



From Support to Administrative Innovation: The Mediating Roles of Informational Leadership and Teaching Management in Chinese Private Higher Education

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Abstract. Purpose: This study examines how organizational support is associated with administrative innovation through informational leadership and teaching management in private higher education. It develops an organizational capability pathway model for institutions facing market pressure, public-service obligations and rapid digitalization.

Design: A sequential mixed-method design was used. Seven experienced administrators and teachers from four private higher education institutions in Dongguan, China, informed construct localization and item refinement. Five experts assessed content validity, and a 30-person pilot tested reliability. The final survey yielded 461 valid responses from a proportionately stratified sample of faculty and administrative staff. Confirmatory factor analysis and structural equation modelling were conducted in AMOS.

Findings: The four-construct measurement model showed satisfactory reliability and convergent validity. The structural model fitted the data adequately (chi-square/df = 2.953, GFI = 0.947, AGFI = 0.921, CFI = 0.955, TLI = 0.942, RMR = 0.015 and RMSEA = 0.062). Organizational support was positively associated with informational leadership, teaching management and administrative innovation. Informational leadership was positively associated with teaching management and administrative innovation, while teaching management was also positively associated with administrative innovation.

Practical implications: Private universities should combine infrastructure and policy support with leaders' data-use, technology-enablement and information-ethics capabilities, then embed these capabilities in course monitoring, professional development and resource integration.

Originality: The study shifts attention from digital tools alone to the organizational capabilities connecting support with administrative innovation. It integrates leadership and teaching-management pathways in an under-researched private higher education setting.

Keywords: organizational support; informational leadership; teaching management; administrative innovation; private higher education; structural equation modelling

1 Introduction

Higher education institutions are being asked to redesign administrative work while digitalizing teaching, improving service responsiveness and protecting increasingly complex information environments. International policy reports describe digital transformation as an institutional and governance challenge rather than a narrow technology procurement exercise (UNESCO, 2023; OECD, 2023). A systematic review of higher education digital transformation similarly shows that change spans technology, strategy, organizational processes and stakeholder capabilities (Benavides et al., 2020). Administrative innovation therefore includes changes in strategic planning, process intelligence, service models and institutional mechanisms that enable universities to respond to students, staff and external stakeholders.

The conversion of investment into innovation is especially consequential in private higher education. Private institutions often operate with tighter resource constraints and stronger market exposure than public universities, while still carrying educational and social responsibilities. In China, these pressures intersect with the Education Informatization 2.0 agenda (Ministry of Education of the People's Republic of China, 2018). Dongguan, a manufacturing and technology centre in the Guangdong-Hong Kong-Macao Greater Bay Area, provides a revealing setting: its private institutions must align programmes and services with changing regional skills needs while modernizing internal administration.

Organizational support theory suggests that favourable treatment, resources and recognition shape employees' attachment and constructive behaviour (Eisenberger et al., 1986; Rhoades and Eisenberger, 2002). Support, however, is an enabling condition rather than an implementation process. Leaders must interpret information, establish digital priorities, enable evidence-informed decisions and set ethical boundaries. Higher education research also links digital leadership to the capacity to align technology, people and institutional purpose (Antonopoulou et al., 2020). At the operational level, teaching management translates priorities into course-quality monitoring, teacher development and the integration of instructional resources.

A dynamic-capability perspective helps explain this conversion. Dynamic capabilities concern an organization's ability to integrate and reconfigure resources in response to change (Teece et al., 1997). In private universities, informational leadership can direct and safeguard the use of resources, whereas teaching management can embed change in recurring educational routines. The central proposition is therefore that organizational support is connected with administrative innovation through a set of mutually reinforcing leadership and management pathways.

Existing studies frequently examine digital leadership, organizational support or innovation separately. Consequently, limited evidence shows how leadership and teaching-management capabilities operate together within one structural model, particularly in private universities in rapidly industrializing Chinese cities. This study asks whether organizational support is associated with informational leadership, teaching management and administrative innovation, and whether informational leadership and teaching management are associated with administrative innovation. It contributes a context-sensitive four-construct framework and tests six theoretically

specified paths using data from 461 faculty and administrative staff across four private institutions.

2 Theoretical Background and Hypotheses

2.1 Organizational Support and Administrative Innovation

Organizational support refers to employees' general belief that the institution values their contribution and cares about their well-being. Its foundations include fairness, supervisor support and favourable job conditions (Rhoades and Eisenberger, 2002). In a digitalizing university, support also has material and institutional forms: stable infrastructure, access to tools, funding, policies that legitimize experimentation, and professional or emotional assistance for staff adopting new routines.

Organizational innovation depends on both opportunity and willingness. Resource availability makes experimentation feasible, while policy continuity and recognition reduce the perceived risk of departing from established procedures. Research consistently identifies managerial support, climate and resources as antecedents of innovative behaviour and implementation (Damanpour, 1991; Scott and Bruce, 1994; Anderson et al., 2014). Support should therefore be associated with administrative innovation and with the leadership and management capabilities through which resources are coordinated.

H1: Organizational support is positively associated with innovation in educational administration.

H2: Organizational support is positively associated with informational leadership.

H3: Organizational support is positively associated with teaching management.

2.2 Informational Leadership as a Conversion Capability

Digital transformation is an organizational change process rather than a technology project (Vial, 2019; Verhoef et al., 2021). Leadership is needed to connect technology to institutional purpose, establish routines for evidence-informed decisions and manage privacy, security and ethical risk. Informational leadership is defined here as a three-part capability: technology-enabled innovation, data-driven decision-making, and information ethics and security.

This capability should be associated with administrative innovation because leaders frame priorities, interpret internal and external signals and mobilize staff around new practices. Ethical and security competence is equally important: innovation that undermines trust or exposes sensitive information is unlikely to be sustained. Informational leaders should also strengthen teaching management by enabling better monitoring, resource visibility and targeted professional development.

H4: Teaching management is positively associated with innovation in educational administration.

H5: Informational leadership is positively associated with innovation in educational administration.

H6: Informational leadership is positively associated with teaching management.

2.3 Mediating Pathways

Support creates potential, but organizations require capabilities that direct and embed that potential. Informational leadership converts resources and policies into priorities, interpretations and safeguards. Teaching management converts organizational priorities into recurring practices close to the institution's educational core. This logic is consistent with process views of innovation, which treat innovation as the outcome of interacting contextual and implementation conditions rather than a single input (Crossan and Apaydin, 2010).

The two capabilities are complementary but analytically distinct. Informational leadership gives strategic meaning to resources and information, whereas teaching management coordinates course quality, professional development and resource integration. The structural model therefore includes direct paths from organizational support to both capabilities, from informational leadership to teaching management, and from both capabilities to administrative innovation. Because the design is cross-sectional, these paths are interpreted as theory-consistent associations rather than temporal or causal mechanisms.

3 Method

3.1 Design and Setting

A sequential mixed-method design combined construct localization with quantitative model testing. The study was conducted in four private higher education institutions in Dongguan, Guangdong Province, during the 2025 academic year. The target population comprised 3,754 employees: 939 administrative staff and 2,815 teachers. The qualitative phase informed the content and language of the measures; the survey phase evaluated the measurement and structural models.

3.2 Qualitative Localization and Instrument Development

Seven key informants were selected purposively from the four institutions: three administrators and four teachers. Eligibility required more than five years of higher education management or teaching experience and a doctoral degree. Face-to-face interviews were conducted over two days in September 2025 after consent was obtained. A semi-structured protocol covered organizational support, informational leadership, teaching management and administrative innovation. Detailed notes were organized, coded and classified using content analysis, then compared with literature-derived dimensions.

The initial 56-item pool was evaluated by five experts for content accuracy, clarity, relevance and construct congruence. Items with an Item-Objective Congruence value below 0.60 were removed or revised, leaving 42 items. A pilot test with 30 respondents who had characteristics similar to the target population showed satisfactory internal consistency: $\alpha = 0.818$ for organizational support, 0.821 for informational leader-

ship, 0.829 for teaching management, 0.825 for administrative innovation and 0.924 overall.

3.3 Measures

All substantive items used a five-point agreement scale from 1 (strongly disagree) to 5 (strongly agree). The final measurement structure contained 14 first-order dimensions represented by 42 items. Dimension scores served as observed indicators in the latent-variable model. the results showed in Table 1 as follow:

Table 1. Components and Indicators of the Research Variables

Construct	Dimensions	Items	Content
Organizational support	4	12	Technical resources; resource assurance; institutional policy; emotional and professional support
Informational leadership	3	9	Technology-enabled innovation; data-driven decisions; information ethics and security
Teaching management	3	9	Course quality monitoring; teacher development; teaching-resource integration
Administrative innovation	4	12	Strategic planning; process intelligence; service-model innovation; institutional-mechanism reform

3.4 Sampling and Respondents

G*Power was used at the planning stage with power = 0.80, alpha = 0.05 and a medium effect-size assumption. Proportionate stratified random sampling by employee role produced a planned sample of 475. Fourteen incomplete or otherwise invalid questionnaires were excluded, leaving 461 valid responses (97.1%). The sample included 319 men (69.2%) and 142 women (30.8%). Most respondents held a master's degree (75.5%); 20.8% held a doctorate. Teachers comprised 51.0%, administrative staff 26.7%, and staff with combined administrative and teaching roles 22.3%. Institutional shares ranged from 20.2% to 33.4%.

3.5 Analysis

Descriptive statistics, distributional checks, bivariate correlations, confirmatory factor analysis (CFA) and structural equation modelling (SEM) were conducted in AMOS using maximum-likelihood estimation. Skewness and kurtosis values fell within +/-2. Convergent validity was evaluated using standardized loadings, composite reliability (CR) and average variance extracted (AVE), following established measurement

guidance (Fornell and Larcker, 1981; Kline, 2016). Model fit was evaluated using chi-square relative to degrees of freedom, GFI, AGFI, CFI, TLI, RMR and RMSEA. Multiple indices were interpreted together rather than as mechanical cut-offs (Hu and Bentler, 1999; Byrne, 2016). Standardized structural coefficients, Z statistics and two-tailed p values are reported.

3.6 Research Ethics

Participants were informed of the purpose of the study, participation was voluntary, and responses were reported in aggregate without identifying individuals. The interview phase explicitly recorded participant consent.

4 Results

4.1 Measurement Model

All correlations among the 14 observed dimensions were positive and statistically significant at the 0.01 level, ranging from 0.19 to 0.70. No correlation exceeded 0.80. Standardized CFA loadings ranged from 0.645 to 0.860 and were significant at $p < 0.001$. CR values ranged from 0.775 to 0.843, and AVE values ranged from 0.521 to 0.643, supporting internal consistency and convergent validity. Additional discriminant-validity evidence should be reported if the archived AMOS output or item-level data are available. the results showed in Table 2 as follow:

Table 2. Critical statistics for the CFA model

Construct	Standardized loadings	CR	AVE
Organizational support	0.735, 0.709, 0.729, 0.714	0.813	0.521
Informational leadership	0.732, 0.781, 0.678	0.775	0.535
Teaching management	0.816, 0.860, 0.723	0.843	0.643
Administrative innovation	0.645, 0.777, 0.757, 0.734	0.819	0.533

4.2 Structural Model

The hypothesized model showed acceptable fit: chi-square = 209.631, $df = 71$, chi-square/ $df = 2.953$, GFI = 0.947, AGFI = 0.921, CFI = 0.955, TLI = 0.942, RMR = 0.015 and RMSEA = 0.062. Although the chi-square test was significant, the relative chi-square and the incremental and residual indices supported model adequacy. the results showed in Table 3 as follow:

Table 3. Hypothesis testing of Structural Equation Model

Hyp.	Path	Std. effect	Z	p	Decision
H1	OS → AI	0.117	3.49	<0.001	Supported
H2	OS → IL	0.783	18.07	<0.001	Supported
H3	OS → TM	0.219	5.71	<0.001	Supported
H4	TM → AI	0.138	3.95	<0.001	Supported
H5	IL → AI	0.426	5.82	<0.001	Supported
H6	IL → TM	0.456	6.85	<0.001	Supported

Note: OS = organizational support; IL = informational leadership; TM = teaching management; AI = innovation in educational administration.

Organizational support had its strongest association with informational leadership (beta = 0.783). Informational leadership was associated with administrative innovation (beta = 0.426) and teaching management (beta = 0.456). Teaching management also showed a positive association with administrative innovation (beta = 0.138). The pattern is consistent with the proposed capability pathway, while the cross-sectional design does not establish temporal ordering or mediation.

5 Discussion

This study examined how organizational support, informational leadership, teaching management and administrative innovation are connected in private universities. Three findings are central. First, organizational support was associated with all three downstream constructs. Its strongest association was with informational leadership, suggesting that resources and policies are particularly consequential when they enable leaders to interpret, coordinate and safeguard information. This extends perceived organizational support theory from employee attitudes toward organizational capability formation, while remaining an associational interpretation.

Second, informational leadership was the strongest proximal correlate of administrative innovation. Digital transformation research cautions that technology alone does not transform organizations (Vial, 2019; Verhoef et al., 2021). The results specify relevant leadership capabilities: enabling appropriate technology use, institutionalizing data-informed decisions, and maintaining information ethics and security. These capabilities are particularly relevant to private universities, where pressure for rapid responsiveness may encourage speed at the expense of governance.

Third, teaching management was positively associated with administrative innovation and was also associated with informational leadership. Course-quality monitoring, professional development and resource integration provide recurring routines through which organizational priorities can reach the educational core. The smaller coefficient

for teaching management does not make this pathway unimportant; it indicates that operational routines complement rather than replace leadership capability.

The combined model contributes to educational-management research by linking organizational context, leadership capability, operational management and innovation. Importantly, it does not equate digitalization with innovation. The dependent construct captures strategic, process, service and institutional change, recognizing that a university may digitize existing bureaucracy without becoming more responsive.

5.1 Theoretical Implications

The findings support a capability-conversion interpretation in which organizational support provides capacity, informational leadership directs and safeguards that capacity, and teaching management embeds organizational priorities in recurring practices. This integration connects organizational support theory with a dynamic-capability logic (Teece et al., 1997). The study also defines informational leadership more precisely by combining technology enablement and data use with information ethics and security, avoiding an overly technological conception of leadership.

5.2 Practical Implications

Private universities should manage organizational support as a portfolio rather than a technology budget. Infrastructure and financial resources should be accompanied by stable policy, staff participation, professional development and attention to work pressure. Without these elements, leaders may lack the authority and trust required to redesign administrative work.

Leadership development should assess the ability to frame digital priorities, interpret data, communicate evidence and govern privacy and security. Institutions can embed these capabilities through cross-functional data councils, transparent decision protocols and regular ethical-risk reviews.

Teaching management provides a practical testing ground for administrative innovation. Universities can prioritize closing the loop on student feedback, targeting professional development with credible evidence, and making teaching resources discoverable across departments. Progress should be judged by service quality and educational work, not platform deployment alone.

5.3 Limitations and Future Research

The cross-sectional, self-report design limits causal inference and may inflate associations through common method variance. Although the model is theoretically directional, longitudinal or time-lagged designs are needed to establish temporal order. Future studies should combine survey data with administrative indicators, digital-service records or independent assessments of innovation.

The sample is limited to four private institutions in one Chinese city. Dongguan is theoretically informative, but the results should not be generalized automatically to public universities or other national systems. Multi-region and multi-country replica-

tion could test whether market exposure, governance arrangements and resource dependence condition the pathways.

The measurement model used dimension scores as observed indicators. Item-level validation in an independent sample, measurement invariance across teachers and administrators, and comparisons by institution would strengthen the evidence. Future work should also test the serial indirect path from support through informational leadership and teaching management with fully reported bootstrap confidence intervals.

6 Conclusion

Administrative innovation in private higher education is associated not only with resource provision but also with the leadership and management capabilities through which institutions direct and embed change. Evidence from four private universities in Dongguan shows positive structural associations among organizational support, informational leadership, teaching management and administrative innovation. The strongest pattern concerns leaders' capacity to enable technology, use data and govern information responsibly. For institutions seeking meaningful digital transformation, the practical priority is to align supportive conditions, capable leadership and operational routines that connect change with teaching and service.

Declarations

Consent to participate: Informed consent was obtained from interview participants; survey participation was voluntary and responses were reported in aggregate.

Funding: This research was conducted during my doctoral studies and was entirely self-funded.

Author Contributions: Guo Meiling—Conceptualization, research methodology, data collection, formal analysis, data organization, drafting, and review and editing.

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