



The Influence of Principal Instructional Leadership and School Culture on Teacher Performance for Advancing Sustainable Quality Education

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Abstract: Teacher performance (TP) is a key determinant of educational quality, making it important to understand the organizational factors that enhance teachers' effectiveness. This study examined the influence of principal instructional leadership (PIL) and school culture (SC) on TP among senior high school teachers. A quantitative research design was employed involving 261 teachers from 19 public senior high schools in one regency of Jambi Province, Indonesia, selected through proportionate stratified random sampling. Data were collected using Likert-scale questionnaires and analyzed using descriptive statistics, simple linear regression, and multiple linear regression. The results indicated that both PIL and SC had significant positive effects on TP. Compared with PIL, SC contributed more strongly to teacher performance. Moreover, the combined effects of PIL and SC explained teacher performance better than either variable individually, suggesting that effective instructional leadership and a positive school culture jointly enhance teachers' professional performance. These findings highlight the importance of strengthening instructional leadership practices while fostering a supportive school culture to improve teacher performance and promote educational quality. The study concludes that integrating effective leadership with a positive organizational culture provides a practical strategy for enhancing teacher performance in senior high schools.

Keywords: Instructional leadership; School culture; Senior high school; Teacher performance

Introduction

TP has become one of the many necessary indicators in educational quality, as teachers currently determine the effectiveness of instructional processes and students' learning and development. As academic approaches resume in response to growing directions for responsibility, innovation, and improved student achievement, enhancing TP has emerged as a strategic priority for school leaders and policymakers. Consequently, researchers have increasingly recognized that TP is influenced not only by personal competencies but also by organizational factors that shape teachers'

professional behavior and work environment (Firlianza & Suhardi, 2024; Pardosi & Utari, 2022).

Among various organizational factors, PIL has received considerable attention because school leaders play a paramount role in directing instructional improvement, supporting teachers' professional growth, and creating conditions that enable teachers to perform effectively. Instructional leadership emphasizes guidance, trust, collaboration, recognition, constructive feedback, and continuous assistance, allowing teachers to develop professionally while maintaining high levels of motivation and commitment (Çoban et al., 2023; Munna, 2023; Mustari & Nurhayati, 2024). Through

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these leadership practices, principals create an environment in which teachers feel esteemed, empowered, and secure in bringing out their instructional commitments (Gading, 2024; Hammad et al., 2024; Kilag & Sasan, 2023).

A growing body of observed evidence unfailingly demonstrates that principal oversight significantly improves various teacher-related outcomes (Akgöz et al., 2024; Bellibaş et al., 2022; Salvador, 2026). PIL has been proven to positively affect teacher job performance and student achievement via effective leadership behaviors that strengthen instructional markers (Li et al., 2023; Nellitawati et al., 2024; Pardosi & Utari, 2022). Principal leadership also enhances teacher self-efficacy, which in turn supports more effective instructional approaches and student learning outcomes (Alanoglu, 2022; Liu et al., 2022). Furthermore, instructional leadership has been authenticated to boost teacher professional learning, amplify teachers' collective efficacy, and increase organizational commitment, all of which contribute to sustainable improvements in TP (Bellibaş et al., 2022; Cansoy et al., 2022; Hosseingholizadeh et al., 2023).

In response to leadership, SC has appeared as another important organizational aspect affecting TP. SC represents the shared values, norms, beliefs, interpersonal relationships, and collaborative practices that characterize daily life within an academy. A supportive SC fosters belief, collegiality, collaboration, innovation, and shared responsibility, thereby creating an environment in which teachers can perform their professional duties more effectively (Alzoraiki et al., 2024; Dutta & Sahney, 2022; Ismail et al., 2022). Prior investigations have reported that a supportive school climate positively predicts teacher autonomy, as teachers in democratic and collaborative school environments tend to exhibit greater professional independence and instructional impact (Akgöz et al., 2024; Oduro et al., 2025; Xie & Zou, 2025). Likewise, school organizational climate has been found to increase teacher job satisfaction by enabling collegial affinities and supportive professional interactions among school members (Guo et al., 2025; Otrębski, 2022). Moreover, positive perceptions of school climate significantly improve teachers' well-being, self-efficacy, and joy of teaching, indicating that organizational culture contributes substantially to teachers' professional performance and effectiveness (Heinla & Kuurme, 2024; Zhang et al., 2023).

The current publications further suggest that oversight and SC are closely interconnected rather than operating independently. Effective principals not only provide instructional guidance but also shape a supportive organizational culture that encourages partnership, trust, and continuous skilled improvement

among teachers. Evidence indicates that PIL positively predicts school climate, which, in turn, enhances teacher autonomy and other professional outcomes, demonstrating that leadership routines contribute to teacher growth by fostering a healthy organizational environment (Akgöz et al., 2024; Dutta & Sahney, 2022; Salvador, 2026). Similarly, instructional leadership has been authenticated to enhance school organizational conditions, which in turn grows teachers' professional dignity and felt well-being (Guo et al., 2025; Li et al., 2023; Nellitawati et al., 2024). Furthermore, supportive school climates established through effective leadership promote organizational health, teacher collaboration, and psychological well-being, thereby strengthening teachers' capacity to perform effectively in instructional activities (Velarde et al., 2022; Zhang et al., 2023). These findings imply that PIL and SC should be considered complementary organizational factors that jointly contribute to TP.

Despite the growing body of research, several important gaps remain. Previous studies have predominantly examined principal instructional leadership through complex mediation models involving teacher self-efficacy, collective efficacy, commitment, professional learning, school climate, or job satisfaction, with teacher performance often treated as an indirect or secondary outcome rather than the principal focus (Bellibaş et al., 2022; Hosseingholizadeh et al., 2023; Khan et al., 2024). Similarly, studies investigating school climate have primarily emphasised student achievement, teacher autonomy, organisational commitment, or teacher well-being instead of directly evaluating teacher performance (Akgöz et al., 2024; Dutta & Sahney, 2022; Raman et al., 2022). Consequently, empirical evidence regarding the simultaneous direct contributions of principal instructional leadership and school culture to teacher performance remains limited, particularly in public senior high schools.

Another important limitation concerns the research context. Existing evidence has largely been generated in countries such as China, India, Turkey, Iran, Malaysia, Pakistan, Germany, Austria, and the Philippines, where educational governance, leadership practices, and organisational cultures differ substantially from those of Indonesian schools (Akgöz et al., 2024; Daing & Mustapha, 2023; Guo et al., 2025; Khan et al., 2024; Liu et al., 2022). As a result, these findings cannot be readily generalised to the Indonesian educational context. This limitation is particularly important because improving teacher performance is central to achieving Sustainable Development Goal 4 (Quality Education), and identifying organisational factors that schools can strengthen represents an essential step toward improving educational quality.

Based on these considerations, this study investigates the direct and combined effects of principal instructional leadership and school culture on teacher performance among teachers in Indonesian public senior high schools using multiple regression analysis. The novelty of this study lies in providing empirical evidence of the relative and simultaneous contributions of these two organisational factors to teacher performance within an Indonesian context that remains underrepresented in the international literature. The findings are expected to enrich the educational leadership literature while offering evidence-based recommendations for school leaders and policymakers seeking to strengthen instructional leadership, cultivate positive school cultures, and improve teacher performance in support of quality education.

Method

This investigation used a quantitative study approach, using linear regression analysis, namely simple and multiple, to analyze the influences of PIL and SC on TP. This design is considered suitable for identifying relationships among psychological and educational variables in school settings (Bardach et al., 2022; Campbell et al., 2022; Ridwan et al., 2025). 804 teachers from 19 public senior high schools in a regency of Jambi Province, Indonesia, were the study population. The Cochran formula with finite population correction (FPC) at a 95% confidence level and a 5%

margin of error was used to determine the sample size, yielding a minimum requirement of 261 teachers. Accordingly, 261 teachers were selected using proportionate stratified random sampling. Each public senior high school was treated as a stratum, and respondents from each stratum were randomly selected in proportion to the number of teachers in each school.

Data were assembled utilizing structured questionnaires to measure PIL, SC, and TP, with all items rated on a five-point Likert scale. The research instruments were validated through expert judgment, while item validity was examined using Pearson's product-moment correlation, and reliability was evaluated using Cronbach's alpha. Data were analyzed using SPSS version 23. Descriptive statistics, assumption testing, simple linear regression, and multiple linear regression were the scope of the analysis. Descriptive statistics were used to recap the data via the mean, standard deviation, minimum, and maximum values. Assumption testing, including normality, linearity, multicollinearity, and heteroscedasticity, was performed before conducting the regression analysis to ensure that the data met the assumptions of linear regression. Simple linear regression was employed to analyze the individual influences of PIL and SC on TP. Last, multiple linear regression was used to examine their accompanying influence on TP. The overall research procedure is illustrated in Figure 1, which summarises the stages of the study from population identification and sampling to data collection, statistical analysis, and interpretation of the findings.

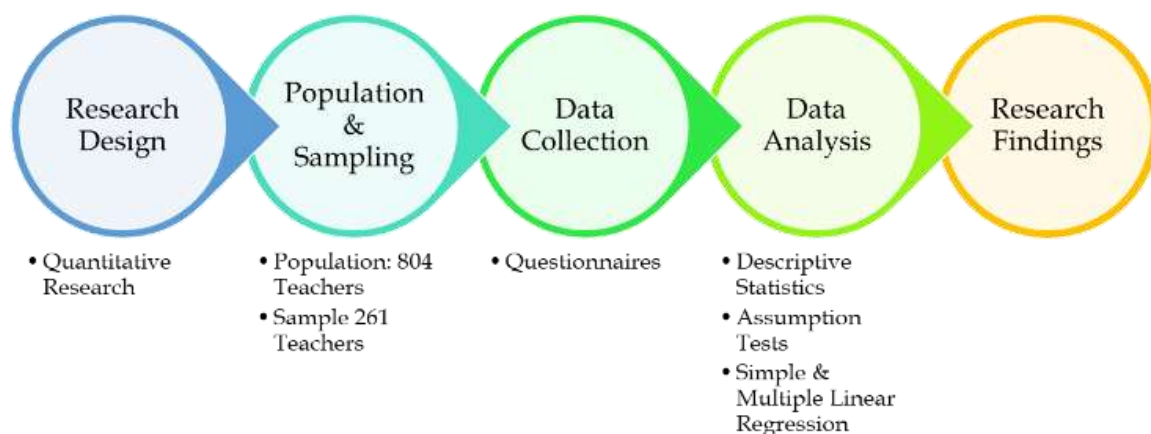


Figure 1. Research flow of the study

Result and Discussion

Result

Descriptive Statistics

As shown in Table 1, the mean score for PIL was 107.71 (SD = 10.23), indicating that teachers generally perceived school principals' instructional leadership

practices positively. The relatively small standard deviation indicates that respondents held fairly consistent perceptions of principals' instructional leadership across the participating schools. SC obtained a mean score of 112.99 (SD = 11.44), reflecting a generally positive perception of the SC. The observed variability indicates that, although respondents shared favorable

views of their school environment, some differences in perceptions of organizational values, norms, and collaborative practices remained evident. Meanwhile, TP recorded a mean score of 108.37 (SD = 11.65), suggesting that TP was generally perceived positively across the measured dimensions. The moderate standard deviation indicates that variations in TP existed among respondents, although the overall responses remained relatively consistent.

Assumption Testing

Assumption testing is conducted before regression analysis to ensure that the data meet the requirements for simple and multiple regression. The normality test using the One-Sample Kolmogorov-Smirnov method delivered a p-value of 0.20, which exceeded the 0.05 threshold, meaning that the residuals were normally distributed. The linearity test revealed that the significance values for the deviations from linearity between PIL and TP, and between SC and TP, were 0.32 and 0.08, respectively. Since both values were more prominent than 0.05, the relationships between each independent variable and TP were considered linear. Furthermore, the multicollinearity test showed that the Variance Inflation Factor (VIF) values for PIL and SC were both 1.03, well below the recommended threshold of 10.00, indicating no multicollinearity. In addition, the heteroscedasticity test produced significance values of 0.09 for PIL and 0.08 for SC, both exceeding 0.05, suggesting that no heteroscedasticity was present in the regression model. Overall, these results demonstrate that all assumptions underlying the regression analyses were satisfied, indicating that the dataset was appropriate for following simple and multiple regression analyses.

Table 1. Summary of descriptive statistics

Variable	Mean	Std. Deviation	Max	Min
Principal Instructional Leadership	107.71	10.28	130	78
School Culture	112.99	11.44	137	82
Teacher Performance	108.37	11.65	130	71

Regression Analysis

Simple linear regression analyses were conducted to examine the individual influence of PIL and SC on TP. As presented in Table 2, PIL explained 12% of the variance in TP ($R = 0.35$, $R^2 = 0.12$), indicating that instructional leadership made a modest yet meaningful contribution to variations in TP. In comparison, SC demonstrated a stronger relationship with TP, explaining 51% of the variance ($R = 0.71$, $R^2 = 0.51$), suggesting that SC accounted for a considerably larger proportion of TP. Multiple linear regression analysis was conducted to examine the combined influence of

PIL and SC on TP. the regression model explained 57 % of the variance in TP ($R = 0.75$, $R^2 = 0.57$), indicating that more than half of the variation in TP could be explained by the combined influence of the two predictors.

Further examination of the regression coefficients presented in Table 3 revealed that PIL had a positive and statistically significant influence on TP ($B = 0.40$, $\beta = 0.35$, $t = 6.06$, $p < 0.00$). This finding indicates that higher levels of instructional leadership practiced by school principals were associated with higher levels of TP. Similarly, SC exerted a positive and significant influence on TP ($B = 0.73$, $\beta = 0.71$, $t = 16.31$, $p < 0.00$), suggesting that a more supportive and positive SC was associated with improved TP. In the multiple regression model, both PIL ($B = 0.28$, $\beta = 0.25$, $t = 5.96$, $p < 0.00$) and SC ($B = 0.69$, $\beta = 0.67$, $t = 16.21$, $p < 0.00$) remained positive and statistically significant predictors of TP. Among the two predictors, SC exhibited the larger standardized regression coefficient ($\beta = 0.67$), indicating that it contributed more strongly to TP than PIL after controlling for the influence of the other variable.

Furthermore, the ANOVA results presented in Table 4 confirmed that the overall regression model was statistically significant ($F = 168.39$, $p < 0.00$). The regression sum of squares was 19971.47 with 2 degrees of freedom, while the residual sum of squares was 15299.49 with 258 degrees of freedom, resulting in a total sum of squares of 35270.95 with 260 degrees of freedom. These findings demonstrate that PIL and SC jointly exerted a significant influence on TP, supporting the adequacy of the regression model for explaining variations in TP.

Table 2. Summary of regression models

Analysis	R	R ²	Adjusted R ²	Std Error of the Estimate
PIL → TP	0.35	0.12	0.12	10.92
SC → TP	0.71	0.51	0.51	8.20
PIL, SC → TP	0.75	0.57	0.56	7.70

Table 3. Regression coefficients

Analysis	Model	B	Std Error	Beta	t	p
PIL → TP	(Constant)	65.37	7.13		9.17	0.00
	PIL	0.40	0.07	0.35	6.06	0.00
SC → TP	(Constant)	26.51	5.05		5.25	0.00
	SC	0.73	0.04	0.71	16.31	0.00
PIL, SC → TP	(Constant)	0.78	6.41		0.12	0.90
	PIL	0.28	0.05	0.25	5.96	0.00
	SC	0.69	0.04	0.67	16.21	0.00

Table 4. ANOVA

Model	Sum of Squares	df	Mean Square	F	p
Regression	19971.47	2	9985.73	168.39	19971.47
Residual	15299.49	258	59.30		15299.49
Total	35270.95	260			35270.95

Discussion

The findings of this investigation demonstrate that PIL and SC greatly influence TP. These results suggest that teachers' individual competencies do not solely determine TP but are also shaped by organizational conditions within the school. Teachers are additionally likely to demonstrate effective instructional routines when they receive continuous support from school principals and work in a school environment marked by trust, partnership, and shared professional values (Hendriani et al., 2024; Maryati et al., 2025). The significant influence of both variables further indicates that leadership and SC jointly create organizational situations that allow teachers to work more effectively.

The positive influence of PIL can be understood through school principals' role in providing professional support that enables teachers to carry out their instructional responsibilities effectively (Nurlaili, 2025; Syarip & Dadang, 2025). Instructional principals facilitate teachers by providing instructional guidance, constructive feedback, professional recognition, and opportunities for collaboration (Gading, 2024; Guo et al., 2025). Such leadership exercises support teachers' confidence, increase their motivation, and encourage continuous professional improvement (Berkovich & Hassan, 2024; Hosseingholizadeh et al., 2023). As teachers perceive that their professional contributions are appreciated and supported, they become more committed to improving task preparation, instructional delivery, classroom control, and student inspection (Alzoraiki et al., 2024; Kılınç et al., 2024). Consistent findings have been reported in prior studies demonstrating that effective principal leadership enhances TP by improving instructional quality and supporting teachers' professional development (Kilag & Sasan, 2023; Pardosi & Utari, 2022).

The present results are also consistent with prior research indicating that instructional leadership improves TP via several complementary organizational instruments (Cansoy et al., 2022; Shaked, 2023). Teachers working under instructional principals tend to demonstrate stronger professional learning, greater collective efficacy, and more effective instructional practices because school leaders encourage collaboration and continuous learning. In addition, instructional leadership strengthens teachers' self-efficacy, enabling them to approach instructional challenges with greater confidence and effectiveness (Hosseingholizadeh et al., 2023; Meyer & Turner, 2002). These organizational and psychological conditions ultimately contribute to more elevated levels of TP (Alanoglu, 2022; Bellibaş et al., 2022; Liu et al., 2022).

In addition to leadership, the findings demonstrate that SC is another essential determinant of TP. SC symbolizes the shared values, norms, beliefs, and

professional relationships that navigate teachers' daily exchanges and instructional practices (McChesney & Cross, 2023; Wang'ombe, 2023). A positive SC encourages collaboration among teachers, facilitates knowledge sharing, and promotes mutual trust and a sense of communal obligation (Hamid et al., 2024; Ismail et al., 2022). Such organizational characteristics foster a supportive work environment that motivates teachers to continually improve their instructional practices while maintaining strong professional relationships with colleagues and school leaders (Raharjo et al., 2026; Sudibyo, 2024).

Taken together, the findings suggest that PIL and SC are closely interconnected organizational factors that contribute to TP. Learning-oriented principals place greater emphasis on fostering a school environment characterized by collaboration, trust, professional learning, and shared responsibility (Berkovich & Hassan, 2024; Hosseingholizadeh et al., 2023). In contrast, a positive SC reinforces the effectiveness of leadership practices by encouraging teachers to engage in instructional improvement actively (Agustina & Niron, 2025; Hamid et al., 2024; Ismail et al., 2022; Nisak et al., 2025). Consequently, teachers working within instructional leadership and positive organizational cultures are more likely to demonstrate stronger professional commitment, greater instructional effectiveness, and higher overall performance. This interpretation is consistent with previous evidence indicating that leadership and SC operate in a complementary manner to strengthen teacher outcomes and overall school effectiveness (Dutta & Sahney, 2022; Guo et al., 2025; Velarde et al., 2022).

Implication

This investigation contributes to the academic leadership literature by delivering empirical evidence that PIL and SC are essential organizational factors associated with TP in senior high schools. The conclusions indicate that improving TP requires not only enhancing teachers' professional competencies but also strengthening instructional leadership practices and enabling a combined SC. Therefore, school principals should promote trust, professional collaboration, constructive feedback, and continuous support to create a working climate that enables teachers to achieve more effectively. These findings may serve as a reference for schools and educational policymakers in developing leadership practices and organizational strategies that support sustainable improvements in TP.

Limitation and Future Research

This investigation has several boundaries that should be viewed when interpreting the conclusions. First, the study was conducted only among teachers

from public senior high schools in a regency of Jambi Province, Indonesia, which may limit the generalizability of the conclusions to other academic contexts or regions. Second, the study used a cross-sectional design based on a single round of data collection, preventing the examination of changes in leadership practices, SC, and TP over time. Third, the proposed model focused exclusively on PIL and SC as predictors of TP, whereas other organizational and individual factors may also contribute to teachers' professional performance. Therefore, prospective investigations are encouraged to include broader educational settings, adopt long-term research designs, and examine additional teacher-related variables, such as self-efficacy, job satisfaction, commitment, work motivation, and professional development, to generate a more extensive knowledge of the factors influencing TP.

Conclusion

This study concludes that PIL and SC are significant organizational factors influencing TP in Indonesian public senior high schools. Both variables positively affect TP, with SC contributing more strongly than PIL. Furthermore, their combined influence provides a more comprehensive explanation of TP than either factor individually, highlighting the complementary roles of leadership and organizational culture in improving teachers' professional effectiveness. These findings emphasize the importance of strengthening instructional leadership practices while fostering a positive SC to support TP and educational quality. Future research is recommended to examine additional organizational and individual factors influencing teacher performance, employ longitudinal or mixed-methods approaches to establish causal relationships, and extend the investigation to different educational levels and regions to enhance the generalizability of the findings.

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Author Contributions

Conceptualization, M.M.A. and A.S.; methodology, M.M.A., A.S., and N.G.; software, formal analysis, investigation, data curation, writing original draft preparation, visualization, project administration, M.M.A.; validation, writing review and editing, supervision, A.S., N.G., and A.; resources, N.G. and

A.S. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

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