TRANSFORMATIONAL LEADERSHIP, HOME-SCHOOL COLLABORATION AND TEACHERS' JOB SATISFACTION IN PRIMARY AND SECONDARY SCHOOLS OF SHANDONG PROVINCE, CHINA

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ABSTRACT
This study examined the relationships among principals' transformational leadership, home-school collaboration and teachers' job satisfaction in primary and secondary schools of Shandong Province, China. A cross-sectional survey was administered to full-time in-service teachers selected by convenience sampling; of 440 questionnaires distributed, 418 were complete and usable, a valid response rate of 95.00%. All analyses were performed with jamovi (Version 2.7) using descriptive statistics, Pearson correlation analysis, multiple regression analysis and confirmatory factor analysis. Both predictors were positively and significantly related to teachers' job satisfaction: transformational leadership ($\beta = 0.442$, $p < .001$) and home-school collaboration ($\beta = 0.355$, $p < .001$) together explained 57.9% of the variance. Relative weight analysis showed that the two predictors contributed almost equally, 52.0% and 48.0% respectively, and the difference between their standardized coefficients was not statistically significant ($p = .476$). A supplementary mediation analysis indicated that 39.7% of the association between transformational leadership and job satisfaction was transmitted through home-school collaboration. Both hypotheses were supported. The findings indicate that teachers' job satisfaction is associated with internal school leadership and external family-school partnership to a similar degree, and that the two should be developed together rather than separately.

Keywords: Transformational Leadership, Home-School Collaboration, Teachers' Job Satisfaction, Shandong Province

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INTRODUCTION

China's basic education has shifted from scale expansion to connotative high-quality development, making educational quality, teacher development and school governance efficiency core reform priorities (Ministry of Education of the People's Republic of China, 2023). Under the "Double Reduction" policy, the new curriculum standards and the legalized advancement of home-school co-education, teachers' responsibilities and working environments have changed profoundly (Xu, 2026). Job satisfaction is not a static trait but a stable state shaped by school management, home-school interaction and professional development resources, and it bears on work engagement, willingness to innovate and team stability (Toropova et al., 2021).

Influencing factors fall into in-school governance and out-of-school environment. Within schools, principals are the core of governance and their leadership shapes teachers' evaluation of their work (Bass & Riggio, 2006; Leithwood & Sun, 2012). Outside the school, home-school collaboration has become an institutionalized requirement rather than an optional activity (Zhu et al., 2026); when communication is timely and responsibility is genuinely shared, teachers are less likely to experience misunderstanding, conflict and unnecessary emotional labour (Sideridis & Alghamdi, 2023).

Two gaps remain. In scope, most studies adopt a single-perspective approach, examining either leadership behaviour or family-school relations, so the relative contribution of an internal governance factor and an external partnership factor has rarely been compared within one model. In context, evidence from Shandong Province, a large and regionally uneven basic-education system, is still limited. This study therefore entered both predictors simultaneously and compared their contributions with a method that is robust to multicollinearity.

Research Objectives for this study are following.

1) To examine the relationship between principals' transformational leadership and teachers' job satisfaction in primary and secondary schools of Shandong Province, China.

2) To examine the relationship between home-school collaboration and teachers' job satisfaction in primary and secondary schools of Shandong Province, China.

Research Hypotheses

H1: Transformational leadership is positively and significantly related to teachers' job satisfaction in primary and secondary schools of Shandong Province, China.

H2: Home-school collaboration is positively and significantly related to teachers' job satisfaction in primary and secondary schools of Shandong Province, China.

LITERATURE REVIEWS

Transformational Leadership

Bass and Riggio (2006) constructed the classic four-dimensional framework of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. It is a people-oriented model centred on value guidance, professional empowerment and humanistic care. Meta-analytic evidence shows that transformational school leadership is associated with teachers' internal states and behaviours (Leithwood & Sun, 2012), and Chinese studies report associations with job satisfaction, work engagement and burnout (Ji, 2022; Peng & Xu, 2025). It should be noted that the four components are conceptually distinct but empirically strongly interrelated, and much research therefore reports an overall transformational leadership score (Bycio et al., 1995). Zhang et al. (2022) further showed that transformational leadership is associated with teachers' job satisfaction in China partly through the professional structures established within the school, and Liu, P., et al. (2023) reported that teacher leadership is related to well-being through trust in leaders and teacher efficacy.

Home-School Collaboration

The Family Education Promotion Law and the "Double Reduction" policy have moved China's home-school co-education into a standardized, legalized stage (Zhu et al., 2026). Epstein (2001) proposed a partnership framework covering parenting, communicating, volunteering, learning at home, decision making and collaborating with the community. Liu, J. J., et al. (2023) found that high-quality collaboration supports teachers' professional development, while Guo et al. (2025) highlighted the importance of clear role division. In sum, home-school collaboration is a mechanism centred on equal interaction and responsibility co-sharing that relieves teachers' communication pressure and is a key external factor associated with job satisfaction. Wang et al. (2024) added that the professionalization of home-school cooperation also requires attention to teachers' discourse power, so that collaboration does not become a one-directional demand placed on teachers.

Teachers' Job Satisfaction

Teachers' job satisfaction refers to the stable, comprehensive subjective evaluation teachers form of their work, and it is shaped by school working conditions rather than by individual traits alone (Toropova et al., 2021). Skaalvik and Skaalvik (2011) showed that relations with parents and supervisory support are related to satisfaction through the feeling of belonging and emotional exhaustion. Because satisfaction bears on retention and engagement, it is a meaningful outcome for school management and for policy (Zhan et al., 2023).

Research Gap and Conceptual Framework

Previous research demonstrates the importance of school leadership and home-school relationships for teachers' job satisfaction, but the two have usually been examined separately. This study places them in a single model as the internal and the external facet of the school-level support environment, and compares their contributions. Figure 1 presents the conceptual framework.

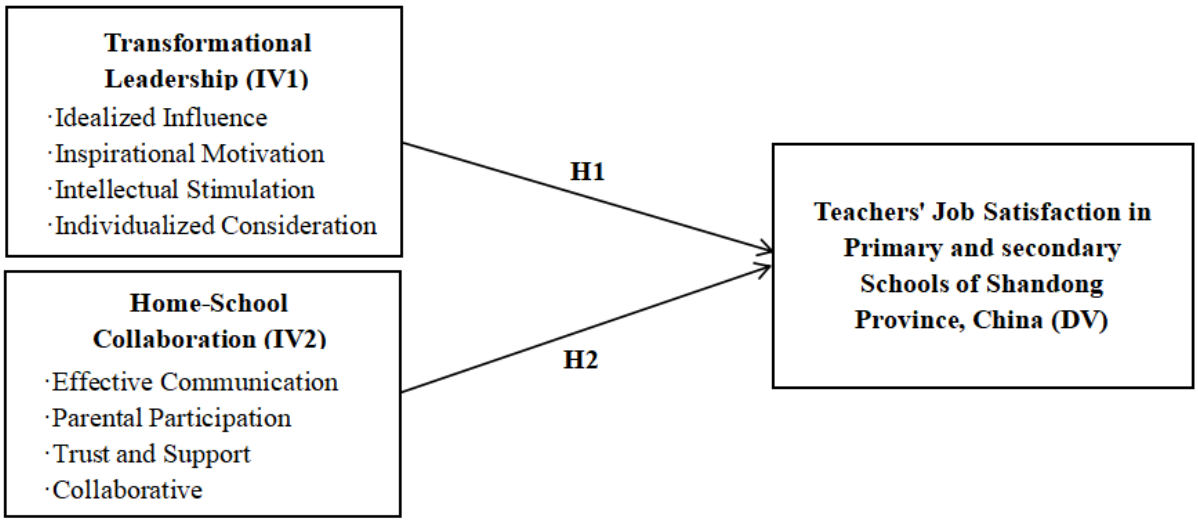


Figure 1 Conceptual Framework adapted from Bass and Riggio (2006).

RESEARCH METHODOLOGY

A quantitative survey was conducted from April to September 2026) Participants were full-time in-service teachers in primary, junior high and ordinary senior high schools in Shandong Province, recruited by convenience sampling; substitute, retired and non-teaching staff were excluded. The reference population was approximately 964,500 teachers (Shandong Provincial Department of Education, 2025). The questionnaire was distributed online through the Wenjuanxing platform; participation was voluntary, anonymous and confidential, and informed consent was obtained from all respondents. Of 440 questionnaires distributed, 418

were complete and usable, a valid response rate of 95.00%. Because convenience sampling is a non-probability technique, the achieved sample cannot be assumed to be statistically representative of the target population, and the sample size was justified by the conventional criterion of 10-20 respondents per predictor for multiple regression rather than by a probability-sampling formula. The findings are accordingly treated as evidence about the relationships observed among the respondents rather than as population-level estimates.

The instrument had three parts: demographic information, comprising seven closed-ended questions; the two independent variables, transformational leadership and home-school collaboration, each measured with 16 items distributed over four dimensions; and teacher job satisfaction, measured with 4 items. All 36 substantive items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The item pools were adapted from the four-dimension framework of Bass and Riggio (2006), from Epstein's (2001) partnership framework, and from Chinese studies of principals' leadership and home-school cooperation (Guo et al., 2025; Ji, 2022; Liu, J. J., et al., 2023; Tian et al., 2021). The English draft was translated into Chinese by two bilingual researchers and back-translated into English by a third researcher, and discrepancies were resolved by the research team before the pilot test.

Three experts with expertise in educational administration, leadership, home-school collaboration and educational measurement reviewed the instrument, and the Index of Item-Objective Congruence (IOC) was used to assess content validity. Items with an IOC value of 0.67 or above were retained, and no item was rated as not congruent. A pilot test was then conducted with 30 teachers who had characteristics similar to those of the target population but who were not included in the main sample; all three overall scales produced Cronbach's alpha coefficients above 0.70.

All statistical analyses were performed with jamovi (Version 2.7; The jamovi project, 2025). Descriptive statistics summarised the characteristics of the respondents and the levels of the variables. Because the design is cross-sectional, the hypotheses were tested as predictive associations rather than as causal effects, and the term influence is used in the sense of predictive contribution. Pearson product-moment correlation analysis was employed to establish the direction, strength and significance of the relationships, and multiple regression analysis was used to test the two hypotheses. Construct validity was examined in two steps following Anderson and Gerbing (1988): exploratory factor analysis with principal axis factoring, followed by confirmatory factor analysis estimated by maximum likelihood on the covariance matrix of the 36 items, which also yielded composite reliability and average variance extracted (Fornell & Larcker, 1981; Hair et al., 2019). Discriminant validity was assessed with the heterotrait-monotrait ratio of correlations (Henseler et al., 2015), and common method variance with Harman's single-factor test (Podsakoff et al., 2003).

RESEARCH RESULTS

Respondent Demographic Characteristics

Among the 418 participants, 74.88% were female and 25.12% male. The dominant age bracket was 31-40 years (31.34%), followed by 41-50 years (23.44%) and 26-30 years (23.21%); 57.42% held a bachelor's degree and 32.30% a junior college diploma; 45.22% had 1-5 years of teaching experience. By region, 66.27% worked in the eastern region of Shandong Province, 50.48% in urban districts, and 82.30% in public schools. No missing responses were recorded for any of the seven background variables.

Levels of the research variables

The means and standard deviations of the three variables, overall and by dimension, are presented in Table 4.1.

Table 1 Mean scores and standard deviations of the research variables (n = 418)

Variable / Dimension	Number of items	Mean	SD	Interpretation
Transformational leadership (overall)	16	3.480	0.665	High
Idealized influence	4	3.352	0.820	Moderate
Inspirational motivation	4	3.605	0.779	High
Intellectual stimulation	4	3.533	0.755	High
Individualized consideration	4	3.431	0.811	High
Home-school collaboration (overall)	16	3.596	0.606	High
Effective communication	4	3.566	0.721	High
Parental participation	4	3.448	0.877	High
Trust and support	4	3.660	0.709	High
Collaborative responsibility	4	3.710	0.657	High
Teachers' job satisfaction (overall)	4	3.498	0.749	High

Note. n = 418, Items were rated on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Mean scores were interpreted as follows: 1.00-1.80 very low, 1.81-2.60 low, 2.61-3.40 moderate, 3.41-4.20 high, 4.21-5.00 very high.

The three variables were all rated at the high level, but the profile was uneven once the dimensions were examined. Inspirational motivation was the strongest dimension of transformational leadership and idealized influence the weakest, the only dimension that fell to the moderate level; within home-school collaboration, collaborative responsibility was rated highest and parental participation lowest. The lowest-rated item in the whole instrument was 'The school leadership sets a positive example for teachers through its own conduct.' (M = 2.998, SD = 1.105), which suggests that the respondents accepted the vision and encouragement offered by school leaders while remaining less convinced that leaders consistently demonstrate the behaviour they expect from others.

Reliability of the research instrument

Table 4.2 reports the Cronbach's alpha coefficients of the research scales.

Table 2 Cronbach's alpha coefficients of the research scales (n = 418)

Scale	Number of items	Cronbach's α	Interpretation
Transformational leadership	16	0.868	Acceptable
Home-school collaboration	16	0.841	Acceptable
Teachers' job satisfaction	4	0.644	Marginal
Overall instrument	36	0.930	Acceptable

Note. n = 418, $\alpha \geq .70$ is conventionally regarded as acceptable; the value reported for the overall instrument was computed across all 36 substantive items.

Both 16-item scales exceeded the conventional 0.70 criterion, whereas the four-item job satisfaction scale did not. Because coefficient alpha is partly determined by scale length and should not be read as evidence of unidimensionality (Schmitt, 1996), the lower coefficients obtained for the short scales are reported transparently rather than concealed. Corrected item-total correlations ranged from 0.276 to 0.597, and because deleting any single item would not have raised the coefficient of the scale to which it belongs, all 36 items were retained; the hypothesis tests were accordingly conducted with the overall construct scores rather than with separate dimension scores.

Construct validity of the research instrument

Exploratory factor analysis indicated that each scale was dominated by a single strong factor. The Kaiser-Meyer-Olkin measure of sampling adequacy ranged from 0.716 to 0.934 and reached 0.952 when the 36 items were analysed together; Bartlett's test of sphericity was

significant in every analysis ($p < .001$); and the first eigenvalue was very much larger than the second. The single-factor model fitted well for all three scales, with RMSEA at or below 0.022 and TLI at or above 0.984) Confirmatory factor analysis then compared competing specifications. The three-factor model fitted the data acceptably, $\chi^2(591) = 714$, CFI = .968, TLI = .966, RMSEA = .022, SRMR = .035) For transformational leadership the four-factor model did not fit significantly better than the one-factor model, $\Delta\chi^2(6) = 5.65$, $p = .465$, and the first-order factors correlated from .93 to .98; for home-school collaboration the four-factor model did fit significantly better, $\Delta\chi^2(6) = 20.81$, $p = .002$) The four dimensions of transformational leadership are therefore conceptually distinguishable but empirically almost indistinguishable in this sample, which is consistent with Bycio et al. (1995). The hypothesis tests accordingly used the overall scores, and the dimension means are reported as a descriptive profile only.

Table 3 Composite reliability and convergent validity of the research constructs

Construct / dimension	Items	Standardized loadings	CR	AVE
Transformational leadership (overall)	16	.43-.62	.869	.295
Idealized influence	4	.45-.66	.672	.343
Inspirational motivation	4	.46-.62	.635	.305
Intellectual stimulation	4	.45-.56	.592	.268
Individualized consideration	4	.44-.61	.631	.303
Home-school collaboration (overall)	16	.28-.61	.839	.251
Effective communication	4	.46-.54	.574	.253
Parental participation	4	.58-.64	.697	.365
Trust and support	4	.40-.60	.554	.241
Collaborative responsibility	4	.31-.51	.514	.215
Teachers' job satisfaction	4	.47-.61	.643	.313

Note. N = 418, CR = composite reliability; AVE = average variance extracted. Loadings are completely standardized estimates from the confirmatory factor models.

Composite reliability was acceptable for both 16-item scales, but the average variance extracted of every scale fell below the conventional criterion of .50, which indicates that a substantial share of item variance is measurement error and that the observed correlations are attenuated relative to the underlying constructs. Discriminant validity was only weakly supported: a three-factor model fitted significantly better than a model in which the two predictors were merged, $\Delta\chi^2(2) = 9.00$, $p = .011$, yet the estimated correlation between the two constructs reached .96 and the HTMT value was .95, above both the conservative .85 and the lenient .90 criteria of Henseler et al. (2015). The two constructs are therefore not redundant, but they overlap to a degree that rules out any strong claim of discriminant validity. Finally, Harman's single-factor test showed that the unrotated first factor accounted for 27.21% of the variance, below the conventional 40% criterion, although a confirmatory comparison of the one-factor and three-factor models differed only modestly in fit, which suggests that a modest general method component is likely to be present.

Correlation analysis

Pearson correlation analysis was conducted to examine the direction, strength and significance of the relationships among the three variables prior to hypothesis testing (Table 4.4).

Table 4 Pearson correlation matrix among the research variables (n = 418)

Variable	1	2	3
Transformational leadership	—		
Home-school collaboration	.821***	—	
Teachers' job satisfaction	.733***	.718***	—

Note. N = 418, *** p < .001 (two-tailed).

All three correlations were positive, strong and significant, and all were in the direction predicted by the hypotheses. The two predictors were themselves strongly correlated, which is why collinearity diagnostics and relative weight analysis were considered before the regression results were interpreted.

Hypothesis testing

Before the regression model was interpreted, the relevant assumptions were examined. The correlation between the two predictors was high, but the collinearity diagnostics remained within acceptable limits (tolerance = 0.326, VIF = 3.066). A baseline model containing only the seven background variables was statistically significant but explained just 10.30% of the variance, and among those variables only age was significant (β = 0.190, p = .034). Table 4.5 reports the coefficients of the model containing the two research variables, which provides the primary test of the hypotheses.

Table 5 Multiple regression analysis predicting teachers' job satisfaction (n = 418)

Predictor	B	SE	β	t	p
(Constant)	0.189	0.144	—	1.307	.192
Transformational leadership	0.498	0.063	0.442	7.922	< .001
Home-school collaboration	0.438	0.069	0.355	6.357	< .001

Note. Dependent variable: teachers' job satisfaction. N = 418, R = 0.761, R^2 = 0.579, adjusted R^2 = 0.577, standard error of the estimate = 0.487, F(2, 415) = 284.972, p < .001, Durbin-Watson = 1.998.

Both predictors made statistically significant positive contributions, so H1 and H2 were both supported, and transformational leadership had the slightly larger standardized coefficient. When the seven background variables were controlled, the two coefficients changed only marginally, to 0.429 and 0.354, and both remained significant at the .001 level, so the conclusion does not depend on the characteristics of the respondents.

Because the two predictors correlated at .821, relative weight analysis, which decomposes R^2 into contributions that are unaffected by multicollinearity (Johnson, 2000), was applied, and the difference between the two standardized coefficients was tested with 5,000 bootstrap resamples. Transformational leadership accounted for 52.0% and home-school collaboration for 48.0% of the explained variance, and the difference between the two coefficients was not statistically significant, 95% CI [−.148, .316], p = .476) The slightly larger coefficient of transformational leadership should therefore not be read as evidence that leadership matters more than collaboration; the appropriate conclusion is that both contribute substantially and to a similar degree. A supplementary mediation analysis, conducted with the mediation module of jamovi following the regression-based procedure of Hayes (2022), showed that the indirect effect of transformational leadership through home-school collaboration was 0.328, 95% CI [.216, .440], accounting for 39.7% of the total effect, while the direct effect remained substantial, 0.498, 95% CI [.368, .630]. Because the data are cross-sectional, this result is interpreted as a statistical decomposition of the observed associations and not as evidence of a causal process.

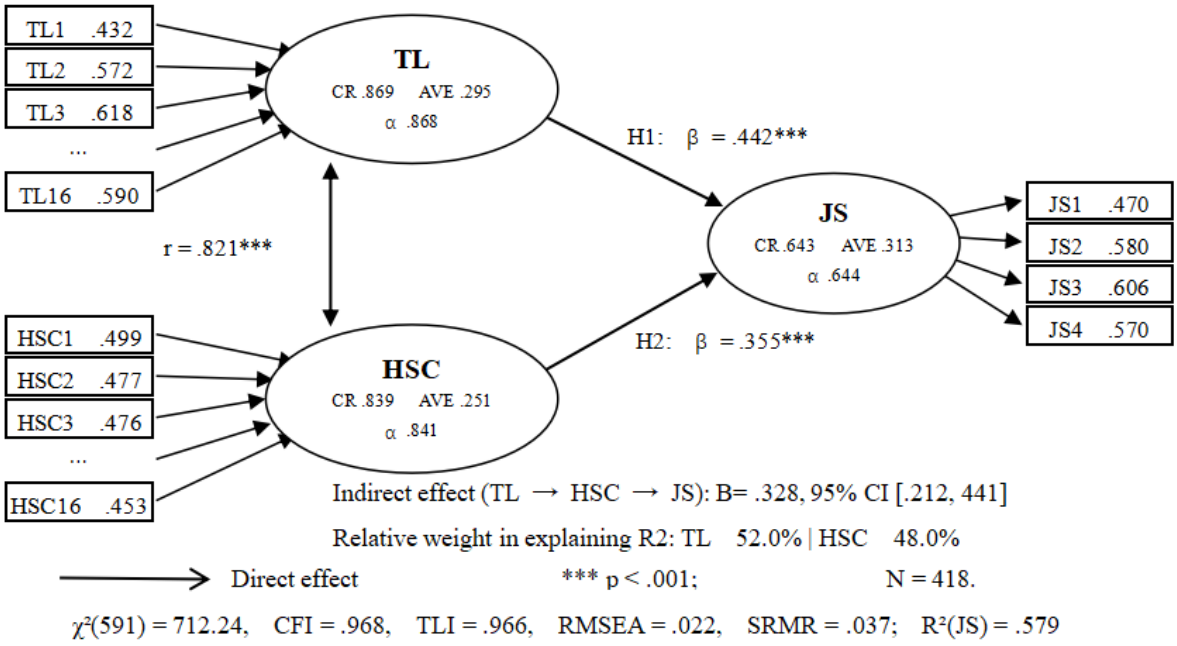


Figure 2 Finalized Model

DISCUSSION & CONCLUSION

Discussion of the findings

First, the respondents perceived all three variables at a high level, consistent with Thai and Chinese evidence (Klaychai et al., 2024; Kobkaiyakij et al., 2025; Sriphanomphong & Chantaruthai, 2020; Xu, 2026). Two comparatively low ratings deserve attention. Idealized influence was the weakest dimension of transformational leadership, and the lowest-rated item in the whole instrument concerned leaders setting a personal example, which suggests that teachers accept the vision and encouragement offered by school leaders while remaining less convinced that leaders consistently behave as they expect others to behave in routine decisions such as workload allocation and performance evaluation. Parental participation was also rated comparatively low, which indicates that agreement with the principle of collaboration was stronger than the observed level of parental involvement in practice.

Second, transformational leadership was positively related to teachers' job satisfaction, corroborating earlier studies (Kobkaiyakij et al., 2025; Sriphanomphong & Chantaruthai, 2020; Supaosan & Sonchan, 2023) and meta-analytic evidence (Chaiyawat & Pongwan, 2026; Leithwood & Sun, 2012). Third, home-school collaboration remained a significant predictor after transformational leadership had been controlled, which indicates that the working experience of teachers is associated not only with internal school management but also with the quality of the relationship between the school and families. This is consistent with Epstein's (2001) view that overlapping spheres of influence reduce the burden placed on any single actor, and with evidence that relations with parents are related to satisfaction through the feeling of belonging and emotional exhaustion (Skaalvik & Skaalvik, 2011).

Fourth, and most consequential for practice, the two predictors contributed almost equally. Improving family-school partnership is therefore not a secondary alternative to improving leadership, and the two should be developed together. The supplementary mediation result supports this reading, since part of the association between transformational leadership and job satisfaction appears to run through the quality of home-school collaboration. This pattern is consistent with Srisuk (2026) and Thongkliang (2026), who suggested that leadership and home-school collaboration may work together rather than operate as separate factors, and it qualifies the argument of Zhu et al. (2026) that the quality of home-school collaboration is determined mainly by parental factors.

Theoretical implications

The present study contributes in three respects. It provides empirical evidence from primary and secondary schools in Shandong Province, a large and regionally uneven basic-education system that has received limited attention. It examines an internal governance factor and an external partnership factor within a single model and compares their contributions with a method that is robust to multicollinearity, which makes it possible to say that the two matter to a similar degree rather than merely that both matter. It also adds to the measurement literature: the four-dimension structure of transformational leadership was not recovered empirically in this sample, which is consistent with Bycio et al. (1995), who argued that the components are better treated as manifestations of a single higher-order factor. The substantial overlap between the two predictors further suggests that leadership and family-school partnership may be more usefully theorised as two facets of a common school-level support environment than as independent antecedents.

Practical implications

Four practical implications follow: strengthen the lowest-rated dimensions of transformational leadership through targeted professional development for principals, with particular attention to integrity, fairness and consistency in routine administrative decisions (Ji, 2022; Peng & Xu, 2025); invest in structured home-school communication channels and clarify the division of responsibility between teachers and parents (Bian et al., 2024; Guo et al., 2025); attend to the workload conditions that shape teachers' evaluation of their work (Bao, 2024; Xu, 2026); and provide structured support for the emotional cost of working with parents (Sideridis & Alghamdi, 2023; Wei & Zhang, 2025).

Limitations and directions for future research

This study has four limitations. First, convenience sampling and single-source, self-report data collected at one point in time limit both the generalisability of the findings and any causal interpretation; female teachers, public-school teachers, teachers from the eastern region and teachers with short teaching experience were over-represented. Second, the four-item job satisfaction scale and several four-item subscales produced alpha coefficients below 0.70, and the average variance extracted was below .50 for every scale, so the observed relationships are attenuated relative to the underlying constructs. Third, the two predictors overlapped substantially, and their separate effects should be interpreted with caution. Fourth, the cross-sectional design permits no conclusion about the direction of influence. Future research should employ probability or stratified sampling, multi-source and longitudinal designs, and longer validated scales, and should examine leadership, collaboration and satisfaction together within a single model.

Conclusion

This study examined the relationships of principals' transformational leadership and home-school collaboration with teachers' job satisfaction among 418 full-time teachers in primary and secondary schools of Shandong Province, China. Both predictors were positively and significantly related to job satisfaction and together explained 57.9% of the variance; the two contributed almost equally, and part of the association between leadership and satisfaction was transmitted through home-school collaboration. The practical message is that teachers' job satisfaction is shaped by leadership practice inside the school and by the quality of the school-family partnership outside it, and that the two deserve comparable attention.

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