



Indicator-Based Mapping of Teacher Performance and School Organizational Conditions in Public Senior High Schools in Lintong Nihuta

Jatiman Hutabarat*¹, Lia Yuliana²

Universitas Negeri Yogyakarta

Corresponding Author: Jatiman Hutabarat: jatimanhutabarat.2025@student.uny.ac.id

ARTICLE INFO

Keywords: Teacher Performance, Principal Leadership, Organizational Communication, Work Environment, Indicator Mapping

Received : 27 June

Revised : 20 July

Accepted: 18 August

©2026 Hutabarat, Yuliana:

This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License.



ABSTRACT

This study mapped principal leadership, organizational communication, work environment, and teacher performance at the indicator level across three public senior high schools in Lintong Nihuta District. A cross-sectional ex post facto survey was conducted from February to July 2026. Of 92 active teachers targeted by census, 75 returned complete 64-item questionnaires, yielding an 81.52% response rate. Cronbach's alpha ranged from 0.953 to 0.961. Teacher performance reached 94.21%, organizational communication 91.27%, work environment 90.98%, and principal leadership 90.04%, with all constructs categorized as very high. Assessment preparation, teacher cooperation, school cleanliness, and principal discipline were relative strengths. Professional support, vertical communication, learning facilities, and professional development remained relative improvement priorities. The findings provide a descriptive, perception-based diagnosis rather than causal evidence.

INTRODUCTION

Teacher performance is a strategic component of school quality because it connects educational policy with students' learning experiences. Such performance cannot be reduced to attendance or administrative completion because it encompasses planning, classroom management, instructional delivery, assessment, follow-up, and responsibility for continuously improving practice. Research on teacher competence and performance indicates that organizational and work-environment conditions need to be considered alongside individual factors, while working conditions also shape satisfaction and the continuity of teachers' professional experiences (Yayuk & Haqqi, 2024; Toropova et al., 2021). Evidence from Indonesia has also shown that teacher performance may change when competence, supervision, training, school climate, and organizational support are subject to pressure or change (Ngabiyanto et al., 2023). Accordingly, teacher performance mapping requires an organizational perspective that records not only total scores but also examines the work experiences that enable teachers to plan, implement, assess, and improve instruction.

At the senior high school level, teacher performance demands become more complex because instruction must support conceptual mastery, thinking skills, character formation, and students' readiness to pursue further education or participate in social life. Performance improvement strategies therefore encompass guidance, competence development, discipline, motivation, and improvement-oriented evaluation rather than mere document compliance (Muspawi, 2021). Professional performance evaluation must also address the actual quality of task implementation so that the resulting information can serve as a basis for teacher development (Borja, 2024). Furthermore, collaborative inquiry has shown that performance improvement can emerge through collective work guided by instructional standards and the purposeful use of evidence (Cravens & Hunter, 2021). These varied demands indicate that aggregate performance scores must be considered together with their constituent indicators. Indicator mapping can reveal established strengths and aspects that still require relative expansion, even when overall performance is already categorized as high.

The need for mapping is increasingly important in Humbang Hasundutan Regency. Research involving junior high school teachers in Parlilitan District has demonstrated associations between principals' interpersonal communication, academic supervision, and teacher performance (Simanullang et al., 2024). At public senior high schools in the same regency, principal leadership and the role of teacher work teams have also been positioned as factors associated with performance (Sitorus et al., 2023). More specific evidence from SMA Negeri 2 Lintongnihuta compared the professionalism of teacher performance in relation to numeracy literacy ability, but this focus has not produced an integrated diagnosis of leadership, communication, work environment, and performance across the three public senior high schools in the same district (Sinaga et al., 2024). Consequently, organizational conditions in these schools still need to be examined

simultaneously and in detail, not to test causal relationships, but to determine relative strengths and areas for improvement that can be traced directly to the measurement indicators.

Studies of the factors underlying teacher performance indicate that individual capabilities and organizational conditions must be understood as parts of a unified school work system (Kanya et al., 2021). Relationships among instructional leadership, school climate, teacher performance, and student achievement also demonstrate that a single aggregate score does not fully represent the processes occurring within an organization (Dutta & Sahney, 2022). In addition, school climate, teacher commitment, and communication may be intertwined in shaping the quality of professional task implementation (Kurniadewi et al., 2026). Based on this gap, the present study aimed to map the total scores and 64 indicators of principal leadership, organizational communication, work environment, and teacher performance across three public senior high schools in Lintong Nihuta District. Its contribution lies in a descriptive diagnosis that distinguishes general strengths from relative priorities for improvement. Thus, a very high category is not interpreted as a reason to discontinue development but as a basis for directing resources toward the indicators most amenable to strengthening.

THEORETICAL REVIEW

Principal leadership shapes the managerial conditions under which teachers perform their duties. Principals' behavior may be demonstrated through role modeling, clarity of direction, appreciation, support for innovation, use of data, attention to professional needs, and feedback. Transformational leadership and organizational culture have been associated with teacher performance, although this relationship does not mean that every type of leadership behavior operates with equal strength in every school (Raharja et al., 2022). The managerial quality of principals is also associated with the development of a school climate that supports performance improvement (Hamidah et al., 2024). A meta-analytic review has shown that the relationship between leadership and teachers' professional learning is frequently mediated by trust, agency, and other organizational conditions (Karakose et al., 2025). Leadership diagnosis must therefore cover formal indicators such as discipline and school direction as well as developmental indicators such as professional attention and feedback, without treating the construct as a pure representation of a particular leadership style.

Organizational communication and the work environment are two conditions through which policy is translated into daily work experiences. Clear communication helps teachers understand policies, schedules, priorities, and task allocation, while vertical dialogue, horizontal coordination, clarification, and feedback determine whether information can be acted upon. Communication combined with academic supervision has been associated with teacher performance (Wardani et al., 2021), and partnerships in participative leadership require organizational communication that enables teacher

participation (Balqis et al., 2025). At the same time, the physical environment, workload, and tenure are associated with senior high school teacher performance (Mulyadi & Aryadi, 2025), while the work environment, supervision, and motivation form part of the conditions supporting task implementation (Satria et al., 2024). Because communication and the environment comprise diverse dimensions, aggregate categories may obscure differences among routine information flow, the quality of dialogue, basic comfort, the availability of facilities, and social support.

METHODOLOGY

Design and Scope of Analysis

A quantitative approach with an *ex post facto* survey design was used. Principal leadership, organizational communication, the work environment, and teacher performance had occurred naturally before measurement, without treatment, manipulation, or experimental control. Data were collected during a single period, resulting in a cross-sectional design. The unit of analysis was the public senior high school teacher. The analysis focused on descriptively mapping construct and indicator scores without testing relationships, differences, predictions, or effects among variables.

Primary data were obtained from teachers' questionnaire responses. School documentation was used as supporting data to verify the list of active teachers, school identities, respondents' schools of origin, age, and tenure. Four construct scores and 64 item scores were analyzed. Each construct was treated separately to produce descriptive statistics, achievement percentages, categories, and the identification of indicators with the highest and lowest relative values.

Research Location and Period

The study was conducted at three public educational institutions in Lintong Nihuta District, Humbang Hasundutan Regency, North Sumatra Province, namely SMA Negeri 1 Lintong Nihuta, SMA Negeri 2 Lintong Nihuta, and SMA Negeri 3 Lintong Nihuta. The research was conducted from February to July 2026 and included instrument refinement, research coordination, questionnaire distribution and collection, response-completeness checks, coding, tabulation, statistical analysis, and interpretation of the results.

Population, Sampling Approach, and Response Sample

The population comprised all 92 active teachers at the three schools. All population members were targeted for data collection through a saturated sampling or census approach. Of the 92 questionnaires distributed to the population, 75 were returned complete and could be analyzed, while 17 were either not returned or returned incomplete. The analytical sample therefore comprised a response sample of 75 teachers. The response rate was calculated as $(75/92) \times 100\% = 81.52\%$.

The inclusion criteria were as follows: (1) being registered as actively teaching at one of the study schools, (2) having instructional duties during the study period, (3) being willing to participate, and (4) responding to all

questionnaire items. Principals were not included as respondents to prevent self-assessment. The exclusion criteria included teachers who were not actively teaching, were on leave or undertaking full-time study assignments, were unwilling to participate, or returned incomplete questionnaires. The sample from each school was determined by the number of complete questionnaires returned rather than through proportional random sampling.

Variables and Operational Definitions

Four constructs were measured through teachers' perceptions. Table 1 summarizes the operational definitions, dimensions, item codes, numbers of items, and score ranges. Principal leadership, organizational communication, and the work environment were positioned as organizational conditions that were mapped descriptively. Teacher performance was mapped as teachers' self-reported implementation of professional duties. All constructs were analyzed separately in accordance with the descriptive mapping objective.

Table 1. Operationalization of the Research Constructs

Construct	Operational definition	Dimensions and item codes	Number of items	Score range
Principal leadership (X1)	Teachers' perceptions of the principal's behavior in directing, influencing, supporting, and empowering teachers to achieve school goals	Role modeling (X1.1–X1.4), direction and motivation (X1.5–X1.8), innovation (X1.9–X1.12), and professional support (X1.13–X1.16)	16	16–64
Organizational communication (X2)	Teachers' perceptions of the delivery, receipt, clarification, coordination, and follow-up of information vertically and horizontally	Information clarity (X2.1–X2.4), vertical communication (X2.5–X2.8), horizontal communication (X2.9–X2.12), and feedback (X2.13–X2.16)	16	16–64
Work environment (X3)	Teachers' perceptions of the school's physical and social conditions that support the performance of professional duties	Facility support (X3.1–X3.4), room comfort (X3.5–X3.8), safety and orderliness (X3.9–X3.12), and social support (X3.13–X3.16)	16	16–64

Construct	Operational definition	Dimensions and item codes	Number of items	Score range
Teacher performance (Y)	The level at which teachers perform professional duties in planning, implementation, assessment, follow-up, administration, and professional development	Planning (Y.1–Y.4), classroom management (Y.5–Y.8), implementation (Y.9–Y.12), and evaluation and development (Y.13–Y.16)	16	16–64

Source: Research instrument.

Note: X1 = principal leadership, X2 = organizational communication, X3 = work environment, and Y = teacher performance.

Instrument Development and Scoring

The primary instrument was a closed-ended questionnaire comprising 64 items. The instrument did not adopt a single standardized scale in its entirety but was developed from the operational definitions and a synthesis of the theoretical literature. Each construct was divided into four dimensions, each dimension into four operational indicators, and each indicator was represented by one item. All statements were positively worded. The complete list of items is presented in Appendix A.

Each item provided four response alternatives. As shown in Table 2, scores were assigned directly from 1 to 4. No items required reverse scoring. Each construct score was obtained by summing the 16 item scores. Therefore, the theoretical minimum score for each construct was 16 and the theoretical maximum was 64. Higher scores represented more positive assessments of the corresponding construct.

Table 2. Questionnaire Response Alternatives and Scores

Response alternative	Score
Highly Appropriate	4
Appropriate	3
Inappropriate	2
Highly Inappropriate	1

Source: Research instrument.

Item Validity and Reliability Assessment

The item design was reviewed for construct alignment and language clarity by Prof. Dr. Nurtanio Agus Purwanto, M.Pd., a lecturer at Universitas Negeri Yogyakarta. The Validation Statement dated July 14, 2026, stated that the instrument was generally adequate and recommended simplifying the wording and reducing the use of the word “I.” Following this review, the instrument was empirically pilot-tested with 30 respondents outside the study sample.

The empirical validity of the pilot test was assessed using Pearson correlations between each item score and the total construct score through a procedure equivalent to IBM SPSS Statistics 25. With $N = 30$, 28 degrees of freedom, and a two-tailed 5% significance level, the critical r value was set at 0.361. An item was deemed to meet the criteria when the observed r was greater than 0.361 and p was less than 0.05. A significance value displayed as 0.000 in the software output was interpreted as $p < 0.001$ rather than $p = 0$.

The reliability of each scale in the pilot test was assessed using *Cronbach's alpha* for the 16 items. An additional assessment was conducted on the 75 responses in the main study. In the main sample, item-total relationships were compared with a critical r value of 0.227 for $df = 73$ at the 5% level, after which internal consistency was recalculated using *Cronbach's alpha*. The assessment in the main sample did not replace the pilot test but documented item behavior and score consistency in the analyzed data.

Data Collection and Management Procedures

Data were collected through the following procedure:

1. Institutional permission was obtained, and coordination was undertaken with the schools.
2. The list of active teachers was examined to determine the data-collection targets.
3. Questionnaires were distributed to the target teachers with completion instructions.
4. Returned questionnaires were checked for completeness.
5. Incomplete questionnaires were excluded from the analysis.
6. Complete responses were coded and tabulated.
7. Item scores and the total score for each construct were checked before analysis.

Data checks covered four rules. First, each case was required to contain responses to all 64 items. Second, every item score was required to fall within the range of 1–4. Third, the total score for each construct was required to equal the sum of its 16 constituent items. Fourth, only complete cases were analyzed. Under the *complete-case analysis* approach, the analytical data comprised 75 complete questionnaires.

Research Ethics

Institutional permission and permission from the participating schools were obtained. Participation was voluntary. Before completing the questionnaire, respondents were informed about the purpose of the study, the types of data collected, and the use of the data. Individual identities were kept confidential, the data were used for academic purposes, and the results were presented in aggregate form. Principals were excluded from the respondent group to prevent self-assessment.

Descriptive Analysis

Analyses were conducted at the construct and item levels. At the construct level, N , minimum, maximum, total score, mean, median, mode, variance, and standard deviation were calculated. At the item level, the mean and achievement percentage were calculated. The maximum possible empirical

score for each construct across 75 respondents was $16 \times 75 \times 4 = 4,800$. The construct achievement percentage was calculated using the following formula:

Construct achievement percentage = (empirical score total/4,800) $\times$ 100%.

The maximum score for each item across 75 respondents was $75 \times 4 = 300$. The item percentage was calculated using the following formula:

Item percentage = (item score total/300) $\times$ 100%.

The categories were established as follows: 81%–100% = very high, 61%–80% = high, 41%–60% = adequate/moderate, 21%–40% = low, and 0%–20% = very low. Within each construct, the item with the highest percentage was reported as a relative strength, and the item with the lowest percentage was reported as a relative priority for improvement. The term relative was used because all items were in the very high category. Consistent with the study objective, the analysis did not include between-school comparisons, between-item comparisons, correlations among constructs, aggregation of scores by dimension, or any other inferential analysis.

RESULTS

Response Flow and Data Completeness

Of the 92 teachers targeted in the census, 75 returned complete questionnaires, while 17 either did not return the questionnaire or returned an incomplete questionnaire. The response rate was 81.52%. All 75 cases contained responses to all 64 items. All item scores were within the range of 1–4, and the total score for each construct corresponded to the sum of its 16 constituent items. No data were missing from the analyzed cases.

The distribution of the 75 complete responses by school is presented in Table 3a. SMA Negeri 1 Lintong Nihuta contributed 40 responses, SMA Negeri 2 contributed 20, and SMA Negeri 3 contributed 15. The percentages in Table 3a were calculated from the 75 complete cases. Respondents' tenure is summarized in Table 3b.

Table 3a. Distribution of the Response Sample by School

School	Frequency	Percentage
SMA Negeri 1 Lintong Nihuta	40	53.33%
SMA Negeri 2 Lintong Nihuta	20	26.67%
SMA Negeri 3 Lintong Nihuta	15	20.00%
Total	75	100.00%

Source: Research data.

Note: The percentages represent the composition of the response sample of 75 and not the response rate for each school.

Table 3b. Summary of Respondents' Tenure

N	Minimum	Maximum	M	Md	Mo	SD
75	1.00	27.00	12.5933	14.00	3.00	8.02854

Source: Research data.

Note: Tenure is expressed in years, M = mean, Md = median, Mo = mode, and SD = standard deviation.

Instrument Assessment Results

In the pilot test with $N = 30$, all 16 items in each construct had observed r values above 0.361 and $p < 0.001$. The ranges of observed r values and the pilot-test *Cronbach's alpha* values are presented in Table 4. The pilot-test alpha values were 0.972 for X1, 0.973 for X2, 0.977 for X3, and 0.969 for Y.

The additional assessment with $N = 75$ yielded item-total correlations above 0.227 for all items, with $p < 0.001$. The alpha values in the main sample were 0.961 for X1, 0.954 for X2, 0.954 for X3, and 0.953 for Y. Table 4 distinguishes the pilot-test results from the main-sample assessment results.

Table 4. Summary of Item-Total Correlations and Internal Consistency in the Pilot Test and Main Sample

Construct	Items	Range of r in pilot test, $N = 30$	Item decision	Pilot-test alpha	Range of r in sample, $N = 75$	Main-sample alpha
Principal leadership (X1)	16	0.736–0.932	All 16 met the criteria	0.972	0.725–0.843	0.961
Organizational communication (X2)	16	0.761–0.917	All 16 met the criteria	0.973	0.644–0.863	0.954
Work environment (X3)	16	0.728–0.935	All 16 met the criteria	0.977	0.646–0.893	0.954
Teacher performance (Y)	16	0.676–0.903	All 16 met the criteria	0.969	0.539–0.885	0.953

Source: Research data.

Note: r = Pearson correlation between an item and the total score that includes the item concerned, critical r in the pilot test = 0.361, critical r in the main sample = 0.227, all correlations at both stages had $p < 0.001$, and alpha = *Cronbach's alpha*. This procedure assessed item-total correlations and did not test the factor structure.

Descriptive Statistics of the Constructs

Table 5 presents the descriptive statistics for the four constructs across 75 cases. Teacher performance had a mean of 60.2933 and a total score of 4,522. Organizational communication had a mean of 58.4133 and a total score of 4,381. The work environment had a mean of 58.2267 and a total score of 4,367. Principal leadership had a mean of 57.6267 and a total score of 4,322.

Achievement percentages ranged from 90.04% to 94.21%. Teacher performance reached 94.21%, organizational communication 91.27%, the work environment 90.98%, and principal leadership 90.04%. Based on the categorization thresholds established in the Method section, all four constructs were categorized as very high. The mode for every construct was 64.

Table 5a. Central Tendency and Score Ranges of the Research Constructs

Construct	N	Minimum	Maximum	Total	M	Md
Principal leadership (X1)	75	37.00	64.00	4,322	57.6267	59.00
Organizational communication (X2)	75	33.00	64.00	4,381	58.4133	61.00
Work environment (X3)	75	43.00	64.00	4,367	58.2267	61.00
Teacher performance (Y)	75	39.00	64.00	4,522	60.2933	63.00

Source: Research data.

Note: M = mean and Md = median.

Table 5b. Dispersion and Achievement of the Research Construct Scores

Construct	Mo	Variance	SD	Achievement	Category
Principal leadership (X1)	64.00	45.0209	6.70976	90.04%	Very high
Organizational communication (X2)	64.00	40.0836	6.33116	91.27%	Very high
Work environment (X3)	64.00	38.4209	6.19846	90.98%	Very high
Teacher performance (Y)	64.00	32.2101	5.67539	94.21%	Very high

Source: Research data.

Note: Mo = mode, SD = standard deviation, and achievement = empirical score total/4,800 × 100%. The achievement percentage is not the proportion of respondents.

Profile of Principal Leadership Indicators

The total X1 score was 4,322 out of a maximum of 4,800, with a construct mean of 57.6267 and achievement of 90.04%. Table 6 presents the means and percentages for all 16 items. All items were in the very high category.

The highest percentage was recorded for X1.1, which concerns the principal's discipline, at 94.00%. The lowest percentage was recorded for X1.13, which concerns the principal's attention to teachers' professional needs, at 87.67%. The range of percentages across the X1 items was 87.67%–94.00%.

Table 6. Profile of Principal Leadership Indicators

Code	Indicator/statement	M	Percentage	Category
X1.1	The principal demonstrates disciplined behavior in carrying out school duties	3.7600	94.00%	Very high
X1.2	The principal serves as a role model in maintaining work integrity	3.7467	93.67%	Very high
X1.3	The principal treats teachers fairly in school matters	3.5733	89.33%	Very high
X1.4	The principal's words and actions are consistent	3.5200	88.00%	Very high
X1.5	The principal clearly communicates the direction of school development	3.5867	89.67%	Very high
X1.6	The principal encourages teachers to work toward the school's quality targets	3.7200	93.00%	Very high
X1.7	The principal raises teachers' morale when they face work demands	3.5333	88.33%	Very high
X1.8	The principal expresses appreciation for teachers' efforts to improve instruction	3.6000	90.00%	Very high
X1.9	The principal encourages teachers to use new approaches in instruction	3.6133	90.33%	Very high
X1.10	The principal provides opportunities for teachers to propose ideas for improvement	3.5867	89.67%	Very high

Code	Indicator/statement	M	Percentage	Category
X1.11	The principal invites teachers to solve instructional problems reflectively	3.5733	89.33%	Very high
X1.12	The principal supports the use of data to improve school programs	3.5733	89.33%	Very high
X1.13	The principal attends to teachers' professional needs	3.5067	87.67%	Very high
X1.14	The principal provides guidance suited to the problems encountered by teachers	3.5733	89.33%	Very high
X1.15	The principal provides opportunities for teachers to undertake self-development	3.6267	90.67%	Very high
X1.16	The principal provides feedback that supports improvement in teacher performance	3.5333	88.33%	Very high

Source: Research data.

Note: M = item mean and the maximum score for each item = 300.

Profile of Organizational Communication Indicators

The total X2 score was 4,381 out of a maximum of 4,800, with a construct mean of 58.4133 and achievement of 91.27%. Table 7 reports all X2 items. All items were categorized as very high.

The highest percentage was recorded for X2.12, which concerns cooperation among teachers in facilitating the performance of duties, at 94.33%. The two lowest percentages were recorded for X2.5, which concerns opportunities to express opinions to the principal, and X2.6, which concerns the principal's responses to teachers' questions, at 88.67% each. The range of percentages across the X2 items was 88.67%–94.33%.

Table 7. Profile of Organizational Communication Indicators

Code	Indicator/statement	M	Percentage	Category
X2.1	Information about school policies is communicated in easily understood language	3.5867	89.67%	Very high
X2.2	School activity schedules are communicated on time	3.7333	93.33%	Very high
X2.3	Work instructions from the school have clear objectives	3.7067	92.67%	Very high
X2.4	Information about changes to school programs is communicated fully to teachers	3.5600	89.00%	Very high
X2.5	Teachers are given opportunities to express opinions to the principal	3.5467	88.67%	Very high
X2.6	The principal responds to teachers' questions about school duties	3.5467	88.67%	Very high
X2.7	Teachers' reports to school leaders are followed up according to need	3.5733	89.33%	Very high
X2.8	The principal's guidance helps teachers understand work priorities	3.6667	91.67%	Very high
X2.9	Teachers share information about instructional activities	3.7600	94.00%	Very high
X2.10	Teachers coordinate with colleagues when implementing school programs	3.7467	93.67%	Very high
X2.11	Teachers discuss classroom problems with colleagues to find solutions	3.6533	91.33%	Very high
X2.12	Cooperation among teachers facilitates the performance of school duties	3.7733	94.33%	Very high
X2.13	Teachers receive feedback on the performance of their duties	3.6800	92.00%	Very high
X2.14	Feedback provided by the school helps teachers improve their work	3.6133	90.33%	Very high
X2.15	Teachers receive explanations when information errors occur	3.6133	90.33%	Very high
X2.16	Teachers' input is considered when school activities are improved	3.6533	91.33%	Very high

Source: Research data.

Note: M = item mean and the maximum score for each item = 300.

Profile of Work Environment Indicators

The total X3 score was 4,367 out of a maximum of 4,800, with a construct mean of 58.2267 and achievement of 90.98%. The means and percentages for the 16 X3 items are presented in Table 8. All items were categorized as very high.

The highest percentage was recorded for X3.10, which concerns the cleanliness of the school grounds, at 95.00%. The lowest percentage was recorded for X3.1, which concerns the provision of learning facilities that support teaching duties, at 85.67%. The range of percentages across the X3 items was 85.67%–95.00%.

Table 8. Profile of Work Environment Indicators

Code	Indicator/statement	M	Percentage	Category
X3.1	The school provides learning facilities that support teaching duties	3.4267	85.67%	Very high
X3.2	Instructional administrative resources are available according to teachers' needs	3.5467	88.67%	Very high
X3.3	The school's learning media can be used to support the learning process	3.5200	88.00%	Very high
X3.4	Teachers' work facilities support the completion of school duties	3.6133	90.33%	Very high
X3.5	The staff room supports concentration when work is being completed	3.5867	89.67%	Very high
X3.6	Classrooms provide comfort during the instructional process	3.6400	91.00%	Very high
X3.7	Workspace lighting supports teachers' comfort	3.6000	90.00%	Very high
X3.8	Workspace air circulation supports teachers' health	3.6933	92.33%	Very high
X3.9	The school environment provides a sense of safety at work	3.7333	93.33%	Very high
X3.10	The cleanliness of the school grounds supports teachers' comfort	3.8000	95.00%	Very high
X3.11	The school layout facilitates teachers' mobility	3.7333	93.33%	Very high
X3.12	School conditions enable teachers to perform their duties without significant disruption	3.7067	92.67%	Very high
X3.13	Working relationships among teachers are mutually respectful	3.6800	92.00%	Very high
X3.14	The principal creates a working atmosphere that supports teachers	3.6667	91.67%	Very high
X3.15	Colleagues provide assistance when teachers encounter work-related difficulties	3.6267	90.67%	Very high
X3.16	The school's social atmosphere encourages teachers to work collaboratively	3.6533	91.33%	Very high

Source: Research data.

Note: M = item mean and the maximum score for each item = 300.

Profile of Teacher Performance Indicators

The total Y score was 4,522 out of a maximum of 4,800, with a construct mean of 60.2933 and achievement of 94.21%. Table 9 presents the results for all Y items. All items were categorized as very high.

The highest percentage was recorded for Y.4, which concerns the preparation of assessments aligned with learning objectives, at 96.33%. The lowest percentage was recorded for Y.16, which concerns participation in professional development activities, at 91.67%. The range of percentages across the Y items was 91.67%–96.33%.

Table 9. Profile of Teacher Performance Indicators

Code	Indicator/statement	M	Percentage	Category
------	---------------------	---	------------	----------

Code	Indicator/statement	M	Percentage	Category
Y.1	I prepare instructional materials before teaching	3.7600	94.00%	Very high
Y.2	I formulate learning objectives in accordance with curriculum outcomes	3.7467	93.67%	Very high
Y.3	I select learning materials according to students' needs	3.7200	93.00%	Very high
Y.4	I prepare assessments aligned with learning objectives	3.8533	96.33%	Very high
Y.5	I create an orderly classroom atmosphere during instruction	3.8000	95.00%	Very high
Y.6	I manage classroom interactions so that students actively engage in learning	3.8267	95.67%	Very high
Y.7	I apply classroom rules consistently	3.7867	94.67%	Very high
Y.8	I maintain students' attention during instruction	3.8133	95.33%	Very high
Y.9	I use instructional methods suited to the characteristics of the material	3.7200	93.00%	Very high
Y.10	I explain the material in language that students can easily understand	3.8267	95.67%	Very high
Y.11	I use learning media to clarify the material	3.7467	93.67%	Very high
Y.12	I monitor students' understanding during instruction	3.7867	94.67%	Very high
Y.13	I assess students' learning outcomes objectively	3.7467	93.67%	Very high
Y.14	I use assessment results to plan follow-up actions	3.7733	94.33%	Very high
Y.15	I complete instructional administration in accordance with school requirements	3.7200	93.00%	Very high
Y.16	I participate in professional development activities to improve instruction	3.6667	91.67%	Very high

Source: Research data.

Note: M = item mean and the maximum score for each item = 300.

Summary of the Relatively Highest and Lowest Indicators

Table 10 summarizes the indicators with the highest and lowest percentages in each construct. The labels relative strength and relative priority for improvement were assigned according to the ranking of percentages within the respective constructs. Two X2 items shared the same lowest percentage.

Table 10. Summary of the Relatively Highest and Lowest Indicators

Construct	Relatively highest indicator	Percentage	Relatively lowest indicator	Percentage
Principal leadership	X1.1: principal discipline	94.00%	X1.13: attention to teachers' professional needs	87.67%
Organizational communication	X2.12: cooperation among teachers facilitates task performance	94.33%	X2.5: opportunity to express opinions and X2.6: principal's response	88.67%, 88.67%
Work environment	X3.10: cleanliness of the school grounds	95.00%	X3.1: learning facilities support teaching duties	85.67%
Teacher performance	Y.4: preparation of assessments aligned with learning objectives	96.33%	Y.16: participation in professional development	91.67%

Source: Research data.

Note: All indicators in the table remained in the very high category, and no between-indicator difference tests were conducted.

DISCUSSION

The main findings showed that principal leadership, organizational communication, the work environment, and teacher performance were all

categorized as very high, with achievement percentages ranging from 90.04% to 94.21%. This profile reflects very positive perceptions of management and task implementation across the three public senior high schools, but it does not indicate that the four constructs were identical in quality across every indicator. The literature positions teacher performance as the product of interactions among personal capabilities, leadership, culture, and organizational collaboration (Kanya et al., 2021; Ngabiyanto et al., 2023). Relationships among instructional leadership, school climate, and teacher performance also demonstrate that organizational conditions must be understood as a network rather than as a single attribute (Dutta & Sahney, 2022). Because the mode of every construct reached the maximum score of 64, the results also indicated a concentration of responses at the upper end of the scale. The principal contribution of the mapping was therefore not to differentiate categories that were uniformly very high, but to identify internal patterns that could guide the maintenance of strengths and selected improvements.

Teacher performance achieved the highest percentage at 94.21%. Preparing assessments aligned with learning objectives was the strongest indicator, while participation in professional development was the relatively lowest indicator. Assessment readiness indicates that teachers considered themselves capable of connecting learning objectives with evidence of student achievement. Strategies for improving performance require orderly planning, implementation, evaluation, and continuous development (Muspawi, 2021; Borja, 2024). However, the consistency of practices that were already rated highly must be maintained through professional learning so that methods, media, and follow-up activities do not become merely routine. Collaborative inquiry can provide a means of using instructional standards and evidence to improve practices collectively (Cravens & Hunter, 2021), while instructional and distributed leadership can create conditions for teachers' professional development (Amzat et al., 2022). Accordingly, the relatively lowest achievement in professional development does not indicate an absolute weakness but marks a strategic point for preserving the already very high quality of performance.

In principal leadership, discipline and integrity received very strong scores, while attention to individual professional needs emerged as a relative priority. This pattern indicates that formal role modeling was clearly perceived by teachers, although the developmental function could be deepened through more differentiated support. Principal leadership is associated with professional learning through trust and collective efficacy, which means that support cannot be limited to general guidance (Karacabey et al., 2022). Instructional leadership can also shape teacher efficacy through processes at both the school and individual levels (Ma & Marion, 2021). Another pathway operates when principals provide teachers with opportunities to lead professional learning and disseminate knowledge (Pan & Chen, 2021). The role of school climate in the relationship between instructional leadership and teacher autonomy further emphasizes the importance of conditions that enable teachers to act professionally (Akgöz et al., 2024). Leadership development

should therefore be directed toward needs diagnosis, specific feedback, mentoring, and learning opportunities relevant to teachers.

Organizational communication displayed a different pattern. Cooperation and information sharing among teachers were the principal strengths, while opportunities to express opinions and the principal's responses received relatively lower scores. Principals' communication is associated with teachers' work ethic, motivation, and task implementation, which means that its quality must be assessed in terms of both clarity and reciprocity (Janiah et al., 2023). Participative partnerships also require communication that provides teachers with a role in organizational processes rather than merely communicating finalized decisions (Balqis et al., 2025). In horizontal communication, tacit knowledge sharing allows individual experience to become a learning resource for colleagues (Triana & Rugaiyah, 2023). Climate, commitment, and communication may also reinforce one another in the performance of professional duties (Kurniadewi et al., 2026). Therefore, the strong level of cooperation should be developed from routine coordination into academic dialogue, while vertical communication should be supplemented by response and follow-up mechanisms so that teachers' voices result in observable improvements.

The work environment achieved 90.98%, with cleanliness as the strongest indicator and learning facilities as the relative priority. Cleanliness, safety, circulation, and spatial order provide basic comfort, but environmental effectiveness is also determined by the alignment of resources with teaching duties. Teacher well-being is multidimensional and is shaped by social relationships, job demands, emotions, and organizational resources (Hascher & Waber, 2021). Environmental conditions and teacher characteristics are also associated with job satisfaction (Ker et al., 2022), while positive emotions in the workplace contribute to well-being and professional satisfaction (Dreer, 2024). At the senior high school level, the physical environment, workload, and tenure have been positioned as conditions associated with teacher performance (Mulyadi & Aryadi, 2025). Follow-up should therefore extend beyond facility inventories. Schools need to assess the functionality, accessibility, subject suitability, frequency of use, and contribution of facilities to instructional strategies.

When considered across constructs, the strongest indicators tended to concern orderliness and basic conditions, namely discipline, cooperation, cleanliness, and assessment preparation, while the relative areas for strengthening involved individualized professional support, vertical dialogue, learning facilities, and participation in self-development. This pattern is consistent with the view that school quality depends on management's capacity to establish a climate that connects direction, relationships, and instructional processes (Kurniady et al., 2024). Organizational health is also formed when leadership is translated into supportive working conditions (Velarde et al., 2022). A supportive culture and teacher collaboration can mediate the relationships between leadership, efficacy, and job satisfaction (Liu et al., 2021), while professional learning communities are associated with teachers' collective

efficacy (Voelkel, 2022). Subsequent improvements therefore do not need to replace established practices but should connect organizational order with professional learning, dialogue, and more meaningful resource use.

The practical implications can be formulated as an integrated management sequence. Principals need to map each teacher's professional needs, provide feedback based on instructional problems, and arrange follow-up through mentoring or competence development. Competence-strengthening strategies become more meaningful when training, institutional support, and collaboration are aligned with teachers' actual needs (Sengsalong & Yuliana, 2025). Academic supervision must also be positioned as development that encompasses planning, implementation, evaluation, and continuous improvement (Sukmara et al., 2023). Leadership practices can foster collaboration and organizational change when joint forums have clear objectives and follow-up actions (Meyer et al., 2023). Trust in principals, a focus on instruction, collaboration, and teacher efficacy also form interconnected pathways (Çoban et al., 2023). Vertical dialogue, facility mapping, peer observation, assessment analysis, and professional learning communities therefore need to be integrated into the school improvement cycle.

CONCLUSIONS AND RECOMMENDATIONS

The mapping of 75 teachers at three public senior high schools in Lintong Nihuta District showed that teacher performance, organizational communication, the work environment, and principal leadership were all categorized as very high. Teacher performance achieved 94.21%, organizational communication 91.27%, the work environment 90.98%, and principal leadership 90.04%. Relative strengths were found in preparing assessments aligned with learning objectives, cooperation among teachers, cleanliness of the school grounds, and principal discipline. Attention to teachers' professional needs, opportunities to express opinions and the principal's responses, the availability of learning facilities, and participation in professional development were relative priorities for improvement. Because all indicators remained in the very high category, these priorities do not indicate poor conditions but identify the areas most amenable to strengthening to maintain quality. Schools can respond to the findings through more specific professional support, responsive vertical communication, facility mapping based on actual use, and professional learning communities. The conclusion is limited to a descriptive diagnosis based on respondents' perceptions and does not establish causal relationships.

FURTHER STUDY

Interpretation of the results remains limited by the design and data quality. The sample comprised 75 complete responses from 92 teachers at three public senior high schools in one district, and nonresponse bias and limited generalizability therefore cannot be ruled out. All constructs were measured through self-reports at the same time. The high scores may have been influenced by subjective perceptions, socially desirable responding, common method effects, and ceiling effects. Alpha values above 0.950 indicate very high internal consistency but may also suggest similarity in item content. Research

on observational data cautions that identified patterns must not be extended into causal claims (Rohrer, 2018). Teacher performance is also shaped by combinations of leadership, environment, and motivation (Auliana et al., 2021) and may be associated with efficacy, commitment, school climate, and job satisfaction, which were not all mapped in this study (Habibi et al., 2025). The results are therefore most appropriately understood as a contextual, perception-based diagnosis that requires confirmation through observations, documents, supervision, and broader samples.

REFERENCES

- Akgöz, E. E., Şahin, F., & Erdoğan, O. (2024). The mediator role of school climate in the relationship between instructional leadership behaviors of school principals and teacher autonomy. *International Journal of Educational Management*, 38(4), 1142–1159. <https://doi.org/10.1108/IJEM-07-2023-0323>
- Amzat, I. H., Yanti, P. G., & Suswandari, S. (2022). Estimating the effect of principal instructional and distributed leadership on professional development of teachers in Jakarta, Indonesia. *SAGE Open*, 12(3), 21582440221109585. <https://doi.org/10.1177/21582440221109585>
- Auliana, S., Supriyanto, A. S., & Harini, S. (2021). Understanding teacher performance through leadership role, work environment, and work motivation. *MANAGERIA: Jurnal Manajemen Pendidikan Islam*, 6(2), 155–168. <https://doi.org/10.14421/manageria.2021.62-10>
- Balqis, S. N., Usman, N., & Ismail, I. (2025). Partnership in participative leadership and organizational communications: Factors shaping junior high school teacher performance. *Tafkir: Interdisciplinary Journal of Islamic Education*, 6(1), 213–225. <https://doi.org/10.31538/tijie.v6i1.1372>
- Borja, P. J. E. (2024). The evaluation of teacher professional performance, engine of performance. *International Journal of Human Sciences Research*, 4(18), 2–6. <https://doi.org/10.22533/at.ed.5584182431055>
- Çoban, Ö., Özdemir, N., & Bellibaş, M. Ş. (2023). Trust in principals, leaders' focus on instruction, teacher collaboration, and teacher self-efficacy: Testing a multilevel mediation model. *Educational Management Administration & Leadership*, 51(1), 95–115. <https://doi.org/10.1177/1741143220968170>
- Cravens, X. C., & Hunter, S. B. (2021). Assessing the impact of collaborative inquiry on teacher performance and effectiveness. *School Effectiveness and School Improvement*, 32(4), 564–606. <https://doi.org/10.1080/09243453.2021.1923532>
- Dreer, B. (2024). Teachers' well-being and job satisfaction: The important role of positive emotions in the workplace. *Educational Studies*, 50(1), 61–77. <https://doi.org/10.1080/03055698.2021.1940872>
- Dutta, V., & Sahney, S. (2022). Relation of principal instructional leadership, school climate, teacher job performance and student achievement. *Journal of Educational Administration*, 60(2), 148–166. <https://doi.org/10.1108/JEA-01-2021-0010>

- Habibi, A., Attar, R. W., Saudagar, F., Tomczyk, L., Hendra, R., & Alhazmi, A. H. (2025). Instructional leadership, self-efficacy, commitment and school climate on teachers' job satisfaction and performance: Asian context. *Asian Education and Development Studies*, 14(5), 1002–1021. <https://doi.org/10.1108/AEDS-11-2024-0262>
- Hamidah, H., Komariah, A., Aedi, N., Prihatin, E., & Salsabil, S. H. (2024). The impact of principals' managerial quality and school climate on enhancing teacher performance. *AL-ISHLAH: Jurnal Pendidikan*, 16(4), 4541–4550. <https://doi.org/10.35445/alishlah.v16i4.5844>
- Hascher, T., & Waber, J. (2021). Teacher well-being: A systematic review of the research literature from the year 2000–2019. *Educational Research Review*, 34, 100411. <https://doi.org/10.1016/j.edurev.2021.100411>
- Janiah, S., Suriansyah, A., & Effendi, R. (2023). The correlation of school principal communication, work ethic, and work motivation to teacher performance. *International Journal of Social Science and Human Research*, 6(1), 336–342. <https://doi.org/10.47191/ijsshr/v6-i1-46>
- Kanya, N., Fathoni, A. B., & Ramdani, Z. (2021). Factors affecting teacher performance. *International Journal of Evaluation and Research in Education*, 10(4), 1462–1468. <https://doi.org/10.11591/ijere.v10i4.21693>
- Karacabey, M. F., Bellibaş, M. Ş., & Adams, D. (2022). Principal leadership and teacher professional learning in Turkish schools: Examining the mediating effects of collective teacher efficacy and teacher trust. *Educational Studies*, 48(2), 253–272. <https://doi.org/10.1080/03055698.2020.1749835>
- Karakose, T., Tulubaş, T., Kanadli, S., & Gurr, D. (2025). What factors mediate the relationship between principal leadership and teacher professional learning? Evidence from meta-analytic structural equation modelling (MASEM). *Journal of Educational Administration*, 63(1), 63–76. <https://doi.org/10.1108/JEA-05-2024-0160>
- Ker, H. W., Lee, Y. H., & Ho, S. M. (2022). The impact of work environment and teacher attributes on teacher job satisfaction. *Educational Process: International Journal*, 11(1), 28–39. <https://doi.org/10.22521/edupij.2022.111.3>
- Kurniadewi, R., Lappy, A. A., Pata, K. P., & Husin, A. (2026). The effects of school climate, teacher commitment, and communication on teacher performance. *Indonesian Journal of Advanced Research*, 5(6), 957–972. <https://doi.org/10.55927/ijar.v5i6.16662>
- Kurniady, D. A., Susilana, R., Widodo, M., & Halimi, A. K. (2024). Managerial performance in developing school climate to improve school quality. *Journal of Education*, 204(2), 392–401. <https://doi.org/10.1177/00220574211016405>
- Liu, Y., Bellibaş, M. Ş., & Gümüş, S. (2021). The effect of instructional leadership and distributed leadership on teacher self-efficacy and job satisfaction: Mediating roles of supportive school culture and teacher collaboration. *Educational Management Administration & Leadership*, 49(3), 430–453. <https://doi.org/10.1177/1741143220910438>

- Ma, X., & Marion, R. (2021). Exploring how instructional leadership affects teacher efficacy: A multilevel analysis. *Educational Management Administration & Leadership*, 49(1), 188–207. <https://doi.org/10.1177/1741143219888742>
- Meyer, A., Hartung-Beck, V., Gronostaj, A., Krüger, S., & Richter, D. (2023). How can principal leadership practices promote teacher collaboration and organizational change? A longitudinal multiple case study of three school improvement initiatives. *Journal of Educational Change*, 24(3), 425–455. <https://doi.org/10.1007/s10833-022-09451-9>
- Mulyadi, S., & Aryadi, D. (2025). Effect of physical work environment, workload and tenure on teacher performance at high school. *Management of Education: Jurnal Manajemen Pendidikan Islam*, 11(2), 132–149. <https://doi.org/10.18592/moe.v11i2.16802>
- Muspawi, M. (2021). Strategi peningkatan kinerja guru. *Jurnal Ilmiah Universitas Batanghari Jambi*, 21(1), 101–106. <https://doi.org/10.33087/jiubj.v21i1.1265>
- Ngabiyanto, N., Nurkhin, A., Mulyono, K. B., Saputro, I. H., Pramono, D., & Utomo, A. P. Y. (2023). Teachers' performance during the COVID-19 pandemic in Indonesia: Causality and comparison. *European Journal of Educational Research*, 12(2), 605–621. <https://doi.org/10.12973/eu-er.12.2.605>
- Pan, H.-L. W., & Chen, W.-Y. (2021). How principal leadership facilitates teacher learning through teacher leadership: Determining the critical path. *Educational Management Administration & Leadership*, 49(3), 454–470. <https://doi.org/10.1177/1741143220913553>
- Raharja, S., Nashir, I. M., & Andriani, D. E. (2022). The effect of principals' transformational leadership and organizational culture on teacher performance. *Jurnal Kependidikan: Penelitian Inovasi Pembelajaran*, 6(2), 152–162. <https://doi.org/10.21831/jk.v6i2.49456>
- Rohrer, J. M. (2018). Thinking clearly about correlations and causation: Graphical causal models for observational data. *Advances in Methods and Practices in Psychological Science*, 1(1), 27–42. <https://doi.org/10.1177/2515245917745629>
- Satria, F., Marwan, M., & Bahri, S. (2024). The influence of academic supervision, work environment, and work motivation on teacher performance. *Jurnal As-Salam*, 8(2), 149–167. <https://doi.org/10.37249/assalam.v8i2.793>
- Sengsalong, A., & Yuliana, L. (2025). Enhancing teacher competency: Strategies and patterns at Siritham Wittaya School. *AL-ISHLAH: Jurnal Pendidikan*, 17(1), 428–438. <https://doi.org/10.35445/alishlah.v17i1.6047>
- Simanullang, M., Samosir, L., Saragih, R., Sitopu, E., & Simanullang, P. (2024). The influence of interpersonal communication of school principals and academic supervision of school supervisors on the performance of junior high school teachers in Parlilitan District, Humbang Hasundutan Regency. *Journal of Educational Analytics*, 3(2), 305–330. <https://doi.org/10.55927/jeda.v3i2.8922>

- Sinaga, S., Sitorus, H., Simanullang, P., Samosir, L., & Sitompul, A. S. (2024). Comparative study of the influence of principal management and teacher performance professionalism on numeracy literacy ability in SMA Negeri 2 Lintongnihuta and SMA Negeri 2 Balige. *Indonesian Journal of Christian Education and Theology*, 3(2), 101–120. <https://doi.org/10.55927/ijcet.v3i2.9564>
- Sitorus, R., Samosir, L., & Tarigan, I. (2023). Hubungan kepemimpinan kepala sekolah dan peran tim kerja guru dengan kinerja guru SMA Negeri di Kabupaten Humbang Hasundutan tahun 2023. *Jurnal Multidisiplin Indonesia*, 2(10), 3217–3223. <https://doi.org/10.58344/jmi.v2i10.598>
- Sukmara, G., Yuliana, L., Retnowati, E., & Jannah, N. M. (2023). The important role of principal in academic supervision to improve teacher competency in society 5.0 era. *Cendekia: Jurnal Kependidikan dan Kemasyarakatan*, 21(2), 268–284. <https://doi.org/10.21154/cendekia.v21i2.6926>
- Toropova, A., Myrberg, E., & Johansson, S. (2021). Teacher job satisfaction: The importance of school working conditions and teacher characteristics. *Educational Review*, 73(1), 71–97. <https://doi.org/10.1080/00131911.2019.1705247>
- Triana, T., & Rugaiyah, R. (2023). Tacit knowledge sharing to improve teachers' performance. *Jurnal Akuntabilitas Manajemen Pendidikan*, 11(1), 49–56. <https://doi.org/10.21831/jamp.v11i1.56741>
- Velarde, J. M., Ghani, M. F., Adams, D., & Cheah, J.-H. (2022). Towards a healthy school climate: The mediating effect of transformational leadership on cultural intelligence and organisational health. *Educational Management Administration & Leadership*, 50(1), 163–184. <https://doi.org/10.1177/1741143220937311>
- Voelkel, R. H., Jr. (2022). Causal relationship among transformational leadership, professional learning communities, and teacher collective efficacy. *International Journal of Leadership in Education*, 25(3), 345–366. <https://doi.org/10.1080/13603124.2019.1690699>
- Wardani, R. K., Rahmawati, D., & Santosa, H. (2021). The role of academic supervision and communication on teacher performance. *Journal of Education Research and Evaluation*, 5(2), 302–310. <https://doi.org/10.23887/jere.v5i2.30212>
- Yayuk, E., & Haqqi, Y. A. (2024). Maximizing teacher competence and performance: The influential factors across individuals, organizations, leadership, and environment: A comprehensive systematic review and model. *AL-ISHLAH: Jurnal Pendidikan*, 16(1), 257–272. <https://doi.org/10.35445/alishlah.v16i1.4408>