. Kraft et al. (2018) found that teacher coaching can improve instruction and achievement across causal studies. van der Linden et al. (2022) likewise demonstrated that feedback centered on classroom interaction can strengthen instructional practice. Cohen et al. (2020) showed that coached practice can accelerate skill development in a simulated environment.

Coaching is not automatically effective merely because a supervisory conversation occurs. McFadden and Roehrig (2020) found that expectations between teachers and coaches may diverge when instructional needs and the purpose of support are not aligned. The present study therefore treats needs identification, observation, reflective conversation, constructive feedback, and follow-up as connected parts of one supervision cycle.

Organizational climate is broader and more enduring than a coaching episode. It concerns teachers' continuing perceptions of leadership, work relationships, communication, motivation, and the work environment. Wang and Degol (2016) describe school climate as a multidimensional organizational condition associated with members' experiences and outcomes. Grazia and Molinari (2021) similarly emphasize relationships, safety, teaching and learning, and the institutional environment.

Climate may influence performance independently by supporting collaboration, role clarity, and professional motivation. Fang and Qi (2023) found that school climate was related to teachers' job satisfaction through teacher self-efficacy. In the Indonesian primary-school context, Ideswal et al. (2020) also reported relationships between school climate, principal leadership, and teacher performance. These findings justify examining climate alongside direct instructional support.

The two predictors may nevertheless share perceptual content. Jaidie et al. (2020) connected supervision skills and organizational climate with teacher performance, while Dutta and Sahney (2022) showed that instructional leadership and climate operate within an interconnected school system. Zhang et al. (2025) further linked school climate with self-efficacy, instructional practice, and professional-development needs. Construct separation is therefore essential when both predictors enter one regression model.

This distinction produces two theoretically informative possibilities. If climate retains an association after coaching-based supervision is controlled, a climate-independent mechanism is plausible. If its adjusted estimate weakens, shared variance between general school conditions and the relational quality of supervision is also plausible. Greenland et al. (2016) caution that interval estimates and compatible effect sizes should guide interpretation rather than a binary reading of statistical significance. Amrhein et al. (2019) further warn that a difference between statistically significant and nonsignificant results is not itself proof that the underlying effects differ.

Ketanggungan District provided a relevant setting because preliminary records indicated uneven instructional planning, learning processes, assessment practice, supervisory follow-up,

communication, and professional motivation. The study examined the separate and combined associations of perceived coaching-based supervision and organizational climate with self-reported teacher performance. Estimates are interpreted as associations because the design does not establish temporal order or causation.

Method

Research Design, Population, and Sampling

The study used a non-experimental cross-sectional survey. The sampling frame contained 424 eligible teachers from all 53 public primary schools in Ketanggungan District. Schools served as strata, and a largest-remainder procedure allocated the target sample proportionally to each stratum. Within each school, eligible teachers were selected randomly from the school roster; school principals were excluded. The achieved sample included 138 teachers and represented all 53 schools. Investigators distributed 138 questionnaires, received 138 returns, and retained all 138 for analysis, yielding a 100% response and usable-response rate. Because teachers were nested within schools and the analysis did not model clustering, precision may be overstated; inference is limited to the defined district sampling frame and time period.

A target of 138 was originally obtained from Slovin's formula using a 7% margin parameter. The achieved sample is adequate for the two-predictor regression reported here, although the formula does not replace a design-based justification. Lakens (2022) recommends explaining sample size through precision, power, expected effects, or explicit resource constraints. Effect sizes and confidence intervals are reported because their substantive meaning should be evaluated in context, as recommended by Funder and Ozer (2019).

Table 1. Sample and Questionnaire Response Profile

Population	Schools	Distributed	Returned and analyzed	Response	Sampling
424 teachers	53 public primary schools	138	138	100%	Proportionate stratified random; random teacher selection within schools; principals excluded

Measures and Construct Boundaries

The questionnaire was developed from a predefined blueprint. Each construct contained 40 Likert-type statements scored from 1 to 5. A 30-teacher pilot supported item-total validity and high internal consistency: coaching-based supervision $\alpha = .962$, organizational climate $\alpha = .967$, and teacher performance $\alpha = .968$. McNeish (2018) cautions that a high alpha does not by itself establish unidimensionality. Hayes and Coutts (2020) recommend considering reliability evidence beyond coefficient alpha. Knekta et al. (2019) emphasize that survey validity requires evidence that the intended factor structure fits the population and context of use. Table 2 therefore clarifies the intended construct boundaries and representative wording.

Table 2. Construct Boundaries, Dimensions, and Representative Questionnaire Items

Construct and dimensions	Bounded referent	Representative item wording
Coaching-based academic supervision (X1): planning; needs identification; observation; coaching conversation; reflection; feedback; action plan and follow-up	A specific principal–teacher supervision cycle focused on instruction	"The supervisor and teacher jointly determine the instructional-development focus to be supervised." "The teacher and supervisor determine follow-up steps after coaching."

Organizational climate (X2): principal leadership; work relationships; organizational communication; motivation and work spirit; work environment	General and continuing experience of the school as a workplace, not one coaching episode	"The principal supports teachers in carrying out instructional duties." "Teachers receive adequate information about school policies."
Teacher performance (Y): lesson planning; teaching implementation; assessment; professional responsibility	The responding teacher's own instructional and professional behavior	"I prepare learning objectives before conducting instruction." "I use assessment results to improve subsequent instruction."

Construct contamination was reduced at the blueprint stage by assigning distinct referents: X1 addressed the coaching cycle, X2 addressed the general school environment, and Y addressed the teacher's own practice. Separate dimension maps and item blocks were used. Nevertheless, all variables came from the same respondent at one time, and supportive principal behavior may influence both coaching and climate ratings. Jordan and Troth (2020) identify this same-source arrangement as a potential source of common-method bias. Fuller et al. (2016) caution that statistical detection procedures cannot substitute for careful measurement design.

Data Analysis

Descriptive statistics summarized total scale scores. Five descriptive categories were formed separately for each variable by dividing its observed sample range into five equal-width intervals. Thus, the procedure was common across variables, but the numerical cut points were variable-specific, data-derived after collection, and not a priori criterion standards. Category labels describe relative positions in this sample and should not be read as observed teaching quality or external proficiency judgments.

Pearson correlations, simple regressions, and multiple linear regression estimated associations. Residual normality, linearity, tolerance/VIF, and heteroskedasticity were examined. Unstandardized coefficients, standard errors, standardized coefficients, 95% confidence intervals, p values, R^2, adjusted R^2, and incremental R^2 are reported. Schober et al. (2018) recommend interpreting correlations by direction, magnitude, and context rather than treating them as evidence of causation.

Results

Descriptive Results

Table 3. Descriptive Statistics and Reliability of Study Variables

Variable	Mean	SD	Minimum	Maximum	Cronbach α
Coaching-based supervision	149.09	15.92	120	189	.962
Organizational climate	150.33	18.06	98	195	.967
Teacher performance	150.17	14.84	109	185	.968

For coaching-based supervision, 23 respondents (16.7%) were in the "not good" interval (120–133), 47 (34.1%) in "poor" (134–147), 36 (26.1%) in "fair" (148–161), 25 (18.1%) in "good" (162–175), and 7 (5.1%) in "very good" (176–189). Accordingly, the reported 50.8% equals 70 of 138 respondents in the two lower sample-derived intervals. It represents teachers' perceptions, not an external observation of supervision quality.

Table 4. Distribution of Respondents Across Sample-Derived Score Categories

Variable	Not good n (%)	Poor n (%)	Fair n (%)	Good n (%)	Very good n (%)
Coaching supervision	23 (16.7)	47 (34.1)	36 (26.1)	25 (18.1)	7 (5.1)
Organizational climate	2 (1.4)	34 (24.6)	54 (39.1)	39 (28.3)	9 (6.5)
Teacher performance	3 (2.2)	31 (22.5)	55 (39.9)	35 (25.4)	14 (10.1)

Bivariate and Multiple Regression

Coaching-based supervision showed a positive bivariate association with teacher performance, r = .639, R^2 = .408, F(1, 136) = 93.85, p < .001. Organizational climate also showed a positive but smaller bivariate association, r = .285, R^2 = .081, F(1, 136) = 12.02, p = .001. The predictors were moderately correlated (approximately r = .571, derived from tolerance = .674), consistent with some shared perceptual content.

Table 5. Bivariate and Multiple Regression Results for Teacher Performance

Model or predictor	B	SE B	β	95% CI for B	t	p
Simple: coaching supervision	.596	.061	.639	(.475, .717)	9.697	< .001
Simple: organizational climate	.235	.068	.285	(.101, .369)	3.473	.001
Multiple: coaching supervision	.658	.074	.707	(.512, .804)	8.838	< .001
Multiple: organizational climate	−.097	.066	−.118	(−.228, .034)	−1.472	.143

The joint model was significant, R = .647, R^2 = .418, adjusted R^2 = .410, F(2, 135) = 48.51, p < .001, with the estimated equation Y = 66.545 + .658X1 − .097X2. Adding climate after coaching-based supervision increased explained variance by approximately one percentage point (ΔR^2 = .010). With one added predictor, the change test is equivalent to the squared t test for that coefficient: F-change(1, 135) = 2.17, p = .143. This increment is small and imprecise and cannot be treated as a causal pathway or mediation estimate.

The adjusted climate estimate was negative, but its 95% confidence interval ranged from −.228 to .034. The data are therefore compatible with a modest negative adjusted association, an association close to zero, or a small positive association. The p value of .143 does not demonstrate "no contribution"; it indicates that the estimate is insufficiently precise to rule out zero under the model. The sign reversal from the positive bivariate coefficient is consistent with predictor overlap and should not be interpreted as evidence that improving climate reduces performance.

Discussion

The principal result was a moderate positive association between perceived coaching-based supervision and self-reported teacher performance. This pattern is consistent with the proposed coaching-specific mechanism: goals, observation evidence, reflective dialogue, feedback, and documented follow-up can make professional learning actionable. Kennedy (2016) argues that effective professional development should remain focused on content, active learning, coherence, duration, and collective participation.

The finding also aligns with evidence that professional learning develops through changes in teachers' beliefs and classroom practice rather than through attendance at training alone. Kirsten (2020) explains that sustained change becomes more likely when teachers can connect professional-development activities with observable improvements in practice and outcomes. Coaching can provide this connection when each supervision cycle produces a feasible action and subsequent follow-up.

Indonesian studies provide contextual support without proving that the same effect will occur

in every district. Nawas (2023) reported that coaching-based supervision assisted teachers in differentiated learning. Wahyudi et al. (2022) also found favorable results for a coaching-oriented academic-supervision model. Wati et al. (2024) documented improvement in teacher performance following a coaching implementation, although the present cross-sectional survey cannot reproduce an intervention effect.

Interpretation remains anchored to the measured dimensions. The X1 scale covered planning, needs identification, observation, coaching conversation, teacher reflection, constructive feedback, and follow-up. The outcome covered lesson planning, teaching, assessment, and professional responsibility. Blazar and Kraft (2017) show that teaching quality includes multiple instructional and behavioral outcomes, reinforcing the need to avoid reducing teacher performance to one classroom activity.

The X1 distribution placed 70 of 138 teachers, or 50.8%, in the two lowest sample-derived intervals. This pattern indicates that many respondents perceived room for improvement across the supervision cycle. It does not constitute an external observation that supervision was objectively poor. Because dimension-level means were not analyzed, the data cannot identify which coaching component should receive first priority or claim that one component caused better performance.

Organizational climate had a positive bivariate association but a negative and uncertain adjusted coefficient. This contrast is theoretically informative because a supportive environment can promote teacher development while sharing variance with principal behavior. Rahman (2022) found that school conditions shape opportunities for teachers' professional learning and development in Indonesia. The present result therefore warrants attention to climate even though its distinct coefficient was imprecisely estimated.

A school climate includes leadership, communication, relationships, motivation, and working conditions. Rudasill et al. (2018) conceptualize these elements as an interconnected system rather than isolated features. Berkowitz et al. (2017) likewise show that climate is associated with broader school conditions and achievement. After coaching perceptions were controlled, the remaining climate variation in this sample may have been too limited or overlapping to estimate precisely.

The adjusted climate confidence interval extended from −.228 to .034. The data are therefore compatible with a modest negative association, an association close to zero, or a small positive association. Wasserstein and Lazar (2016) advise that a p value should not be used as a declaration that an effect exists or does not exist. The result supports neither dismissal of climate nor a claim that climate mediates coaching.

A practical response is a hypothesis-informed pilot rather than an assertion that the regression proves effectiveness. He et al. (2024) link principals' instructional leadership with teachers' professional development, supporting a pilot focused on pre-observation goals, evidence-focused observation, reflective questioning, feedback, and follow-up. The proposed pilot should run for 8–12 weeks and document both the completion and fidelity of each coaching cycle.

Predefined pilot outcomes should include changes in coaching-supervision scores, independent observation ratings, teacher-performance scores, and implementation feasibility. Sariakin et al. (2025) emphasize the combined importance of leadership, management practices, and teacher motivation in a productive educational environment. Where feasible, matched comparison schools and pre/post measurement should be used, and scaling should depend on effect estimates, confidence intervals, resources, and unintended consequences.

Evidence to Action Framework

Table 6. Evidence-to-Action Framework Based on Study Findings

Empirical finding	Proposed response	Minimum resources	Predefined measurable indicator
X1 correlated with Y (r = .639); 70/138 were in two lower X1 intervals	Pilot a structured coaching cycle focused on goals, observation evidence, reflection, feedback, and follow-up	Principal workshop; coaching template; scheduled observation and dialogue time	≥80% planned cycles completed; fidelity checklist; pre/post X1 and Y estimates with 95% CIs
Climate bivariate r = .285 but adjusted B = −.097, 95% CI [−.228, .034]	Treat climate as a contextual hypothesis; strengthen communication and role clarity without claiming an established independent effect	Monthly staff forum; transparent feedback channel; responsibility map	Participation rate; communication subscale trend; documented issues closed within target time
All measures were same-source self-reports	Add independent evidence in the pilot	Trained peer or external observer; anonymized administrative records	Inter-rater agreement; observation score; triangulation with self-report
All 53 schools represented, but teachers were clustered and cross-sectional	Use school-level monitoring and a comparison design before district-wide scaling	Sampling plan; school identifiers; basic multilevel or cluster-robust analysis support	Coverage by school; attrition; intraclass correlation; adjusted program-effect estimate

The table distinguishes observed findings from proposed actions. None of the proposed responses was tested by the present survey. Shao et al. (2025) show that leadership, climate, and teacher efficacy can operate through connected pathways, but those pathways require direct testing. The proposed indicators are therefore evaluation criteria for a future pilot rather than conclusions derived from the present regression.

The cross-sectional design establishes association, not temporal order or causation. All three scales were completed by the same respondents, creating risks of common-method variance and favorable-response bias. The overlap between supportive principal behavior in coaching and the leadership/communication dimensions of climate could attenuate unique coefficients. Although all schools were covered and the response rate was 100%, the regression treated teachers as independent and did not model school-level clustering. The sample was limited to public primary-school teachers in one district. The observed-range categories are sample-relative rather than external standards, and no dimension-level or confirmatory-factor analysis was conducted. Future research should use independent observation, longitudinal or experimental designs, validated discriminant measurement, and cluster-aware analysis.

Conclusion

Teachers' perceptions of coaching-based principal academic supervision were moderately associated with self-reported performance, whereas organizational climate had a smaller positive bivariate association and an uncertain adjusted association after supervision was controlled. The joint model explained 41.8% of sample variance, but climate added only about one percentage point beyond supervision and its adjusted confidence interval included both negative and positive values. These findings justify testing a structured coaching pilot with predefined outcomes; they do not prove that coaching causes performance gains or that climate has no role. Generalization should

remain confined to the defined district sampling frame and similar contexts until cluster-aware, longitudinal, and multi-source evidence is available.

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