

FACTORS INFLUENCING ACADEMIC ADMINISTRATION EFFECTIVENESS IN PRIMARY SCHOOLS: EVIDENCE FROM LIAONING PROVINCE, CHINA

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ABSTRACT

This study investigates how academic leadership, teacher professional development, and stakeholder participation shape academic administration effectiveness in primary schools in Liaoning Province, China, and whether educational technology integration serves as a mediating mechanism. A quantitative design was employed. Questionnaire data from 362 school administrators and teachers were analyzed with SPSS and AMOS. The measurement model showed acceptable reliability and construct validity (Cronbach's alpha = .85-.91; CR = .88-.93; AVE = .61-.72). The structural model also demonstrated satisfactory fit (chi-square/df = 2.48, CFI = .93, TLI = .92, RMSEA = .065). The results indicate that academic leadership (beta = .36, $p < .001$), teacher professional development (beta = .29, $p < .01$), and stakeholder participation (beta = .24, $p < .01$) each had significant positive effects on academic administration effectiveness. Academic leadership, teacher professional development, and stakeholder participation also positively predicted educational technology integration, which in turn was associated with stronger academic administration effectiveness (beta = .31, $p < .001$). Bootstrapping results suggest partial mediation through educational technology integration. The findings underline the importance of coupling instructional leadership with sustained teacher learning, participatory governance, and purposeful technology use in school administration.

Keywords: Academic Administration, Academic Leadership, Teacher Professional Development

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INTRODUCTION

Educational systems worldwide are experiencing rapid transformation due to globalization, technological advancement, and policy reforms. These changes have significantly reshaped the goals, structures, and management practices of modern education systems. In many countries, educational institutions are required to adapt to new societal demands, improve educational quality, and integrate innovative technologies into teaching and administration. As a result, educational leaders are increasingly expected to develop effective management strategies that support institutional development and sustainable educational reform. In China, educational modernization initiatives emphasize improving school governance, strengthening instructional leadership, and promoting digital transformation in education (Nguyen et al., 2025). National education policies have encouraged schools to adopt more flexible administrative systems, enhance accountability mechanisms, and implement technology-supported management practices to improve the overall effectiveness of educational institutions. National education policies have encouraged schools to adopt more flexible administrative systems, enhance accountability mechanisms, and implement technology-supported management practices to improve the overall effectiveness of educational institutions. These policies promote the use of digital platforms, data management systems, and information technologies to support school administration and instructional supervision. By integrating technological tools into educational management, schools are better able to monitor teaching performance, coordinate administrative processes, and facilitate communication among teachers, administrators, students, and parents. The emphasis on educational modernization reflects a broader effort to align China's education system with global trends in school governance and digital learning. Strengthening governance structures and promoting technology integration not only improves administrative efficiency but also supports long-term educational development and innovation within schools. Academic administration plays a vital role in ensuring the effective implementation of curriculum standards, supervising teaching practices, and supporting teacher development. Effective academic administration not only contributes to the improvement of teaching quality but also facilitates coordination among teachers, administrators, and other stakeholders. As schools increasingly integrate educational technology and data-based decision-making, administrators must adapt their management strategies to meet new educational demands (Balıkçı, 2025). Therefore, strengthening academic administrative capacity has become an important issue in contemporary educational management research. Despite policy support and ongoing educational reform initiatives, several challenges remain in the implementation of effective academic administration in schools. In many cases, schools face difficulties in balancing administrative accountability with instructional flexibility. While educational policies often require strict adherence to curriculum standards, evaluation systems, and administrative regulations, teachers and school leaders also need sufficient autonomy to adapt teaching strategies to diverse student needs. This tension between standardization and flexibility can create challenges for school administrators who must manage both policy compliance and instructional innovation. Differences in leadership capacity, teacher development opportunities, and stakeholder involvement often lead to variations in administrative effectiveness across schools (Wermke et al., 2023). Schools with strong instructional leadership and collaborative management practices tend to demonstrate more effective academic administration, whereas schools with limited professional support systems may struggle to maintain consistent educational quality. In addition, unequal access to professional development programs and leadership training can further widen the gap in administrative capacity among schools. Previous studies indicate that academic leadership, teacher professional development, and stakeholder participation significantly influence school governance and educational outcomes (Kittilap & Julsuwan, 2024). Effective leadership can guide curriculum implementation and promote

collaborative decision-making, while continuous teacher professional development supports instructional improvement. Moreover, active participation from stakeholders, including parents and community members, can strengthen school governance and enhance accountability. Therefore, this study aims to examine the influencing factors of academic administration effectiveness in primary schools in Liaoning Province. Specifically, the objectives of this study are: To assess the current level of academic administration effectiveness in primary schools in Liaoning Province. To analyze the influence of academic leadership, teacher professional development, and stakeholder participation on academic administration. To examine the role of educational technology integration in academic administration effectiveness.

LITERATURE REVIEW

Academic Leadership and Academic Administration Effectiveness

Academic leadership refers to the capacity of school leaders to organize instructional work, clarify priorities, and coordinate people and resources around teaching and learning. Bush (2011) and Robinson (2011) argue that leadership matters most when it is closely connected to instructional processes rather than confined to administrative compliance. In primary schools, leaders shape academic routines by supervising curriculum implementation, building expectations for teaching quality, and supporting collaboration among staff. When leadership is academically focused, administrative processes tend to become more coherent. Clear direction reduces ambiguity in curriculum planning, while sustained supervision helps align classroom practices with school goals. On this basis, academic leadership is expected to strengthen academic administration effectiveness.

H1: Academic leadership has a positive effect on academic administration effectiveness.

Teacher Professional Development and Academic Administration Effectiveness

Teacher professional development is more than attendance at isolated workshops. It involves sustained opportunities for teachers to refine pedagogy, interpret curriculum reform, and learn from peers in relation to concrete problems of practice. Desimone (2009) and Avalos (2011) suggest that professional learning is most powerful when it is ongoing, collaborative, and linked to instructional work. For academic administration, this matters because administrative effectiveness depends partly on the professional capacity of those who enact school policies in classrooms. Where teacher development is systematic, curriculum implementation and instructional coordination are more likely to be consistent. Accordingly, teacher professional development should improve academic administration effectiveness.

H2: Teacher professional development has a positive effect on academic administration effectiveness.

Stakeholder Participation and Academic Administration Effectiveness

Stakeholder participation refers to the involvement of parents, communities, and other relevant actors in school decision-making and support processes. Bryk et al. (2010) and Epstein (2011) show that when schools cultivate relational trust and meaningful participation, governance becomes more responsive and legitimate. In the context of primary education, stakeholder participation may enhance academic administration by improving communication, strengthening accountability, and broadening support for school priorities. It can also help administrators respond more effectively to local needs and constraints. Therefore, stakeholder participation is expected to contribute positively to academic administration effectiveness.

H3: Stakeholder participation has a positive effect on academic administration effectiveness.

The Mediating Role of Educational Technology Integration

Educational technology integration is treated here as an organizational mechanism rather than a purely technical input. Tondeur et al. (2017) suggest that technology becomes educationally meaningful when it is embedded in school routines, professional learning, and management systems. In administrative settings, digital tools can streamline scheduling, documentation,

information sharing, instructional monitoring, and data use. Schools with stronger leadership, richer professional learning cultures, and broader stakeholder collaboration are often better positioned to integrate technology in purposeful ways. In turn, effective technology integration can support academic administration by increasing transparency, improving coordination, and enabling more timely decisions. This reasoning leads to the following mediation hypotheses.

H4a: Educational technology integration mediates the relationship between academic leadership and academic administration effectiveness.

H4b: Educational technology integration mediates the relationship between teacher professional development and academic administration effectiveness.

H4c: Educational technology integration mediates the relationship between stakeholder participation and academic administration effectiveness.

METHODOLOGY

This study employed quantitative survey design. The target population comprised school principals, vice-principals, and teachers working in primary schools in Liaoning Province, China. To capture variation across school contexts, respondents were drawn from urban, suburban, and rural schools. A total of 420 questionnaires were distributed, and 362 usable responses were retained for analysis, yielding a valid response rate of 86.2%. The questionnaire used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument measured five latent constructs: academic leadership (AL), teacher professional development (TPD), stakeholder participation (SP), educational technology integration (ETI), and academic administration effectiveness (AAE). The data were analyzed in two stages. First, SPSS was used to examine descriptive statistics and internal consistency. Second, confirmatory factor analysis and structural equation modeling were conducted in AMOS to assess the measurement model, test the structural paths, and estimate indirect effects using bootstrapping. Academic leadership was measured with five items capturing direction-setting, instructional supervision, and coordination of academic work. Teacher professional development was measured with five items reflecting access to training, collaborative learning, and the relevance of professional learning opportunities. Stakeholder participation was measured with four items focused on parent and community engagement in school governance. Educational technology integration was measured with four items that assessed the use of digital systems for communication, management, and instructional support. Academic administration effectiveness was measured with five items covering curriculum implementation, academic monitoring, coordination, and overall administrative efficiency.

RESULTS

Before testing the structural model, respondent characteristics and measurement properties were examined. Table 1 summarizes the sample profile. The respondent pool included both school leaders and teachers, with representation from urban, suburban, and rural schools. This distribution provided a useful basis for assessing academic administration across different organizational settings.

Table 1. Respondent profile Descriptive statistics of basic information

Category	Group	n (%)
Position	Principal	41 (11.3)
	Vice-principal	63 (17.4)
	Teacher	258 (71.3)
Gender	Male	112 (30.9)
	Female	250 (69.1)

Age	≤30 years	96 (26.5)
	31–40 years	154 (42.5)
	41–50 years	82 (22.7)
	≥51 years	30 (8.3)
Teaching Experience	≤5 years	78 (21.5)
	6–10 years	121 (33.4)
	11–20 years	109 (30.1)
	≥21 years	54 (14.9)
Education Level	Bachelor's degree	226 (62.4)
	Master's degree	124 (34.3)
	Doctorate	12 (3.3)
Professional Title	Junior	98 (27.1)
	Intermediate	173 (47.8)
	Senior	91 (25.1)
School Location	Urban	148 (40.9)
	Suburban	121 (33.4)
	Rural	93 (25.7)
School Type	Public school	298 (82.3)
	Private school	64 (17.7)

The sample is mainly composed of primary school teachers (71.3%), with a relatively high proportion of females (69.1%). The age range is concentrated between 31 and 40 years old (42.5%), and the teaching experience is mostly 6 to 20 years (63.5%), presenting a middle-aged characteristic. The educational background is mainly bachelor's and master's degrees (96.7%), and the teaching title is mostly intermediate (47.8%). The school sources are relatively balanced (40.9% of urban areas), with public schools being the majority (82.3%), and the sample has certain representativeness.

The reliability statistics were satisfactory across all constructions. Cronbach's alpha values ranged from .85 to .91, indicating good internal consistency. Composite reliability values exceeded the recommended threshold of .70, and average variance extracted values were above .50 for all latent variables. Together, these indicators suggest that the scales were sufficiently reliable and demonstrated acceptable convergent validity.

Table 2. Reliability and convergent validity

Construct	Cronbach's alpha	CR	AVE
AL	0.89	0.91	0.67
TPD	0.87	0.89	0.64
SP	0.85	0.88	0.61
ETI	0.9	0.92	0.7
AAE	0.91	0.93	0.72

The confirmatory factor analysis supported the adequacy of the measurement model. Standardized factor loadings were all above .70 and statistically significant. Model fit indices also fell within acceptable ranges, indicating that the latent constructs were measured in a coherent and theoretically defensible way.

Table 3. Model fit indices

Model	Index	Value	Recommended threshold
Measurement model	chi-square/df	2.31	< 3.00
Measurement model	CFI	0.94	> .90

Measurement model	TLI	0.93	> .90
Measurement model	RMSEA	0.061	< .08
Structural model	chi-square/df	2.48	< 3.00
Structural model	CFI	0.93	> .90
Structural model	TLI	0.92	> .90
Structural model	RMSEA	0.065	< .08

The structural model revealed that all proposed direct paths were positive and statistically significant. Academic leadership had the strongest direct association with academic administration effectiveness, followed by teacher professional development and stakeholder participation. In addition, each of the three exogenous variables significantly predicted educational technology integration. Educational technology integration itself had a significant positive effect on academic administration effectiveness.

Table 4. Structural path estimates

Indirect path	Effect	95% CI	Interpretation
AL -> ETI -> AAE	0.13	[.07, .20]	Partial mediation
TPD -> ETI -> AAE	0.1	[.05, .16]	Partial mediation
SP -> ETI -> AAE	0.09	[.03, .14]	Partial mediation

The bootstrapping analysis further indicated significant indirect effects from academic leadership, teacher professional development, and stakeholder participation to academic administration effectiveness through educational technology integration. The mediation pattern was partial rather than full, suggesting that technology integration does not replace leadership, teacher learning, or stakeholder collaboration; instead, it translates part of their influence into more efficient and coordinated academic administration.

Table 5. Indirect effects through educational technology integration

Indirect path	Effect	95% CI	Interpretation
AL -> ETI -> AAE	0.13	[.07, .20]	Partial mediation
TPD -> ETI -> AAE	0.1	[.05, .16]	Partial mediation
SP -> ETI -> AAE	0.09	[.03, .14]	Partial mediation

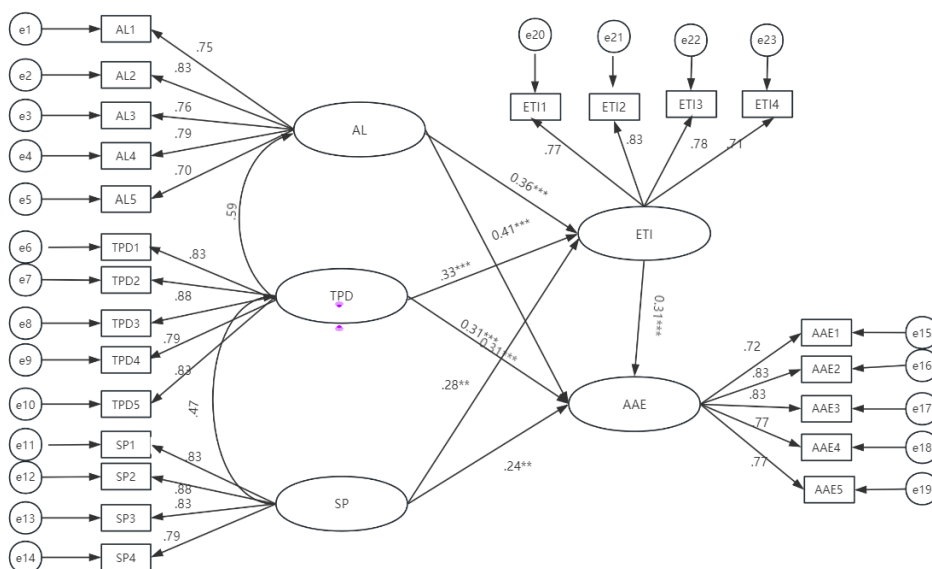


Figure 1. Structural model

CONCLUSION

Several findings deserve emphasis. First, academic leadership emerged as the strongest predictor of academic administration effectiveness. This result is consistent with leadership research that views school improvement as an organizational accomplishment requiring direction, coordination, and close attention to instruction. In the Liaoning context, the result suggests that administrative effectiveness depends heavily on whether school leaders can translate policy expectations into workable routines that teachers can actually follow. Second, teacher professional development showed a significant positive effect on academic administration effectiveness. This finding indicates that administrative quality is partly built through teachers' professional capacity. Put differently, academic administration is not sustained by rules alone. It relies on educators who understand curricular expectations, can interpret reform demands, and are able to align classroom practice with school-wide goals. Third, stakeholder participation also contributed positively. Although its direct effect was smaller than that of leadership and teacher development, it remained meaningful. This pattern suggests that participation operates less as a symbolic add-on and more as a source of trust, accountability, and practical support. Schools that involve parents and communities in purposeful ways may find it easier to secure cooperation around academic priorities. Finally, educational technology integration partially mediated all three relationships. This is an important result because it shows that technology is most consequential when it is embedded in organizational conditions that support its use. Technology did not function as an autonomous driver of administrative effectiveness. Rather, it amplified the benefits of strong leadership, capable teachers, and collaborative governance. This study makes three contributions. First, it extends the literature on school administration by focusing specifically on academic administration effectiveness, an outcome that is often discussed in practical terms but less frequently modeled empirically. Second, it brings together leadership, professional development, stakeholder participation, and technology integration within one structural model, thereby showing how organizational and relational factors work in tandem. Third, it positions educational technology integration as a mediating mechanism, offering a more process-oriented account of how administrative effectiveness is produced. For school leaders, the findings suggest that investments in academic administration should begin with leadership practice rather than with compliance tools alone. Leadership teams need time, training, and authority to coordinate curriculum, supervise instruction, and create shared priorities across grade levels. For education authorities, the results point to the need for professional development systems that are continuous, school-embedded, and tied to the everyday work of academic management. One-off workshops are unlikely to produce the kind of alignment needed for sustained administrative improvement. For policymakers and local education bureaus, stakeholder participation should be treated as part of governance capacity. Mechanisms that improve communication with parents and communities can help schools secure broader support for academic goals. At the same time, technology initiatives should be implemented with attention to organizational readiness, teacher competence, and actual administrative use cases.

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