

Research Article

TEACHERPRENEURSHIP AS A META-SKILL FOR TRANSFORMATIONAL LEADERSHIP: CONCEPTUALIZATION AND VALIDATION

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Abstract

Chinese private higher education institutions (HEIs) face market-policy pressures requiring rapid innovation and leadership enactment beyond formal roles. This study tests whether teacherpreneurship can be conceptualized and validated as a leadership-enabling meta-skill bundle (TEB-MS) that strengthens transformational leadership (TL) behaviors and predicts work performance, knowledge-sharing/communities-of-practice engagement, and career adaptability/success. This study contributes by conceptualizing teacherpreneurship as a higher-order meta-skill construct that integrates adaptive, relational, creative, and strategic capabilities within a unified leadership-enabling framework. Using a time-lagged validation design with faculty and academic staff from multiple Chinese private HEIs ($N = 654$), TEB-MS was modeled as a second-order construct comprising adaptive expertise/learning agility, relational dynamics, creative agility, and strategic synthesis, and evaluated using CFA and SEM. CFA supported the second-order structure. TEB-MS predicted TL ($\beta = .52, p < .001$), TL predicted outcomes ($\beta = .54, p < .001$), and the indirect effect was substantial ($\beta = .28, p < .001$) with partial mediation (direct $\beta = .10, p < .05$). Academic management support and distributed leadership/empowerment climate strengthened the TEB-MS $\rightarrow$ TL relationship. These findings suggest that private HEIs should strengthen both faculty capability development and enabling academic management conditions if they aim to convert teacher initiative into visible transformational leadership and institutional improvement.

Keywords: Higher Education Leadership, Faculty Innovation, Distributed Leadership, Organizational Capability, Scale Validation

Introduction

1. Background and problem statement

Chinese private higher education institutions (HEIs) operate in a policy–market environment marked by competition, resource constraints, and sustained pressure to demonstrate graduate employability and institutional responsiveness (Che, 2024; Che et al., 2026a, 2026b; Yu & Jang, 2024). In this context, academic improvement cannot rely only on isolated reform initiatives; it requires coherent academic management capable of coordinating curriculum, pedagogy, and evaluation as integrated levers of change (Che, 2024; Che et al., 2026a, 2026b). Recent scholarship has increasingly framed Chinese private higher education reform through the combined lenses of academic management and meta-skills development, highlighting the strategic role of institutional design in strengthening graduate readiness and innovation capacity (Che, 2024; Che et al., 2026a, 2026b). At the same time, leadership in higher education is often distributed across academic roles rather than confined to formal positions, and teacher leadership has been identified as both feasible and necessary in university settings (Ghamrawi et al., 2024; Zhang et al., 2021; Zhou, 2025). Chinese private HEIs provide a particularly important context for this inquiry because they are often more exposed to market responsiveness, enrollment pressure, and innovation demands than public institutions, while also operating under comparatively tighter resource and legitimacy constraints. These conditions make leadership enactment less dependent on formal title alone and more dependent on faculty capability, initiative, and distributed influence.

Within this distributed leadership context, teacherpreneurship offers a useful capability lens because it captures leadership-in-action through observable behaviors such as opportunity recognition, resource mobilization, trust-building, innovation promotion, and boundary-spanning initiative (Ho & Lu, 2024; Ho et al., 2021). Prior studies suggest that teacher entrepreneurial behavior is not a single undifferentiated trait but a structured and heterogeneous pattern of enactment that may vary across teacher leader profiles (Ho et al., 2025). This perspective is strengthened by ecosystem and developmental accounts showing that teacher entrepreneurship is shaped by contextual legitimacy, local support structures, and staged professional learning rather than fixed disposition alone (Roundy, 2022; Oksanen et al., 2023; Shawkat, 2022). Accordingly, teacherpreneurship can be theorized not merely as entrepreneurial tendency, but as a developable capability set with direct relevance for leadership enactment in higher education.

2. Theoretical anchors: meta-skills and transformational leadership

This study is anchored in the concepts of meta-skills and transformational leadership. Meta-skills are higher-order capabilities that enable people to learn, adapt, integrate knowledge, and exert relational influence across changing contexts; in this sense, they function as “skills that enable other skills” under conditions of uncertainty and complexity (Tammeaid et al., 2022). This capability-based view also aligns with dynamic capability logic, which emphasizes the importance of sensing, mobilizing, and reconfiguring resources under uncertain conditions (Teece, 2007). Leadership learning research reinforces this view by showing that metacognitive regulation supports sustained development, adaptive judgment, and transfer across situations (Volpe-White, 2024), while shared metacognitive processes may also be enacted behaviorally in collaborative

environments rather than remaining purely internal (Hassell-Goodman et al., 2024). Transformational leadership (TL), meanwhile, remains a robust explanatory framework for educational performance and change, with meta-analytic evidence linking leadership styles to job satisfaction and performance-related outcomes across higher education contexts (Kasalak et al., 2022). In education settings, transformational influence is also closely connected to socio-emotional and relational capacities, reinforcing its compatibility with a meta-skill perspective (Hsu et al., 2022). The present study also draws on the foundational work of Burns (1978) and Bass (1985), which conceptualizes transformational leadership as a form of influence that elevates motivation, stimulates new thinking, and mobilizes followers toward change-oriented goals.

3. Conceptual integration: teacherpreneurship as a leadership-enabling meta-skill

Building on these foundations, this study conceptualizes teacherpreneurship as a leadership-enabling meta-skill bundle that strengthens educators' capacity to enact transformational leadership behaviors in Chinese private HEIs (Che, 2024, 2026b, 2026c; Che et al., 2026a, 2026e). The proposed logic is that teacherpreneurial capabilities support adaptive initiative, relational mobilization, innovation-oriented action, and strategic integration, all of which are consistent with transformational leadership enactment. This argument is supported by evidence that transformational leadership in higher education often operates through psychological and relational mechanisms rather than purely direct effects (Kou et al., 2024), is associated with longer-term developmental outcomes such as career adaptability and career success among Chinese university teachers (Zhao & Jiang, 2025), and contributes to faculty well-being through efficacy- and job-crafting-related pathways (Sun et al., 2025). Related studies further connect transformational leadership to entrepreneurial and innovative behavior, knowledge-sharing processes, creativity, empowerment, and work engagement, thereby strengthening the behavioral plausibility of teacherpreneurship as a leadership-relevant capability construct (Wen & Harms, 2025; Matsuo, 2025; Saif et al., 2024; Kaya, 2024; Vu et al., 2025; Wang, 2024).

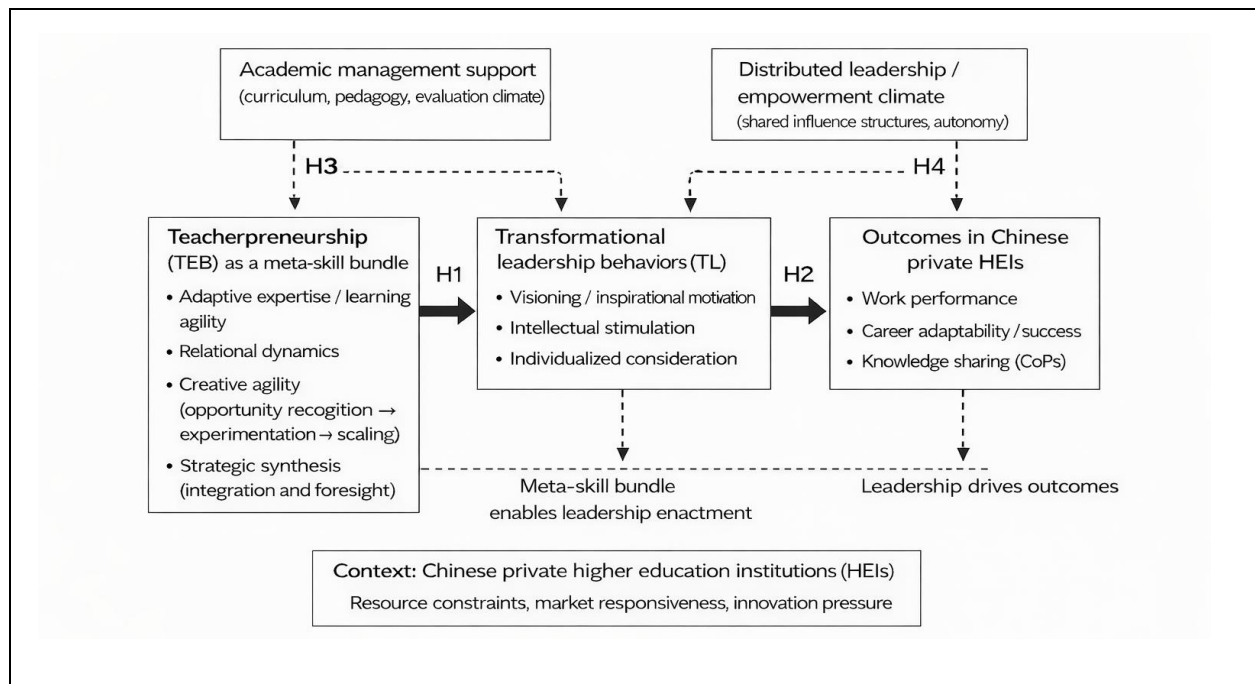
The framework also recognizes that capability enactment is shaped by institutional and relational conditions. In particular, academic management support provides a formal institutional infrastructure through which curriculum, pedagogy, and evaluation can enable or constrain capability development in Chinese HEIs (Che, 2024, 2026c; Che et al., 2026a, 2026b, 2026c, 2026d, 2026e). Complementary research on AI literacy and AI-enabled assessment further situates meta-skill development within institutional culture, readiness, and academic-system change (Che, 2026a, 2026b). At the pedagogical level, earlier studies of algorithm-supported translation, multimodal debate, English-news curriculum reform, whole-person education, and English-major development provide contextual antecedents by emphasizing adaptive, integrative, and innovation-oriented teaching in Chinese higher education (Che, 2022, 2023a, 2023b, 2023c, 2023d). Evidence from a policy-governance-culture analysis additionally indicates that transformational leadership enactment is conditioned by structural coherence and culturally grounded legitimacy, extending this institutional logic beyond a single national setting (Che & Tun, 2026). Likewise, distributed leadership, trust, and empowerment climates can strengthen the effect of transformational leadership on teacher psychological capital, well-being, and innovativeness (Bellibaş et al., 2025; Polatcan et al., 2024; Kılınç et al., 2024). Additional evidence indicates that

transformational leadership is associated with reduced role stress, stronger teaching performance, teacher efficacy, organizational effectiveness, and downstream student development outcomes, supporting the broader rationale for modeling teacherpreneurship as a higher-order, developable capability linked to both leadership enactment and educational improvement (Yong & Zhang, 2025; Yousefi et al., 2025; Jinke et al., 2025; Ma et al., 2025; Lin & Wang, 2025). Taken together, this study advances a capability-based explanation of transformational leadership enactment in Chinese private higher education and provides a basis for the conceptualization and empirical validation of teacherpreneurship as a transformational leadership meta-skill.

Despite this emerging literature, three gaps remain. First, an empirical gap persists because prior studies have rarely tested teacherpreneurship as a second-order construct with multiple theoretically integrated domains. Second, a theoretical gap remains because teacherpreneurship has not yet been clearly conceptualized as a meta-skill bundle that enables transformational leadership rather than merely reflecting entrepreneurial tendency or informal teacher initiative. Third, a contextual gap exists because evidence from Chinese private HEIs remains limited, even though this sector faces distinctive leadership pressures related to market competition, constrained resources, and the need for innovation under legitimacy demands. Addressing these gaps, this study contributes by conceptualizing teacherpreneurship as a higher-order meta-skill construct and empirically testing its direct, indirect, and moderated relationships with transformational leadership and institutional outcomes in Chinese private higher education.

Accordingly, this study has three objectives: **(1)** to conceptualize teacherpreneurship as a higher-order meta-skill bundle, **(2)** to validate its second-order structure, and **(3)** to test its direct, indirect, and moderated relationships with transformational leadership and outcomes in Chinese private HEIs.

Figure 1 presents the conceptual framework: teacherpreneurship as a meta-skill for transformational leadership. The moderator logic is that individual capability is not expressed uniformly across institutions, but is more likely to become visible leadership behavior when organizational conditions provide legitimacy, autonomy, and implementation support. Academic management support therefore represents formal enabling infrastructure, whereas distributed leadership/empowerment climate represents a relational and structural context that opens space for shared influence.

Figure 1 Conceptual framework: teacherpreneurship as a meta-skill for transformational Leadership

The hypothesized linkages shown in Figure 1 are as follows:

H1: Teacherpreneurship meta-skill (TEB-MS, T1) positively predicts transformational leadership behaviors (TL, T2).

H2: Transformational leadership behaviors (TL, T2) positively predict outcomes (T2).

H3: Academic management support (T1) positively moderates the relationship between TEB-MS (T1) and TL (T2), such that the positive effect of TEB-MS on TL is stronger when academic management support is higher.

H4: Distributed leadership/empowerment climate (T1) positively moderates the relationship between TEB-MS (T1) and TL (T2), such that the positive effect of TEB-MS on TL is stronger when distributed leadership/empowerment climate is higher.

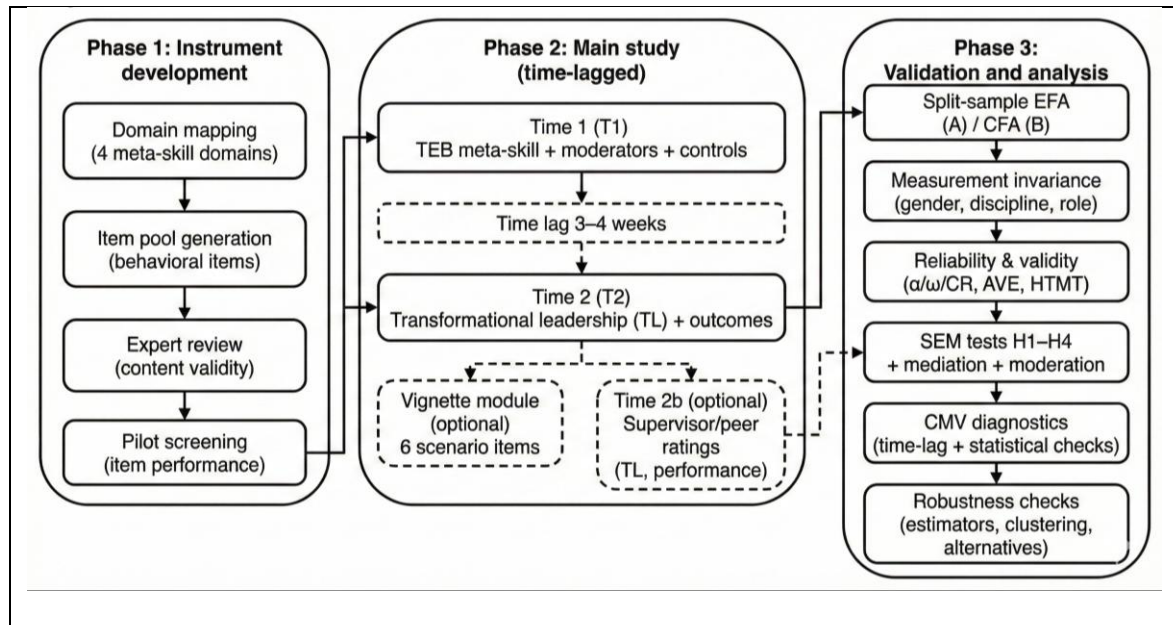
Research Methodology

1. Research design and procedure

This study adopted a two-wave time-lag design to validate teacherpreneurship as a meta-skill (TEB-MS) and to test its relationships with transformational leadership behaviors (TL) and outcomes among faculty in Chinese private higher education institutions (HEIs). Data were collected at two time points separated by a 3–4 week interval. This interval was selected to provide temporal separation between focal predictors and criterion variables, thereby reducing same-source inflation and immediate consistency bias, while remaining short enough to minimize attrition and role-context instability in academic settings. At Time 1 (T1), participants completed measures of TEB-MS, academic management support, distributed leadership/empowerment

climate, and demographic/professional controls. At Time 2 (T2), the same participants completed measures of TL and the study outcomes. This sequencing established temporal separation between focal predictors and criteria and supported a rigorous validation workflow, as summarized in Figure 2.

Figure 2 Data collection and validation workflow



A matched-code procedure linked responses across waves while preserving anonymity, with participants generating a standardized self-matching code at each wave to enable accurate T1–T2 linkage without collecting personal identifiers. Figure 2 outlines the workflow: T1 captured the teacherpreneurship meta-skill (TEB–MS) measure, moderators, and control variables, followed by T2 after a 3–4 week lag to collect transformational leadership behaviors and outcome measures, with an optional T2b module adding supervisor or peer ratings as multi-source criterion evidence. Validation then proceeded through CFA and second-order TEB–MS testing, reliability and validity checks, subgroup invariance and CMV assessment, and SEM-based testing of direct, indirect, and moderated effects. This design was intended not only to strengthen temporal ordering, but also to support a more rigorous validation sequence in which construct structure, measurement quality, and nomological relationships could be examined in a staged manner.

2. Participants and sampling

Participants were full-time faculty members and academic staff in Chinese private HEIs, including lecturers, associate professors, and personnel with program coordination responsibilities. Recruitment was conducted through institutional channels on a voluntary basis. Accordingly, the study employed a convenience-based institutional access sampling approach, which was appropriate for reaching eligible respondents across multiple private HEIs while preserving voluntary participation. A total of 782 valid responses were collected at T1, and 654 were successfully matched across T1–T2 after a 3–4 week interval, yielding a matching rate of

83.6%. A multi-source criterion subset ($n = 192$) was additionally collected at T2b through supervisor or peer ratings, with each focal respondent evaluated by one rater using matched anonymous codes and parallel items aligned with the study's TL and outcome indicators.

The matched sample ($N = 654$) comprised 59.9% female participants ($n = 392$); academic rank distribution included lecturer/assistant (54.4%, $n = 356$), associate (32.7%, $n = 214$), and other ranks forming the remainder. Approximately 33.6% held coordination or program-level responsibilities ($n = 220$). Disciplinary clusters included STEM (36.4%, $n = 238$), social sciences/business (39.1%, $n = 256$), and arts/humanities/education (24.5%, $n = 160$), while tenure distribution was ≤ 5 years (30.9%, $n = 202$), 6–10 years (38.8%, $n = 254$), and ≥ 11 years (30.3%, $n = 198$). These background variables were also analytically important because rank, tenure, disciplinary context, and formal coordination responsibility may plausibly shape opportunities for leadership enactment and perceptions of transformational behavior in higher education settings.

3. Measures and data analysis

All constructs were measured with multi-item Likert-type scales administered in Chinese using translation–back translation and reviewer reconciliation. Teacherpreneurship (TEB–MS; T1) was specified as a second-order meta-skill construct reflected by four first-order domains—adaptive expertise/learning agility, relational dynamics, creative agility, and strategic synthesis—measured with 24 behavioral items on a 5-point scale. The 24-item TEB–MS measure was developed through a theory-informed item construction process drawing on prior teacherpreneurship, meta-skills, and leadership literature, followed by domain mapping, expert review, and pilot screening to refine item clarity and content relevance. While transformational leadership (TL; T2) captured enacted leadership behaviors in academic settings and was rated on a 5-point scale as the primary mediator. Two T1 moderators—academic management support and distributed leadership/empowerment climate—were each measured with 6 items on 5-point scales, and outcomes at T2 were modeled as a higher-order latent construct comprising work performance, knowledge sharing/communities-of-practice engagement, and career adaptability/success, with 4 items per facet. Illustrative sample items for the TEB–MS domains may be presented in an appendix to enhance measurement transparency.

Analyses controlled for gender, academic rank, tenure, discipline cluster, and formal leadership role, and data screening indicated low item-level missingness (typically $< 2.5\%$), acceptable multicollinearity ($VIFs < 2.5$), and mild non-normality. Accordingly, analyses were conducted in Mplus 8 using WLSMV with robust standard errors and MLR robustness checks, with CFA-based measurement validation, competing model comparisons, reliability and validity testing, subgroup invariance and CMV assessment, and SEM used to test direct, indirect, and moderated effects with bootstrap confidence intervals, cluster-robust standard errors at the HEI level, and T2b multi-source evidence. Common method variance was addressed both procedurally and statistically: procedurally through the time-lagged matched-code design, and statistically through comparison with a poorer-fitting single-factor alternative and related measurement diagnostics, suggesting that CMV was unlikely to account for the observed covariance structure.

Results

1. Sample, Matching Quality, and Data Screening

A total of 782 faculty and academic staff from Chinese private HEIs completed the Time 1 (T1) survey, and after the 3–4 week lag, 654 provided usable Time 2 (T2) responses that were successfully matched through anonymous codes, yielding a matching rate of 83.6%. Optional multi-source ratings were also obtained for a subset of 192 cases from supervisors or peers at T2b to cross-validate transformational leadership and performance-related outcomes. Item-level missingness was low (typically <2.5%), patterns were consistent with practical missing-at-random assumptions, item distributions showed mild non-normality typical of Likert-type data, no problematic multicollinearity was detected among exogenous constructs (all VIFs < 2.5), and robust estimators were therefore used for confirmatory analyses. In sum, these screening results suggest that the matched dataset was of sufficient quality for psychometric validation and structural testing, while the additional T2b subset provided a useful robustness check against sole reliance on self-report evidence.

Table 1 Matched sample characteristics (T1–T2; N = 654)

Characteristic	Category	n	%
Gender	Female	392	59.9
	Male	262	40.1
Academic rank	Lecturer/Assistant	356	54.4
	Associate	214	32.7
	Professor/Senior	84	12.8
Role	No formal leadership role	434	66.4
	Program/coordination role	220	33.6
Discipline cluster	STEM	238	36.4
	Social sciences/business	256	39.1
	Arts/humanities/education	160	24.5
Tenure in HE	≤5 years	202	30.9
	6–10 years	254	38.8
	≥11 years	198	30.3

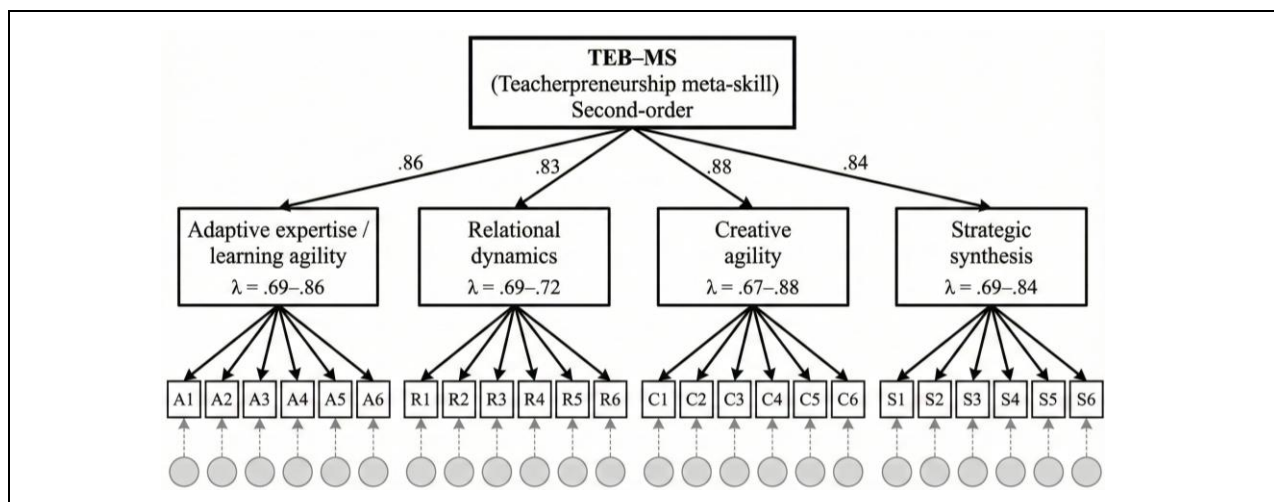
The matched sample (N = 654) was female-majority (59.9%) and primarily lecturer/assistant or associate rank (87.1%), with one-third holding program/coordination roles (33.6%). Disciplinary clusters were broadly balanced and tenure was well distributed, supporting stable psychometric estimation and SEM testing. A multi-source subset (n = 192) provided additional criterion cross-validation for TL and performance-related outcomes. Overall, the composition of the matched sample indicates that the study captured respondents

from a reasonably diverse range of academic roles, disciplinary groupings, and tenure stages within Chinese private HEIs.

2. Measurement Model: Structure, Reliability, and Validity

The teacherpreneurship meta-skill construct (TEB-MS) was modeled as a second-order factor reflected by four first-order dimensions—adaptive expertise/learning agility, relational dynamics, creative agility, and strategic synthesis—and the finalized structure is presented in Figure 3. Confirmatory factor analysis supported this hypothesized structure, with the second-order model showing strong fit ($CFI = .955$, $TLI = .948$, $RMSEA = .041$, $SRMR = .039$), substantially outperforming a single-factor alternative and remaining stable across WLSMV and MLR estimators. Standardized item loadings ranged from .63 to .88, second-order loadings confirmed the four domains as strong indicators of the overall capability bundle, reliability and validity indices met recommended thresholds, multi-group CFAs supported configural and metric invariance across gender, discipline cluster, and leadership role ($\Delta CFI \leq .010$; $\Delta RMSEA \leq .015$), and the poorer fit of the single-factor CFA suggested that common method variance was unlikely to account for the observed covariance structure. These results provide strong support for the psychometric adequacy of TEB-MS and indicate that teacherpreneurship is empirically better represented as an integrated higher-order construct than as a single undifferentiated trait.

Figure 3 Second-order measurement model of teacherpreneurship meta-skill (TEB-MS)



Note: Values on second-order paths indicate standardized loadings (TEB-MS $\rightarrow$ first-order factors). Item-level loadings are reported in Table 2.

Figure 3 presents the second-order measurement model for TEB-MS, depicting teacherpreneurship as a higher-order latent construct reflected by four interrelated first-order capability domains. The standardized second-order and indicator loadings were in acceptable-to-strong ranges, supporting both the contribution of each domain to the overarching TEB-MS factor and the coherence of the items with their respective factors. Using the matched sample ($N = 654$), CFA results summarized in Table 2 further supported the psychometric adequacy of the measure through factor loading ranges, internal consistency

estimates (Cronbach's α and McDonald's ω), composite reliability (CR), and average variance extracted (AVE) for each first-order dimension and the second-order construct. Substantively, this pattern suggests that adaptive, relational, creative, and strategic capabilities operate as related but distinguishable components of a broader teacherpreneurship meta-skill architecture.

Table 2 Reliability and validity summary for TEB-MS (CFA; N = 654)

Construct	Items	Loading range (λ)	α	ω	CR	AVE	Second-order loading
Adaptive expertise / learning agility	6	.69–.86	.90	.91	.91	.63	.86
Relational dynamics	6	.65–.84	.88	.89	.89	.58	.83
Creative agility	6	.67–.88	.91	.92	.92	.65	.88
Strategic synthesis	6	.63–.85	.89	.90	.90	.60	.84
TEB-MS (Second-order)	24	—	—	—	.94	—	—

Table 2 presents the loading ranges and reliability indices for the TEB-MS dimensions and the second-order construct. AVE values supported convergent validity across dimensions, and the second-order construct demonstrated high composite reliability. HTMT ratios between TEB-MS dimensions and transformational leadership were all below the conservative .85 threshold, indicating that teacherpreneurship meta-skill and TL were empirically distinguishable despite their conceptual proximity in academic contexts. In other words, the findings support both convergence within the TEB-MS domains and adequate separation between TEB-MS and transformational leadership, which is important given the conceptual closeness of the two constructs.

3. Structural model and hypothesis tests

Following confirmation of the second-order measurement structure, the structural model examined the proposed nomological network linking teacherpreneurship meta-skill (TEB-MS) at T1, transformational leadership (TL) behaviors at T2, and a higher-order outcomes construct in Chinese private HEIs comprising work performance, knowledge sharing/communities-of-practice engagement, and career adaptability/success indicators; model fit was acceptable (CFI = .946, TLI = .939, RMSEA = .043, SRMR = .044). The standardized results summarized in Figure 4 showed that TEB-MS had a strong positive association with TL after the lag period, TL in turn had a substantial positive association with outcomes, and once TL was included, the direct path from TEB-MS to outcomes was comparatively smaller while the indirect pathway through TL remained statistically meaningful, supporting the proposed mediation logic. Boundary-condition tests further showed that both academic management support and distributed leadership/empowerment climate positively moderated the TEB-MS $\rightarrow$ TL relationship, indicating that individual capability is more strongly translated into transformational leadership behavior when institutional conditions provide legitimacy, autonomy, and supportive academic management processes. From a substantive perspective, these coefficients suggest that

teacherpreneurship is not only relevant to leadership in a statistical sense, but meaningfully linked to how faculty leadership is enacted and translated into work-related outcomes in private HEIs.

Figure 4 Structural model results and boundary conditions (standardized effects)

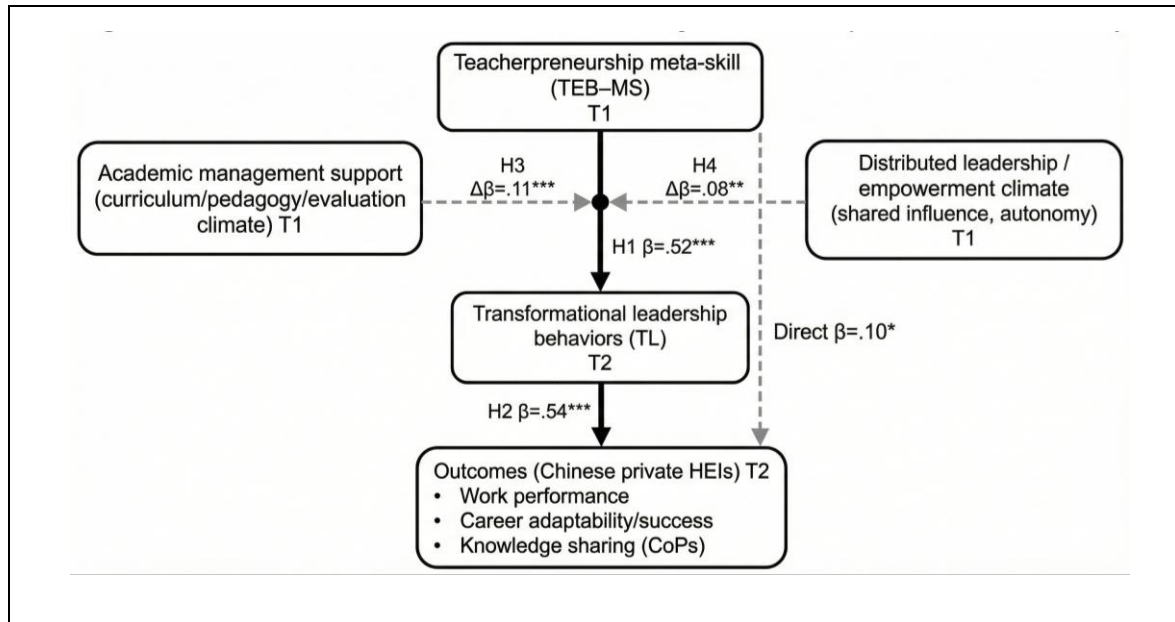


Figure 4 shows that teacherpreneurship meta-skill positively predicts transformational leadership behaviors (H1), transformational leadership behaviors positively predict outcomes (H2), and teacherpreneurship retains a smaller but significant direct effect on outcomes, consistent with partial mediation alongside a substantive indirect pathway through transformational leadership. The boundary-condition results further indicate that academic management support (H3) and distributed leadership/empowerment climate (H4) strengthen the teacherpreneurship-to-leadership linkage, showing that institutional conditions amplify the extent to which teacherpreneurial capability is expressed as transformational leadership behavior. After confirmation of the measurement model, the hypothesized nomological network was tested using structural equation modeling (SEM) on the matched sample ($N = 654$), with Table 3 reporting the standardized estimates for the direct, indirect, and moderated effects and providing hypothesis tests for H1–H4 and the mediation pathway. This pattern is consistent with the view that capability and context operate jointly: faculty meta-skill matters, but its expression as leadership becomes stronger when institutional conditions are supportive.

Table 3 Structural model estimates and hypothesis testing (SEM; N = 654)

Hypothesis/ Effect	Path	Standardized β	SE	p	Decision
H1	TEB-MS (T1) $\rightarrow$ TL (T2)	.52	.04	<.001	Supported
H2	TL (T2) $\rightarrow$ Outcomes (T2)	.54	.05	<.001	Supported
Mediation	TEB-MS $\rightarrow$ TL $\rightarrow$ Outcomes	.28	.04	<.001	Supported
Direct (partial)	TEB-MS $\rightarrow$ Outcomes	.10	.05	.041	Small/ partial
H3 (moderation)	TEB-MS $\times$ Academic management support $\rightarrow$ TL	.11	.03	<.001	Supported
H4 (moderation)	TEB-MS $\times$ Distributed leadership climate $\rightarrow$ TL	.08	.03	.006	Supported

Table 3 indicates strong support for the proposed structural model: TEB-MS positively predicted TL (H1 $\beta = .52$, $p < .001$), TL predicted outcomes (H2 $\beta = .54$, $p < .001$), and mediation was substantial ($\beta = .28$, $p < .001$) with a smaller residual direct effect ($\beta = .10$, $p = .041$), consistent with partial mediation. In practical terms, $\beta = .52$ and $\beta = .54$ indicate that both the TEB-MS $\rightarrow$ TL and TL $\rightarrow$ outcomes pathways are meaningfully strong, whereas the smaller direct path from TEB-MS to outcomes suggests that much of teacherpreneurship's influence operates through leadership enactment rather than bypassing it. Moderation results showed that academic management support (H3 $\beta = .11$, $p < .001$) and distributed leadership climate (H4 $\beta = .08$, $p = .006$) strengthened the TEB-MS $\rightarrow$ TL linkage, with conditional slopes increasing from low to high levels of each moderator; the multi-source subset ($n = 192$) showed directionally consistent associations, including a meaningful link between TEB-MS and other-rated TL ($\beta \approx .29$). Although the T2b subset was smaller, its directionally consistent results provide additional confidence that the main findings are not solely artifacts of single-source self-report measurement.

Discussion

1. Theoretical Implications and Practical Implications

This study conceptualized and validated teacherpreneurship as a higher-order meta-skill bundle (TEB-MS) that enables transformational leadership and, through such enactment, contributes to key outcomes in Chinese private HEIs. The results showed that TEB-MS positively predicted transformational leadership (H1, $\beta = .52$, $p < .001$), transformational leadership positively predicted outcomes (H2, $\beta = .54$, $p < .001$), and the indirect effect was substantial ($\beta = .28$, $p < .001$), while a smaller direct effect remained ($\beta = .10$, $p < .05$), indicating partial mediation. Together with the second-order structure across adaptive expertise/learning agility, relational dynamics, creative agility, and strategic synthesis, these findings suggest that teacherpreneurship is best understood not as a narrow entrepreneurial trait, but as an integrated capability architecture that helps educators enact transformational leadership under complex institutional conditions. Practically, this implies

that private HEIs should develop teacherpreneurship through faculty development, mentoring, and appraisal systems that strengthen adaptive learning, collaboration, innovation, and strategic action rather than relying only on formal leadership roles.

2. Policy Implications

The findings further showed that institutional conditions shape how effectively teacherpreneurship is translated into leadership behavior. Both academic management support and distributed leadership/empowerment climate significantly strengthened the relationship between TEB-MS and transformational leadership ($\Delta\beta = .11$, $p < .001$; $\Delta\beta = .08$, $p < .01$, respectively), indicating that teacherpreneurial capability is more likely to be enacted when institutions provide legitimacy, autonomy, and innovation-supportive academic processes. These results suggest that policy and governance in Chinese private HEIs should move beyond compliance-oriented administration and instead create enabling environments through flexible academic management, trust-based delegation, shared decision-making, and evaluation systems that recognize initiative, collaboration, and knowledge sharing. In this sense, teacherpreneurship is not only a faculty-development issue, but also a governance mechanism for strengthening institutional adaptability and leadership capacity at scale.

3. Limitations and Future Research

This study should be interpreted in light of several limitations. First, its focus on Chinese private HEIs limits broader generalizability to other sectors and national contexts. Second, although the time-lagged design improves temporal separation, it does not establish full causality. Third, the study relies mainly on quantitative self-report data, even though a multi-source subset was used for robustness. Future research should therefore extend this work through mixed-methods designs, longer longitudinal studies, and cross-sector or cross-cultural validation, while also comparing teacherpreneurship more explicitly with related constructs such as teacher agency, instructional leadership, and entrepreneurial orientation.

Conclusion

This study demonstrates that teacherpreneurship can be understood as a higher-order meta-skill bundle that strengthens transformational leadership enactment in Chinese private higher education institutions. Rather than a narrow entrepreneurial tendency, it emerged as an integrated capability architecture comprising adaptive expertise/learning agility, relational dynamics, creative agility, and strategic synthesis, with its primary influence on institutional outcomes operating through transformational leadership while a smaller direct effect suggests complementary pathways beyond leadership alone. The findings further show that academic management support and distributed leadership/empowerment climates strengthen the translation of teacherpreneurship into leadership behavior, indicating that sustainable leadership development in private HEIs depends on both cultivating teacherpreneurship as a meta-skill bundle and building institutional conditions that enable its expression at scale. More broadly, the findings suggest that cultivating teacherpreneurship is not only a faculty-development priority but also a strategic pathway for institutional transformation in higher

education. As universities face accelerating uncertainty, innovation pressure, and distributed leadership demands, strengthening such meta-skill capacity may become essential for long-term adaptability and relevance.

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