

Principal Leadership Styles and Multidimensional School Management Outcomes in Urban Secondary Schools in Eastern China

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Abstract

School leadership research in China has expanded, but evidence is often fragmented across single outcomes, specific mechanisms, and large-scale datasets. This study examined how three principal leadership orientations relate to five school management outcomes in three secondary schools located in an urban district of eastern China. The analytic sample comprised 100 teachers. Descriptive statistics, Pearson correlation analysis, and one-way analysis of variance were used. The results showed a consistent pattern across leadership orientations: transformational leadership had strong positive correlations with school management outcomes ($r = .55$ to $.75$, $p < .01$), transactional leadership showed moderate positive correlations ($r = .40$ to $.55$), and passive or avoidant leadership showed negative correlations ($r = -.30$ to $-.45$). Significant between-group differences were found for student achievement, $F(2, 97) = 8.52$, $p < .001$; teacher retention, $F(2, 97) = 7.10$, $p < .01$; teacher job satisfaction, $F(2, 97) = 14.82$, $p < .001$; and student attendance, $F(2, 97) = 4.13$, $p < .05$. Effect sizes were largest for teacher job satisfaction ($\eta^2 = .234$; $\omega^2 = .217$), followed by student achievement ($\eta^2 = .149$; $\omega^2 = .131$), teacher retention ($\eta^2 = .128$; $\omega^2 = .109$), and student attendance ($\eta^2 = .078$; $\omega^2 = .059$). By examining teacher-related, organizational, and student-related indicators together, the study addresses current debates over whether school effectiveness should be judged primarily through distal performance outcomes or through the professional and organizational conditions that sustain them. The findings are best interpreted as evidence of association rather than causation and suggest that active, supportive, and context-responsive principal leadership is especially salient for teachers' work experience in urban Chinese secondary schools.

Keywords: Principal Leadership, Transformational Leadership, Transactional Leadership, Teacher Job Satisfaction, School Climate, School Management, Secondary Education, China

Introduction

School leadership has become a consequential topic because schools are now expected to deliver more than academic attainment alone. Principals are responsible for coordinating instruction, teacher development, student participation, organizational climate, resource use,

and institutional accountability, often under simultaneous pressure to improve measurable performance and sustain a workable professional environment. The 2024/5 Global Education Monitoring Report therefore places leadership at the center of educational quality and emphasizes that effective leadership operates through vision, people, collaboration, and learning-oriented organizational conditions (UNESCO, 2024). This broader mandate makes principal leadership a social and organizational issue as well as an educational one: it concerns how authority is exercised, how professional work is coordinated, and how institutional performance is defined.

Research accumulated over the past two decades supports an indirect and organizational view of principal influence. Liebowitz and Porter (2019), in a systematic review and meta-analysis of 51 studies, found that principal behavior was associated with student achievement, teacher well-being, instructional practice, and school organizational health, with the largest relationships occurring for organizational health and teacher outcomes. Leithwood et al. (2020) similarly argue that leadership contributes to learning mainly by shaping school conditions and the quality of teaching. Sun et al. (2024), synthesizing 20 years of international successful-principalship research, further show that effective leadership is context-sensitive and develops through combinations of practices rather than through a single universal formula. These findings shift the analytical question from whether principals matter to how their recurring patterns of action are associated with different layers of school functioning.

Leadership style remains useful within this debate because it captures recurring ways in which principals motivate, coordinate, monitor, and support staff. Transformational leadership emphasizes shared purpose, intellectual stimulation, individualized support, and commitment to collective goals (Bass & Riggio, 2006). Transactional leadership places greater weight on role clarity, monitoring, contingent reward, and corrective action, whereas passive or avoidant leadership is characterized by delayed intervention and limited involvement when guidance is needed. Contemporary leadership scholarship, however, increasingly cautions against treating these orientations as isolated managerial techniques. Successful school leadership is more plausibly understood as a repertoire whose value depends on organizational conditions, professional relationships, and the problems a school is trying to solve (Day et al., 2016; Sun et al., 2024).

The Chinese context makes these questions especially pertinent. National policy has sustained strong expectations for educational quality, modernization, teacher development, and school-level implementation capacity (Central Committee of the Communist Party of China & State Council of the People's Republic of China, 2019). At the same time, recent Chinese research has moved beyond achievement-centered accounts and increasingly examines teacher autonomy, collaboration, self-efficacy, well-being, work motivation, job stress, and job satisfaction as organizational consequences of leadership. Distributed leadership has been linked to job satisfaction through autonomy and collaboration (Liu et al., 2021), through supportive culture and teacher collaboration (Liu, Bellibaş, & Gümüş, 2021), through collaboration and self-efficacy (Fan & Chu, 2025), and through teacher well-being and work motivation (Ma & Marion, 2026). Wang et al. (2025) likewise show that distributed leadership can strengthen the relationship between teacher collaboration and career well-being. Recent studies of transformational leadership in China also connect principal

leadership with teacher well-being, job satisfaction, and role stress in primary and secondary education (Fang et al., 2025; Yong & Zhang, 2025). Together, this literature places principal leadership within a wider social-science debate about the tension between administrative coordination and the autonomy, voice, well-being, and stability of professional workers.

Despite this growing evidence, two limitations remain. First, much of the Chinese literature isolates a single teacher outcome or models one specific mechanism, while school effectiveness is frequently judged through academic indicators alone. Yet student achievement, teacher retention, job satisfaction, school climate, and attendance represent different dimensions of institutional functioning. A school may maintain acceptable academic results while experiencing weak morale or unstable staffing, and a strong professional climate may support longer-term improvement that is not immediately visible in test scores. Examining these outcomes together is therefore important for current debates over multidimensional organizational performance and over whether employee-related conditions should be treated as peripheral attitudes or as substantive indicators of institutional health. Second, the dominant empirical evidence in China often comes from large international or national datasets. Such data are essential for identifying broad patterns, but they can obscure how leadership is experienced within particular organizational settings and school levels. Chen et al. (2022) identified different leadership profiles and different relationships with achievement in China and Germany. Zhong et al. (2026), using data from more than 1,900 Chinese schools, found that the structure and effectiveness of principal leadership differed between elementary and secondary schools. Zhu et al. (2026) further showed that principal- and teacher-reported leadership can produce different explanatory models in rural China. These studies reinforce a central point in contemporary organizational research: leadership effects are not context-free, and the same formal role may be enacted and experienced differently across institutional settings.

The research problem addressed in the present study is therefore not simply whether principal leadership is associated with school outcomes. That general relationship is already well established. The unresolved issue is what association pattern emerges when transformational, transactional, and passive or avoidant leadership are considered alongside multiple teacher-related, organizational, and student-related management outcomes within the same urban Chinese secondary-school setting. This problem is significant because it tests whether leadership is more closely aligned with proximal professional conditions, such as teacher job satisfaction and retention, than with more distal student outcomes, while also providing context-specific evidence that complements large-scale Chinese studies. Given the cross-sectional design and the bounded sample of three schools, the study does not claim causal or district-wide effects; its contribution is a comparative, multidimensional account of leadership-management associations within a clearly defined local context. Three research questions guide the analysis:

RQ1. What levels of student achievement, teacher retention, teacher job satisfaction, school climate, and student attendance are observed in the participating schools?

RQ2. What association pattern exists between transformational, transactional, and passive or avoidant principal leadership and school management outcomes?

RQ3. Do student achievement, teacher retention, teacher job satisfaction, and student attendance differ significantly across leadership-style categories?

Literature Review and Conceptual Framework

Principal Leadership as an Organizational Mechanism

A persistent finding in educational leadership research is that principal influence is largely indirect. Principals shape structures and relationships that affect teachers, and teachers in turn shape classroom practice and student experience. Hallinger (2011) described leadership for learning as an organization-wide process rather than a narrow set of supervisory behaviors. Leithwood and Sun (2012), in a meta-analytic review of transformational school leadership, found stronger effects on school conditions and teacher states than on student achievement. This pattern has been reinforced by later syntheses (Leithwood et al., 2020; Liebowitz & Porter, 2019).

Teacher collaboration illustrates this organizational pathway. Meyer et al. (2022) found that principal leadership was related to teacher collaboration through collective efficacy, while Meyer et al. (2023) showed in longitudinal school-improvement cases that leadership practices can sustain collaboration and organizational change over time. These studies shift attention away from the principal as an isolated actor and toward the conditions that principals help create for professional work.

Teacher job satisfaction and retention add another layer. Job satisfaction reflects how teachers evaluate their work conditions, professional relationships, autonomy, and career experience. Retention captures whether teachers remain in the organization over time. Kraft et al. (2016) showed that organizational context is closely related to teacher turnover and student achievement. Nguyen et al. (2026), reviewing evidence on teacher retention, identify autonomy, professional development, and teacher voice as leadership-relevant domains that can strengthen well-being, commitment, and retention. These conditions are particularly important in systems where teachers face substantial instructional and administrative demands.

School climate links staff experience to student participation. Wang and Degol (2016) conceptualize school climate as a multidimensional feature of school life that includes academic, community, safety, and institutional dimensions. Daily et al. (2020) found that school satisfaction and climate were associated with attendance and grades among middle and high school students. Aldridge et al. (2024) further argue that climate data can inform school improvement because the school environment is sufficiently malleable to be a meaningful target for leadership and organizational intervention.

Leadership Orientations

Transformational leadership is built around shared vision, inspirational motivation, intellectual stimulation, individualized consideration, and role modelling (Bass & Riggio, 2006). In schools, these practices can strengthen teachers' identification with collective goals and their willingness to participate in improvement. Leithwood and Sun (2012) found moderate positive effects of transformational school leadership on organizational conditions and teacher internal states, with smaller effects on student achievement. Chinese evidence is compatible with this pattern. Zhang et al. (2022) reported significant relationships among transformational leadership, professional learning community characteristics, and teacher job satisfaction. More recent Chinese studies have linked transformational leadership with teacher well-being and with lower role stress through affective and job-related processes

(Fang et al., 2025; Yong & Zhang, 2025), reinforcing the relevance of teacher-facing organizational outcomes in secondary-school leadership research.

Transactional leadership places greater emphasis on role clarity, performance expectations, contingent reward, monitoring, and corrective action. These practices are important in organizations that depend on predictable routines and accountability. Secondary schools require timetables, curriculum implementation, attendance procedures, reporting systems, and clear lines of responsibility. Transactional leadership may therefore contribute to operational consistency, although it is less likely to generate the same level of professional attachment as leadership centered on trust, shared purpose, and teacher development.

Passive or avoidant leadership reflects delayed decision-making, limited guidance, and reluctance to intervene when problems emerge. In school settings, such behavior can create uncertainty and weaken confidence in management. Its likely consequences are especially relevant when teachers need timely support related to workload, student behavior, curriculum change, or professional conflict. For this reason, negative relationships with school-management outcomes are theoretically plausible even when a cross-sectional design cannot establish causality.

Multidimensional School Management

School management is treated here as a set of related outcomes rather than a single score. Teacher retention and teacher job satisfaction represent teacher-related outcomes. School climate represents an organizational outcome. Student achievement and attendance represent student-related outcomes. The distinction matters because leadership may be more closely connected to some outcomes than others.

Teacher-related outcomes are comparatively proximal to principal behavior. Teachers directly experience feedback, communication, workload allocation, professional support, and participation in decision-making. School climate is somewhat broader because it emerges from patterns of interaction across the organization. Student achievement and attendance are more distal. They are influenced by classroom teaching, family circumstances, peer relationships, prior attainment, health, and other factors in addition to school leadership. A multidimensional analysis can therefore reveal whether leadership is most closely associated with teacher conditions, organizational climate, student outcomes, or some combination of these domains.

Chinese Context and Analytical Expectations

Leadership practices are filtered through institutional context. Chinese principals work within formal administrative structures while also facing growing expectations for professional learning, teacher participation, innovation, and student-centered development. Recent Chinese evidence makes this tension visible. Distributed leadership has been associated with teacher autonomy, collaboration, self-efficacy, job satisfaction, well-being, motivation, and job stress (Fan & Chu, 2025; Li et al., 2024; Liu et al., 2021; Ma & Gu, 2026; Ma & Marion, 2026; Wang et al., 2025). At the same time, Zhong et al. (2026) show that principal leadership has different structures and outcome relationships across elementary and secondary schools, underscoring the need to avoid treating leadership as institutionally uniform. The analytical

implication is that leadership should be examined as an organizational condition whose relevance may vary across outcome domains and settings.

The present framework therefore treats leadership as an organizational condition associated with three domains of school functioning. Transformational and transactional leadership represent active approaches with different emphases, whereas passive or avoidant leadership represents reduced engagement. The analysis expects the strongest favorable pattern for transformational leadership, a more moderate positive pattern for transactional leadership, and an unfavorable pattern for passive or avoidant leadership. Because the data are observational, these are expectations about association rather than causal effects.

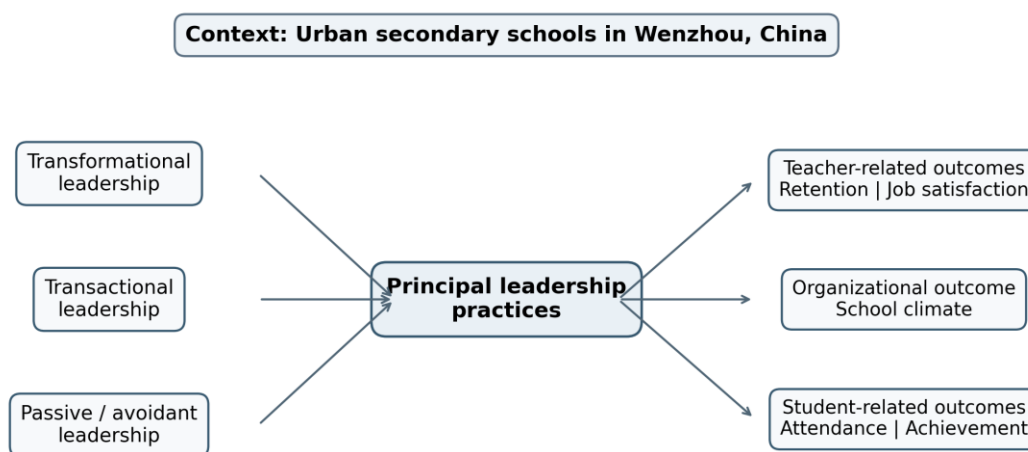


Figure 1 Analytical Framework of Associations Between Principal Leadership Orientations and Teacher-Related, Organizational, and Student-Related School Management Outcomes

Method

Research Design and Setting

The study used a quantitative cross-sectional design. Data were collected in three secondary schools in Lucheng District, Wenzhou City, Zhejiang Province, an urban area in eastern China. Conducting the study within one district reduced contextual heterogeneity across participating schools while preserving variation in leadership and management conditions. The design was intended to examine within-sample patterns rather than estimate district-wide or national effects.

Participants and Data Collection

The analytic sample comprised 100 teachers from the three participating secondary schools. The schools were selected using predefined comparability and access criteria, after which teachers were selected from staff rosters within each participating school. The study therefore followed a two-stage school-based sampling procedure.

Questionnaire administration took place over approximately two months. School permission and university ethics approval were obtained before distribution. Participation was voluntary, coded identifiers were used in place of names, and procedures were used to minimize direct researcher influence while participants completed the questionnaire. Data were entered and analyzed in IBM SPSS Statistics.

Measures

Principal leadership was measured with adapted five-point Likert-type items based on the Multifactor Leadership Questionnaire and the Full Range Leadership framework (Avolio & Bass, 2004; Bass & Riggio, 2006). The inferential analysis focused on transformational, transactional, and passive or avoidant leadership, the three orientations used in the group comparisons and correlational analyses.

School management was represented by five outcomes. Student achievement was recorded as an academic performance score. Teacher retention and student attendance were expressed as percentages. Teacher job satisfaction and school climate were measured on five-point scales. These variables represent distinct but related domains of school functioning and are therefore analyzed separately rather than collapsed into a single index.

Instrument development included expert review for clarity and construct relevance, pilot refinement, and internal-consistency assessment before the main survey administration. These procedures were used to improve item wording and alignment with the study constructs. The present analysis uses the construct-level measures developed through these procedures for the correlational and group-comparison analyses.

Table 1

Operationalization of Principal Leadership and School Management Variables

Construct	Operationalization	Metric
Transformational Leadership	Shared Vision, Inspirational Motivation, Intellectual Stimulation, Individualized Support, Role Modelling	5-Point Likert-Type Items
Transactional Leadership	Contingent Reward, Performance Expectations, Monitoring, Corrective Action	5-Point Likert-Type Items
Passive / Avoidant Leadership	Delayed Intervention, Limited Guidance, Avoidance of Decision-Making	5-Point Likert-Type Items
Student Achievement	Academic Performance Score	Score
Teacher Retention	Proportion of Teachers Remaining in the School during the Specified Period	Percentage
Teacher Job Satisfaction	Teacher-Reported Evaluation of Professional and Work Conditions	5-Point Scale
School Climate	Teacher Perceptions of Support, Collaboration, Inclusiveness, and Organizational Morale	5-Point Scale
Student Attendance	Proportion of Students Attending School Regularly	Percentage

Note. Leadership items were adapted from the MLQ-based framework.

Data Analysis

Descriptive statistics were used to summarize the five school-management outcomes. Pearson correlation analysis examined the direction and magnitude of relationships between the three leadership orientations and the school-management indicators. To present the overall pattern clearly, coefficients are summarized as ranges: transformational leadership, $r = .55$ to $.75$; transactional leadership, $r = .40$ to $.55$; and passive or avoidant leadership, $r = -.30$ to $-.45$. The range-based presentation highlights differences among leadership orientations without implying an exact rank order among individual outcomes.

One-way analysis of variance was used to compare student achievement, teacher retention, teacher job satisfaction, and student attendance across the three leadership-style categories used in the study: transformational, transactional, and passive or avoidant leadership. School climate was not included in the ANOVA effect-size comparison. The omnibus tests were used to assess whether the four outcomes differed significantly across the leadership-style categories.

Eta squared (η^2), omega squared (ω^2), and Cohen's f were reported to complement the omnibus F tests and describe the magnitude of the observed between-group differences. To maintain a common basis across outcomes, effect sizes were derived from the reported F statistics and their degrees of freedom. Eta squared was calculated as $(F \times df_{\text{between}}) / (F \times df_{\text{between}} + df_{\text{within}})$, omega squared as $[df_{\text{between}} \times (F - 1)] / [df_{\text{between}} \times F + df_{\text{within}} + 1]$, and Cohen's f as the square root of $\eta^2 / (1 - \eta^2)$. These statistics follow standard recommendations for effect-size reporting (Lakens, 2013). Statistical significance was evaluated at $p < .05$.

Results

Descriptive Profile of School Management Outcomes

Table 2 summarizes the five school-management outcomes. Teacher job satisfaction and school climate were both at or above 4.0 on their five-point scales. Teacher retention averaged 85.0%, and student attendance averaged 92.5%. The mean student achievement score was 78.5. These descriptive statistics provide an overall profile of the school-management outcomes in the participating schools.

Table 2

Descriptive Statistics for School Management Outcomes (N = 100)

Outcome	Mean	SD	Minimum	Maximum
Student Achievement	78.50	6.00	65.00	90.00
Teacher Retention (%)	85.00	5.00	75.00	95.00
Teacher Job Satisfaction	4.00	0.40	3.20	4.80
School Climate	4.10	0.30	3.50	4.80
Student Attendance (%)	92.50	4.00	85.00	99.00

Correlational Pattern Across Leadership Orientations

The correlational results show a consistent ordering across the three leadership orientations. Transformational leadership was positively related to all school-management indicators, with correlations ranging from .55 to .75 ($p < .01$). Transactional leadership was also positively related to the outcomes, but the coefficients were lower, ranging from .40 to .55. Passive or avoidant leadership showed the opposite direction, with correlations ranging from -.30 to -.45 ($p < .05$ or $p < .01$).

Taken together, the ranges show a clear ordering across leadership orientations. Transformational leadership occupies the strongest favorable range, transactional leadership remains positive but more moderate, and passive or avoidant leadership is consistently negative. Because the analysis is summarized at the orientation level, no ranking of individual school-management outcomes is inferred from these ranges.

Table 3

Correlation Ranges between Leadership Orientations and School Management Outcomes

Leadership Orientation	r Range	Direction	Significance
Transformational Leadership	.55 to .75	Positive	$p < .01$
Transactional Leadership	.40 to .55	Positive	$p < .05$ or $p < .01$
Passive / Avoidant Leadership	-.45 to -.30	Negative	$p < .05$ or $p < .01$

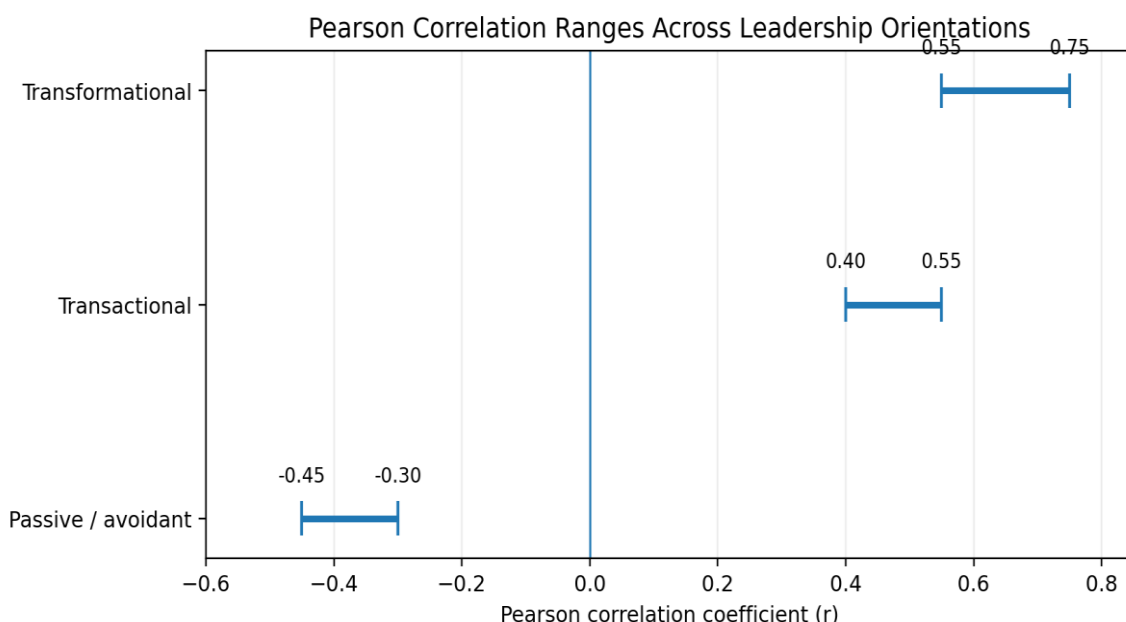


Figure 2 Pearson Correlation Ranges Across the Three Leadership Orientations

Note. Horizontal line segments indicate the minimum and maximum Pearson correlation coefficients across the five outcomes; they are not confidence intervals.

Differences Across Leadership-Style Categories

The ANOVA results showed statistically significant differences across leadership-style categories for all four outcomes included in the comparison. Teacher job satisfaction produced the largest omnibus F statistic, $F(2, 97) = 14.82$, $p < .001$. Student achievement also differed significantly, $F(2, 97) = 8.52$, $p < .001$, followed by teacher retention, $F(2, 97) = 7.10$, $p < .01$, and student attendance, $F(2, 97) = 4.13$, $p < .05$.

The effect-size estimates sharpen this comparison. Teacher job satisfaction had the largest η^2 (.234) and ω^2 (.217), indicating the greatest relative between-group difference among the four outcomes. Student achievement showed $\eta^2 = .149$ and $\omega^2 = .131$, while teacher retention showed $\eta^2 = .128$ and $\omega^2 = .109$. Student attendance produced the smallest estimates, $\eta^2 = .078$ and $\omega^2 = .059$. Cohen's f values followed the same ordering.

Table 4

ANOVA Results and Effect Sizes Across Leadership-Style Categories

Outcome	df	F	p	η^2	ω^2	Cohen's f
Student Achievement	2	8.52	< .001	.149	.131	.419
Teacher Retention	2	7.10	< .01	.128	.109	.383
Teacher Job Satisfaction	2	14.82	< .001	.234	.217	.553
Student Attendance	2	4.13	< .05	.078	.059	.292

Summary of Statistical Findings

Across the analyses, transformational leadership showed the strongest favorable correlation range, transactional leadership showed a more moderate positive range, and passive or avoidant leadership showed a negative range. The ANOVA results identified the largest between-group difference for teacher job satisfaction, followed by student achievement, teacher retention, and student attendance.

Teacher job satisfaction produced both the largest omnibus F statistic and the largest effect-size estimates. Student attendance produced the smallest between-group effect among the four outcomes. School climate was not included in the ANOVA effect-size comparison and therefore is not ranked alongside the four outcomes in Table 4.

Together, the correlation and ANOVA results provide a consistent descriptive pattern across leadership orientations and school-management outcomes. The organizational interpretation of this pattern is considered in the Discussion.

Discussion*Principal Leadership and Multidimensional School Management*

The results show that principal leadership is related to several dimensions of school management rather than to one isolated performance measure. Transformational leadership occupies the strongest favorable correlation range, transactional leadership remains positively related to the outcomes at a more moderate level, and passive or avoidant leadership is negatively related to school functioning. The ANOVA results reinforce this pattern by showing significant between-group differences in student achievement, teacher retention, teacher job satisfaction, and student attendance.

This broad pattern is consistent with research that treats leadership as an organizational mechanism. Liebowitz and Porter (2019) found larger leadership relationships with organizational health and teacher outcomes than with student achievement. Leithwood et al. (2020) likewise argue that principals affect learning through school conditions and teaching quality. The present findings fit that account. They do not suggest that principal behavior directly determines student outcomes; rather, leadership appears to be embedded in a set of organizational conditions that shape how teachers work and how students experience school. The ordering of the effects is also substantively informative. Teacher job satisfaction is experienced directly within the professional environment, whereas student achievement and attendance depend on a wider set of classroom, family, peer, and individual factors. The stronger leadership-related variation in teacher job satisfaction is therefore consistent with an organizational pathway in which principal behavior is more closely connected to teachers' work experience and only more indirectly connected to student outcomes.

Teacher Job Satisfaction and School Climate

Teacher job satisfaction was the outcome most clearly differentiated across leadership-style categories. Its η^2 estimate of .234 and ω^2 estimate of .217 were larger than those for achievement, retention, or attendance. This does not mean that leadership caused nearly one quarter of the variation in teacher satisfaction. The design is cross-sectional, and the grouping variable may capture other organizational differences. It does show that teacher satisfaction varied substantially alongside the leadership-style categories in this sample.

The result is substantively plausible because teachers experience principal leadership directly. Feedback, recognition, access to professional learning, decision-making processes, workload allocation, and the handling of conflict are part of everyday work. Chinese research has repeatedly linked leadership to job satisfaction through autonomy, collaboration, supportive culture, self-efficacy, well-being, motivation, and job stress (Fan & Chu, 2025; Li et al., 2024; Liu et al., 2021; Liu, Bellibaş, & Gümüş, 2021; Ma & Gu, 2026; Ma & Marion, 2026). Transformational leadership studies in China also connect principal behavior with teacher well-being and with lower role stress through affective commitment and job satisfaction (Fang et al., 2025; Yong & Zhang, 2025). Wang et al. (2025) further connect distributed leadership with teachers' career well-being through collaborative and efficacy-related processes. The present findings add a localized urban secondary-school perspective to this literature without implying that the observed associations establish these mechanisms in the current sample.

School climate also belongs to this teacher-facing organizational layer. Climate reflects repeated patterns of trust, communication, collaboration, expectations, and support. Wang and Degol (2016) emphasize its multidimensional character, while Aldridge et al. (2024) show why climate can serve as a practical source of school-improvement information. The present study cannot estimate an ANOVA effect size for climate, but its generally positive descriptive level and the correlational pattern support the view that leadership and climate are closely connected.

Teacher Retention and Organizational Stability

Teacher retention showed a significant between-group difference with $\eta^2 = .128$ and $\omega^2 = .109$. Retention is less immediate than job satisfaction because decisions to stay or leave are influenced by salary, career opportunities, family circumstances, workload, school location, and labor-market alternatives. Leadership nevertheless shapes some of the conditions over which schools have direct control, including professional voice, collegial support, recognition, development, and the predictability of organizational processes.

This interpretation aligns with the broader retention literature. Kraft et al. (2016) link organizational context to teacher turnover, while Nguyen et al. (2026) identify autonomy, development, and voice as leadership-relevant domains associated with teacher commitment and retention. The practical implication is that retention policies should not be reduced to incentives. The professional quality of teachers' daily work is also likely to matter.

Student Achievement and Attendance

Student achievement and attendance both differed significantly across leadership-style categories. Achievement had $\eta^2 = .149$ and $\omega^2 = .131$, while attendance had smaller estimates

at $\eta^2 = .078$ and $\omega^2 = .059$. These results indicate that leadership-style groupings are associated with student-related outcomes, but the interpretation should remain indirect.

Principals do not teach every lesson or control the many external factors that shape student performance and attendance. Their influence is more plausibly transmitted through teacher stability, professional motivation, instructional coordination, expectations, school climate, and students' sense of belonging. Robinson et al. (2008) and Leithwood and Sun (2012) both show that leadership relationships with student outcomes are generally weaker and more mediated than relationships with organizational or teacher conditions. Zhu et al. (2026) provides a recent Chinese example in which teacher commitment and collaborative culture helped explain the connection between leadership and reading literacy.

The present results should therefore not be interpreted as evidence that adopting a particular style will automatically increase test scores or attendance. They show that student outcomes vary alongside leadership patterns and that the strongest explanation is likely to involve organizational pathways.

Leadership as a Repertoire Rather Than a Single Style

The moderate positive pattern for transactional leadership is also important. Schools require clear expectations, monitoring, accountability, and timely corrective action. These practices can support operational reliability even if they do not generate the same level of professional commitment as transformational practices. Day et al. (2016) and Sun et al. (2024) both caution against treating successful leadership as the application of one pure style.

A more useful interpretation is that principals need a repertoire. Transformational practices can strengthen shared purpose, trust, development, and willingness to improve. Transactional practices can provide role clarity and operational consistency. Passive or avoidant behavior is different because it reduces the timely support and coordination needed for either approach to work. The negative correlation range for passive or avoidant leadership is consistent with this distinction.

Implications

Theoretical Implications

The findings are consistent with an organizational pathway account of principal leadership. The largest between-group effect concerned teacher job satisfaction, while teacher retention also showed a meaningful difference. Student achievement and attendance were related to leadership but are more distal outcomes. This ordering is consistent with the proposition that leadership works first through professional and organizational conditions and only then through processes that may influence students. It also speaks to a broader social-science debate about how organizational performance should be conceptualized in professional institutions. If leadership is most closely associated with the quality of employees' work experience, collaboration, stability, and climate, then these conditions are not merely intermediate variables on the way to academic performance; they are part of school effectiveness in their own right.

The study therefore supports a multidimensional view of school management. Academic performance alone cannot capture workforce stability, teacher experience, climate, or

participation. Examining several outcomes together reveals a pattern that would be hidden by a single dependent variable. This is particularly relevant to debates over managerial accountability, which can privilege short-term measurable outputs, and professional governance, which gives greater weight to organizational capacity, teacher autonomy, well-being, and sustainable improvement. Recent Chinese studies showing links among leadership, collaboration, self-efficacy, well-being, motivation, and job satisfaction reinforce the importance of this wider organizational lens (Fan & Chu, 2025; Ma & Marion, 2026; Wang et al., 2025).

Practical and Policy Implications

Principal development should extend beyond administrative compliance. Training should strengthen leaders' capacity to communicate coherent goals, provide constructive professional feedback, recognize teacher contributions, facilitate collaboration, and respond promptly to emerging organizational problems. The statistical pattern suggests that teachers' work experience is a particularly important domain for leadership attention.

Teacher job satisfaction can be monitored as a management indicator rather than treated solely as an individual attitude. Structured teacher consultation, workload reviews, professional learning participation, and opportunities for voice can provide evidence about the conditions in which teachers work. Climate surveys, retention data, and attendance patterns can supplement examination results and provide a broader picture of school functioning.

At policy level, principal standards and evaluation systems should avoid relying exclusively on short-term student performance. UNESCO (2024) emphasizes leadership for learning, collaboration, and people development, while recent evidence from China highlights the organizational importance of teacher well-being, autonomy, collaboration, and job satisfaction (Fan & Chu, 2025; Ma & Marion, 2026; Wang et al., 2025). A balanced evaluation framework would therefore consider academic progress alongside teacher stability, professional experience, climate, and student participation. Such an approach treats school effectiveness as an institutional and social process rather than as a single performance output.

Limitations and Future Research

The study has several limitations that should frame interpretation. The cross-sectional design does not establish temporal order or causality. More effective schools may make leadership easier, satisfied teachers may evaluate leadership more positively, and unmeasured factors may influence both leadership perceptions and outcomes. Longitudinal research is needed to examine whether changes in leadership precede changes in teacher and student outcomes.

The sample is limited to 100 teachers in three schools within one urban district. The findings are therefore context-specific and should not be generalized to all Chinese secondary schools. Larger studies should include a greater number of schools across regions and use multilevel models because teachers are nested within schools and students are nested within classes and schools.

Several outcomes, particularly student achievement, teacher retention, and student attendance, are school-management indicators, whereas leadership perceptions were obtained from teachers. The analysis did not partition teacher-level and school-level variance. The findings should therefore be interpreted as within-sample associations rather than as estimates of school-level causal effects. Future studies should use larger numbers of schools, independently measured school-level outcomes, and multilevel models that explicitly separate sources of variation.

Teacher reports are valuable because teachers directly experience enacted leadership, but they also create the possibility of common-method bias and social desirability. Future research should combine teacher surveys with principal reports, administrative records, classroom observations, and independent measures of school conditions. The different models produced by principal and teacher reports in Zhu et al. (2026) illustrate why multiple sources matter.

The measurement strategy also has limitations. Expert review, pilot testing, and internal-consistency assessment were used during instrument development, but a full measurement model was not estimated. Future research should provide item-level diagnostics, scale reliability estimates, and, where sample size permits, confirmatory factor analysis.

The correlational findings are summarized as ranges rather than as a complete cell-level matrix, which limits outcome-specific comparison. In addition, the use of leadership-style categories simplifies orientations that may also vary continuously. Future research should report complete correlation matrices, pre-specified grouping rules, group sizes, and full statistical output to strengthen analytical transparency and reproducibility.

The omnibus ANOVA tests establish overall differences across leadership-style categories but do not identify specific pairwise contrasts. Future studies should include adjusted post-hoc comparisons and, where appropriate, model leadership orientations as continuous measures. School climate was not included in the ANOVA comparison, which limits direct comparison across all five outcomes.

Conclusion

Principal leadership was associated with multiple dimensions of school management in the participating secondary schools within an urban Chinese school district. Transformational leadership showed the strongest favorable correlation range, transactional leadership showed a more moderate positive pattern, and passive or avoidant leadership showed negative relationships. Significant leadership-style group differences were also observed in student achievement, teacher retention, teacher job satisfaction, and student attendance.

Teacher job satisfaction produced the largest effect-size estimates, followed by student achievement and teacher retention. This ordering supports an organizational interpretation of leadership. Principal behavior appears to be most closely connected to the professional conditions in which teachers work, while student outcomes are likely to be shaped through a wider set of organizational and instructional pathways. Effective school leadership therefore requires more than administrative competence. It involves active support, clear expectations,

professional trust, timely decision-making, and the capacity to adapt leadership practices to the needs of the school.

Declarations

Ethics and consent. University ethics review and school-level permission were obtained before data collection. Participation was voluntary, coded identifiers were used instead of names, and confidentiality procedures were applied during questionnaire administration and data handling.

Data availability. The participant-level dataset is no longer available. The statistical results supporting the findings are reported in the article.

Conflict of interest. The author declares no conflict of interest.

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