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Coaching Leadership on Scientific Research Team Innovation Performance in Private Undergraduate Universities in Shaanxi Province

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Abstract

The research objectives of this dissertation were: 1) To explore the components and indicators of coaching leadership and scientific research team innovation performance. 2) To study the direct and indirect relationship between coaching leadership and scientific research team innovation performance. 3) To develop practical management guidelines to improve scientific research team innovation performance in private undergraduate universities in Shaanxi Province. This research combined quantitative and qualitative research methods. The sample comprised 283 leaders and members of research teams from 21 private undergraduate universities in Shaanxi. Stratified sampling was used to collect data through IOC tools, five-point scale questionnaires, and focus group interviews. The questionnaire recovery rate was 100% valid. Data analysis was carried out via CFA and SEM to explore the mechanism of CLS on the SRTIP.. Stratified sampling was used to collect data through IOC tools, five-point scale questionnaires, and focus group interviews. The questionnaire recovery rate was 100% valid. Data analysis was conducted using CFA and SEM to explore the mechanism by which CLS affects the SRTIP. The research findings revealed that: 1) The leadership style and scientific research team innovation performance model included four first-level components: coaching leadership, member creativity, dynamic competence, and scientific research team innovation performance, covering 12 second-level components and 51 measurement indicators; 2) CLS directly and positively impacted SRTIP, and also indirectly affected it through MC and DC; 3) Focus-group analysis revealed the management awareness of private universities in Shaanxi under institutional constraints and resource differences. The research confirmed the mechanism of CLS and mediating variables and put forward management guidelines based on this.

Keywords: Coaching Leadership, Scientific Research Team Innovation Performance, Private Undergraduate Universities, Shaanxi Province

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Introduction

Scientific and technological innovation is fundamental to China's high-quality development, with universities serving as crucial hubs for knowledge and talent. National initiatives like the "Yangtze River Scholars and Innovation Team Development Plan" and the "2011 Plan," alongside provincial programs such as Shaanxi's "Science and Technology Innovation Team" and "Qin Chuangyuan Innovation-Driven Platform," actively drive the development of high-performing university research teams (Meng,S.Y., 2022) .

However, significant challenges impede optimal innovation performance, particularly within private undergraduate universities. While benefiting from flexibility and industry links, these institutions often face resource constraints (funding and infrastructure), difficulties retaining talent, and an evolving faculty demographic increasingly dominated by post-90s and millennial scholars. This cohort may exhibit distinct needs and lower resilience under conventional management, demanding innovative leadership approaches. (Wang Muhua & Liu Enkang, 2021)

Research strongly supports coaching leadership as a potent driver of performance and innovation. (Theeboom, 2014) Demonstrated benefits include enhanced employee attitudes, role clarity, behavioral change, and significant returns on investment through improved productivity and retention (Richard, 2023). Its emphasis on empowerment, individualized development, and psychological support makes it particularly suited to unlocking the creative potential vital for research breakthroughs (Wang,H.Y.,& Cui,Z.S.,2018).

Despite this, empirical investigation into the specific impact of coaching leadership on scientific research teams within Chinese private universities remains notably scarce. This gap is critical, given these institutions' role in the national innovation ecosystem and their unique operational challenges.

Therefore, this study examines the influence of coaching leadership on the innovation performance of scientific research teams within private undergraduate universities in Shaanxi Province. By addressing this research gap, it aims to provide actionable insights to optimize leadership strategies, enhance team innovation capacity, and support national scientific and technological self-reliance.

Questions

1. What are the components and indicators of coaching leadership and scientific research team innovation performance?
2. What is the direct and indirect relationship between coaching leadership and scientific research team innovation performance?
3. What are the guidelines for improving scientific research team innovation performance in private undergraduate universities in Shaanxi Province？

Objectives

1. To explore the components and indicators of coaching leadership and scientific research team innovation performance.
2. To study the direct and indirect relationship between coaching leadership and scientific research team innovation performance.
3. To develop practical management guidelines to improve scientific research team innovation performance in private undergraduate universities in Shaanxi Province.

Hypothesis

H1: Coaching leadership (CLS) directly affects the scientific research team innovation performance (SRTIP)

H2: Member creativity (MC) directly affects the scientific research team innovation performance (SRTIP)

H3: Dynamic competence (DC) directly affects the scientific research team innovation performance (SRTIP)

H4: Coaching leadership (CLS) affects the scientific research team innovation performance (SRTIP) through members' creativity (MC)

H5: Coaching leadership (CLS) affects the scientific research team innovation performance (SRTIP) through dynamic competence (DC)

Literature Reviews

Under the innovation-driven development strategy, university research teams serve as pivotal units in the national innovation system. Private undergraduate institutions in Shaanxi Province, while benefiting from flexibility and rapid responsiveness, grapple with challenges such as resource constraints, faculty issues, and instability. Coaching leadership, with its emphasis on employee development and empowerment, has emerged as a vital pathway for enhancing innovation performance. Originating in the application of coaching techniques in corporate management during the 1970s, the researcher defines coaching as a leadership style that balances personal development and performance optimization by enhancing self-awareness and relational skills (Davis, 2024). Its essence encompasses three dimensions: guided inspiration, potential development, and performance synergy. This study employs the three-dimensional and ten-item scale to measure coaching leadership (Wang,H.Y.,& Cui,Z.S.,2018).

Team innovation performance is assessed from both process and outcome perspectives. Focusing on humanities and social sciences research teams in universities, this study uses Chen Shaoliang’s (2017) scale, which assesses innovation performance across three dimensions: degree of innovation, plan compliance, and academic value. Member creativity, as the micro-foundation of team innovation, is measured using a three-dimensional scale encompassing intrinsic work motivation, creative thinking, and professional skills. Dynamic capability, defined as a team’s capacity to sense, integrate, and reconfigure resources to sustain competitive advantage, comprises three dimensions: sensing, seizing, and reconfiguring.

Coaching leadership significantly enhances innovation performance. In terms of direct impact, leaders improve employees’ psychological models and unleash potential by providing resources, fostering psychological safety, and boosting psychological capital, thereby elevating innovation performance. Indirectly, along the member creativity pathway, coaching leadership satisfies psychological needs, reinforces role identity, and promotes knowledge sharing to stimulate creativity. Along the dynamic capability pathway, leaders enhance team adaptability by facilitating ambidextrous learning. Research teams in Shaanxi’s private universities exhibit a pattern of “outstanding benchmarks amid overall weakness.” While institutions like Xijing University have achieved notable results, most face systemic challenges, including faculty quota limitations, funding shortages, inadequate facilities, and insufficient cultural cohesion, rendering traditional innovation management models ineffective. In this context, coaching leadership highlights its value through low resource dependency and high human-centric attributes. By stimulating faculty research motivation through non-financial investments and enhancing team resilience, it holds significant practical relevance for private institutions.

This research offers multifaceted significance extending across multiple dimensions. For private universities, the insights can enhance teaching quality by fostering critical thinking and innovation in students, while simultaneously strengthening research capacity, elevating academic reputation, and attracting talent and funding. Research team members stand to gain substantial personal and professional growth through enhanced skill development, valuable project experience, and the increased job satisfaction and cohesion cultivated by coaching leadership. Students directly benefit by acquiring practical research skills, innovative thinking, and problem-solving abilities crucial for future careers. Societally, improved innovation performance drives technological advances that address critical issues (e.g., environmental and health issues) and the commercialization of research outcomes can spur economic growth and job creation. Academically, the study contributes novel theoretical and empirical insights into coaching leadership, offers fresh research perspectives and methodologies, and stimulates interdisciplinary collaboration and knowledge integration.

These potential benefits are grounded in the robust theoretical foundation established by this research. By synthesizing cutting-edge domestic and international literature, it dissects the theoretical evolution, measurement dimensions, and underlying mechanisms of core concepts—coaching leadership, team innovation performance, member creativity, and dynamic capability. Firmly rooted in the realities of Shaanxi's private undergraduate institutions, the review delves into the intrinsic logic of how coaching leadership influences research team innovation performance. It elucidates both direct pathways (resource empowerment and psychological drivers) and the dual mediating pathways (creativity stimulation and dynamic capability cultivation), thereby providing the conceptual clarity and framework essential for realizing the outlined multidimensional impacts through subsequent empirical investigation and application.

Methodology

This mixed-methods study employed a sequential design to examine coaching leadership within scientific research teams across 21 private undergraduate universities in Shaanxi Province, China. The target population comprised 1,890 research team members (leaders and researchers). For quantitative phases addressing Research Objectives 1 (component identification) and 2 (relationship testing), a stratified sample of 283 participants (29 leaders, 254 members) was drawn, with literature-derived indicators validated by five expert professors. Research Objective 3 (guideline development) utilized purposefully sampled key informants (N=9 PhD-credentialed experts: 3 administrators, 3 leaders, 3 researchers; ≥10 years' experience). Core variables-Coaching Leadership Style (CLS), Member Creativity (MC), Dynamic Competence (DC), and Scientific Research Team Innovative Performance (SRTIP) - were operationalized through: 1) Index of Item-Objective Congruence (IOC) for content validation; 2) Structured questionnaires administered to the quantitative sample; and 3) Focus Group Interviews (FGIs) with key informants. Quantitative data underwent descriptive statistical analysis (percentages, means, standard deviations, skewness, kurtosis) and inferential analysis using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to test direct/indirect pathways. Qualitative data from FGIs were thematically analyzed to derive contextualized management guidelines. This integrated approach ensured methodological rigor through expert validation, sampling representativeness, and triangulation of analytical techniques tailored to Shaanxi's private higher education context.

Result

1. The research findings on the components and indicators of coaching leadership and scientific research team innovation performance

Survey data from 283 scientific research team members revealed a predominantly female cohort (59.4%), with the highest representation among associate professors (36.4%) and teams established for 8-10 years (41.3%). All observed variables demonstrated acceptable univariate normality (absolute skewness < 3, kurtosis < 10), with means ranging from 3.48 to 4.05 and standard deviations from 0.65 to 1.07, satisfying parametric analysis requirements. Significant inter-item correlations (r = .098- .547, p < .01) confirmed the suitability of the indicators for structural modeling.

Confirmatory factor analysis established a four-construct measurement model with 12 dimensions and 51 indicators：

Coaching Leadership (CLS): Instructing behavior (ISB), Guiding behavior (GDB), Inspiring behavior (IPB)

Member Creativity (MC): Intrinsic work motivation (IWM), Professional skills (PFS), Creative thinking (CTT)

Dynamic Competence (DC): Sensing capabilities (SSC), Seizing capabilities (SZC), Reconfiguration capabilities (RFC)

Team Innovation Performance (SRTIP): Academic value (ADV), Program compliance (PGC), Degree of innovation (DGI)

The measurement model demonstrated excellent fit: $\chi^2/df = 1.326$, RMSEA = 0.034 (90% CI: 0.028-0.040), CFI = 0.953, TLI = 0.950. Psychometric properties exceeded thresholds (Table 1), with composite reliability (0.76-0.80) and average variance extracted (0.52-0.57) confirming internal consistency. All factor loadings exceeded 0.60, supporting item reliability.

Discriminant validity was established through √AVE exceeding inter-construct correlations (Table 1). Significant positive relationships emerged among latent variables, with particularly strong CLS→SRTIP (r = .625, p < .001) and CLS→DC (r = .600, p < .001) pathways.

In the Scientific Research Team Innovation Performance scale, the items in the three dimensions of Academic Value, Plan Compliance, and Innovation Degree were 4, 4, and 3, respectively, totaling 3 latent variables and 11 observed variables. The confirmatory factor analysis model and the results for the Scientific Research Team Innovation Performance scale are shown in Figure 1 and Table 1.

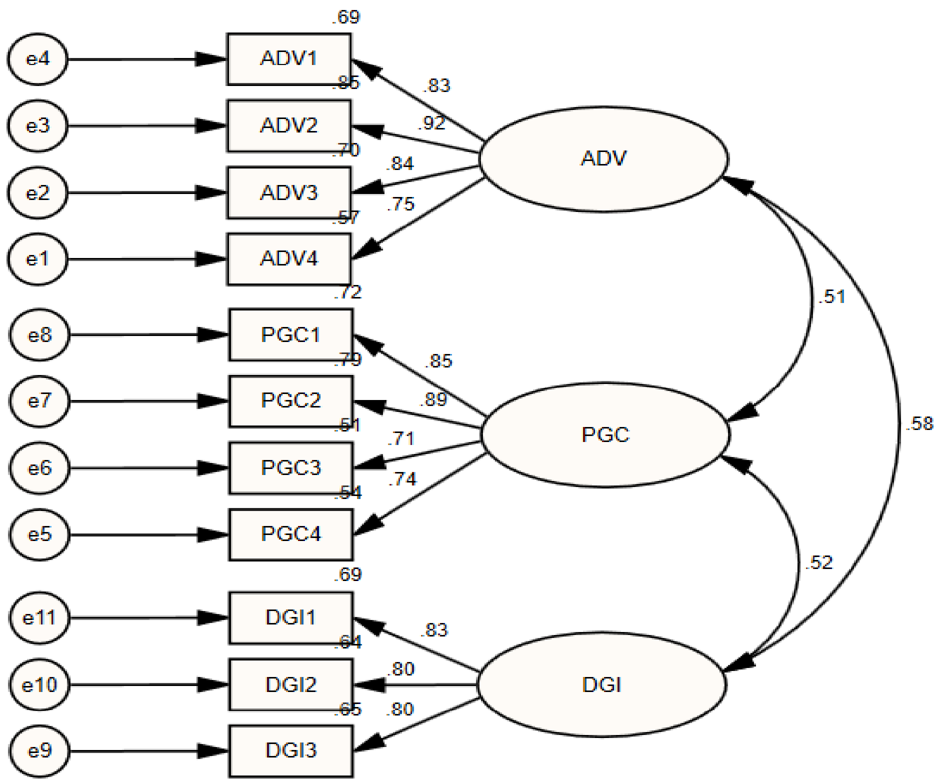

Figure 1 Model of Confirmatory Factor Model Analysis on Scientific Research Team Innovation Performance

Table 1 Results of confirmatory factor model analysis on Scientific Research Team Innovation Performance

Latent variable	Observed variable	loading coefficient		S.E.	C.R.	P	CR	AVE
		Unstandardized	Standardized					
ADV	ADV1	1.279	0.83	0.089	14.359	.00**	0.869	0.7035
	ADV2	1.318	0.925	0.082	16.112	.00**		
	ADV3	1.142	0.839	0.078	14.671	.00**		
	ADV4	1	0.752					
PGC	PGC1	1.125	0.846	0.081	13.881	.00**	0.818	0.6389
	PGC2	1.062	0.888	0.074	14.402	.00**		
	PGC3	0.871	0.712	0.075	11.576	.00**		

Latent variable	Observed variable	loading coefficient		S.E.	C.R.	P	CR	AVE
		Unstandardized	Standardized					
	PGC4	1	0.738					
DGI	DGI1	1.108	0.829	0.08	13.828	.00**	0.792	0.659
	DGI2	0.998	0.801	0.072	13.908	.00**		
	DGI3	1	0.805					

Note: **p<0.01

The fit analysis of the first-order factors and observed variables of the model using Amos software showed that the chi-square freedom ratio is 1.776, between 1 and 3; the GFI value was 0.957, the CFI value was 0.983, and the NFI value was 0.962, all greater than 0.9; the PNFI value was 0.717, greater than 0.5; the RSMEA value was 0.052, less than 0.09, and all 6 fit indices met the standard. The CR values of ADV, PGC, and DGI were all greater than 0.7, and the AVE values were all greater than 0.5, indicating that the model had good reliability and convergent validity. At the same time, the correlations among the first three-order factors were all greater than 0.5, indicating that the first-order indicators of the scale fit well and that the second-order factor model of Scientific Research Team Innovation Performance could be further developed. As shown in Figure 2.

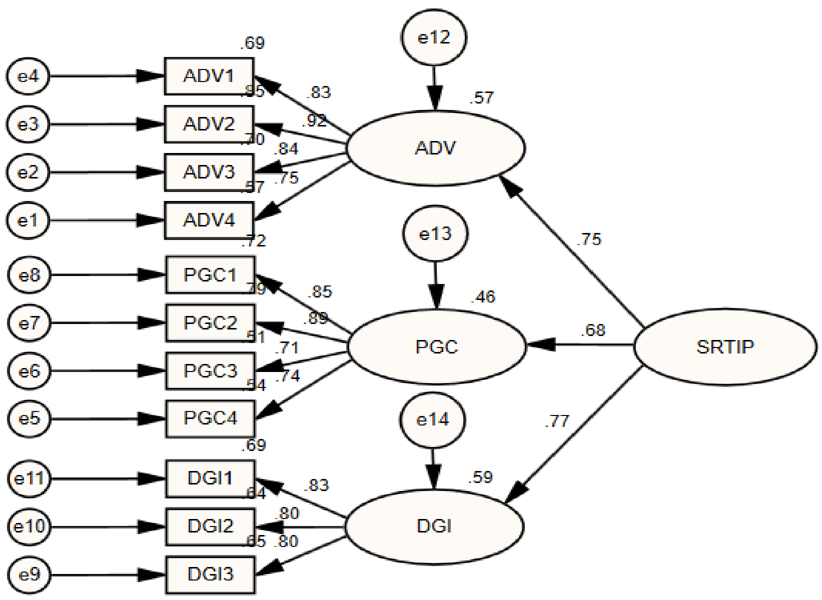

Figure 2 CFA results showing the second-order model factor loadings for Scientific Research Team Innovation Performance

Table 2 Confirmatory Factor Analysis Results

Construct	Item (Indicators)	Loading	CR	AVE	√AVE	MSV
	ISB(4)	0.627				
CLS	GDB(3)	0.768	0.787	0.555	0.745	0.282
	IPB(3)	0.825				
	IWM(6)	0.805				
MC	PFS(4)	0.743	0.796	0.566	0.752	0.126
	CTT(9)	0.706				
	SSC(4)	0.742				
DC	SZC(3)	0.682	0.761	0.515	0.718	0.350
	RFC(4)	0.727				
	ADV(4)	0.780				
SRTIP	PGC(4)	0.659	0.778	0.540	0.735	0.350
	DGI(3)	0.759				

2. The research findings on the direct and indirect relationships between coaching leadership and scientific research team innovation performance

The above index values showed that the structural equation model of this research was excellent and can be analyzed.

(1) Direct effects analysis

Table 3 Standardized Direct Effects

Effects	Estimate	Standardized	S.E.	Z-test	P-value	Hypothesis
CLS→SRTIP	0.523	0.32	0.169	3.091	0.002**	H1
MC→SRTIP	0.568	0.339	0.16	3.55	0.000**	H2
DC→SRTIP	0.349	0.28	0.115	3.047	0.002**	H3

Note: **$p<0.01$

The results in Table 1 showed CLS, MC, and DC all significantly positively affect SRTIP. CLS impacts SRTIP (estimate = 0.523, standardized coefficient = 0.32, $p = 0.002$), DC impacts SRTIP (estimate = 0.349, standardized coefficient = 0.28, $p = 0.002$), and MC's impact on SRTIP is even more significant (estimate = 0.568, standardized coefficient = 0.339, $p < 0.001$). These findings confirm hypotheses H1, H2, and H3.

(2) Indirect effects analysis

Table 4 Standardized Indirect Effects

Effects	Estimate	95% Confidence Interval		p	Hypothesis
		Lower	Upper		
CLS→MC→SRTIP	0.323	0.093	0.580	0.008**	H4
CLS→DC→SRTIP	0.288	0.063	0.731	0.018**	H5

Note: **$p<0.01$

Table 4 presents the effect decomposition of the indirect effects. The results showed that the indirect effect of CLS→MC→SRTIP (H4) was significant (Estimate=0.323, 95% CI [0.093, 0.580], p=0.008), and the indirect effect of CLS→DC→SRTIP (H5) was also significant (Estimate=0.288, 95% CI [0.063, 0.731], p=0.018).

So, A second-order factor model reveals that CLS directly impacts SRTIP, and also affects SRTIP indirectly through MC and DC.

3. The research findings on the development of effective management guidelines to enhance the innovation performance of scientific research teams in private undergraduate universities in Shaanxi Province

Through thematic analysis of focus group interviews with nine experts (senior administrators, team leaders, policymakers), this study derived evidence-based strategies to enhance innovation performance in Shaanxi's private universities. Key institutional barriers were identified: restricted access to research funding (constraining SRTIP), career-establishment gaps (undermining MC), and academic resource disparities (limiting DC). The analysis validated coaching leadership (CLS) as critical for improving innovation through dual pathways: (1) personalized guidance and resource support directly elevate member creativity (MC) and dynamic capability (DC); (2) team atmosphere cultivation amplifies indirect CLS effects on scientific research team innovation performance (SRTIP). Practical guidelines were formulated with temporal prioritization: Short-term interventions target research funding optimization and multidimensional evaluation systems to immediately boost MC and resource efficiency; long-term strategies establish dynamic capability incubators (↑DC sustainability) and innovation-centric cultures to fortify SRTIP. Crucially, institutional reforms must address contextual moderation effects—funding equity and title evaluation restructuring are prerequisites for effective CLS implementation. This three-tier framework (policy/organizational/individual) offers the first empirically validated solution for overcoming innovation constraints in resource-limited private higher education institutions.

Discussion

Regarding Objective 1 (Framework Development)

The research conducted an in-depth exploration of the components and specific indicators of coaching leadership and scientific research team innovation performance within scientific research teams at private undergraduate universities in Shaanxi Province, constructing a targeted theoretical framework and measurement tools. The necessity of this work lies in its contextual focus, which ensures precision in subsequent research while establishing a solid theoretical and practical foundation for enhancing the innovation capabilities of such teams. From a theoretical perspective, human capital theory supports the view that coaching leadership enhances innovation performance by unlocking and elevating members' human capital; social cognition theory elucidates how leadership behaviors influence members' cognition and actions; and knowledge spillover and innovation diffusion theories substantiate the critical role of internal knowledge exchange and an innovation climate as multidimensional, complex components of innovation performance. These findings align with Birdi et al. (2016), who emphasized the importance of clarifying leadership behaviors and innovation indicators, while further refining specific metrics. They also resonate with Karkkainen et al. (2019), whose analysis highlighted the multidimensional complexity of team innovation capabilities, collectively validating the rationality of the framework. This framework directly provides the theoretical basis and evaluative foundation for subsequent relationship analysis (Objective 2) and the final management guidelines (Objective 3).

Regarding Objective 2 (Relationship Analysis)

The research revealed the mechanisms through which coaching leadership influences scientific research team innovation performance, encompassing both direct effects and indirect effects mediated by member creativity and team dynamic capabilities. Understanding these relationships is crucial for advancing theories on coaching leadership and team innovation, while offering targeted, practical strategies for university administrators and team leaders. Social exchange theory provides a core explanation: under coaching leadership, trust-based reciprocal relationships formed through positive leader-member interactions effectively enhance members' intrinsic motivation and creativity. Knowledge transfer theory further clarifies how coaching leadership facilitates efficient knowledge sharing and integration within teams, thereby supplying essential resources for innovation. Empirical results confirmed the applicability of these theories in the context of Shaanxi's private undergraduate university research teams. The findings strongly corroborate Patel et al. (2017), who demonstrated that leadership styles significantly impact both member creativity and team innovation performance—particularly regarding the indirect influence of coaching leadership mediated by creativity and dynamic capabilities. They also support Lee et al. (2018), who posited that leadership indirectly drives innovation by shaping members' attitudes, behaviors, and competencies. By introducing dynamic capabilities as a key mediating variable, this study deepens existing conclusions and comprehensively unveils the complex pathways linking coaching leadership to team innovation performance. These mechanistic insights directly inform the strategies for team leaders designed to enhance creativity and knowledge exchange in Objective 3.

Regarding Objective 3 (Management Guidelines)

Given the comparatively limited scientific research resources and weaker team infrastructure prevalent in private undergraduate universities in Shaanxi Province, developing scientifically grounded management guidelines is essential for enhancing their research competitiveness. Accordingly, this study proposes systematic recommendations across four dimensions—universities, teams, researchers, and the government—to establish a comprehensive support system and a clear pathway for improvement. Strategic management theory underpins the core philosophy of these guidelines: integrating internal and external resources and implementing strategic planning are pivotal for elevating team performance. Knowledge management theory offers concrete guidance by emphasizing the centrality of knowledge creation, sharing, and application in team innovation, while positioning coaching leadership as an effective tool for fostering knowledge exchange and innovative thinking among members. This multidimensional approach echoes Miao et al. (2019), who advocated for comprehensive management measures to boost innovation performance, and underscores the synergistic impact of multifaceted factors. Simultaneously, aligning with Wang et al. (2020), the guidelines explicitly acknowledge the government's indispensable role in supporting team development (e.g., through resource allocation and policy guidance). These recommendations—university-level optimization, team-level leadership and knowledge-sharing enhancement, individual capacity building, and governmental policy support—are not isolated measures. Rather, they are intrinsically rooted in the framework established in Objective 1 and the mechanisms revealed in Objective 2. This ensures the guidelines' systemic coherence, contextual relevance, and operational feasibility, collectively advancing the core objective of enhancing scientific research team innovation performance.

New Knowledge

Based on the measurement model verification results, the researcher established a structural equation model (SEM) to test the hypothesis, including the model graph, parameter estimates, fit indices, the hypothesis verification report, and other relevant information. As follows:

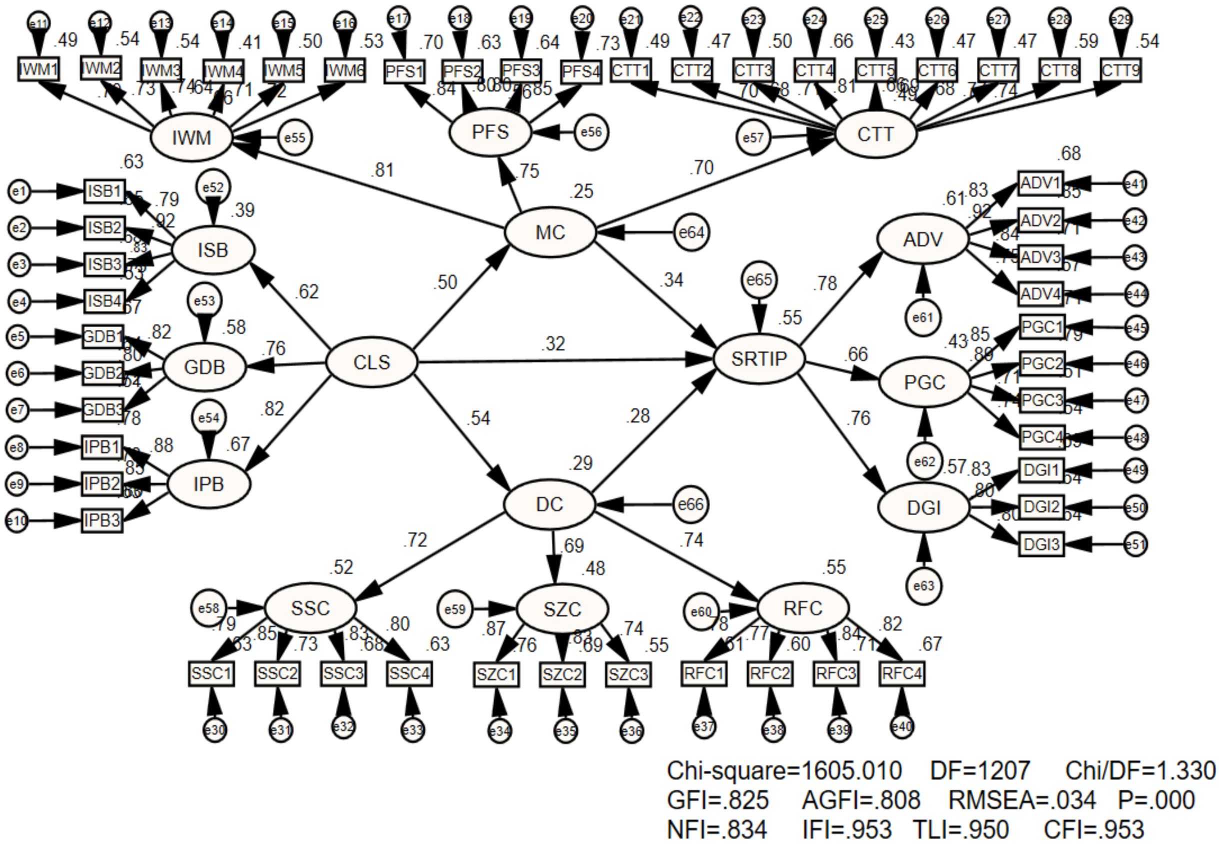

Figure 3: Structural Equation Models and Model Evaluation

Recommendations

Based on the research findings, it was found that coaching leadership significantly enhances scientific research team innovation performance in private undergraduate universities in Shaanxi Province, both directly and indirectly through mediating effects of member creativity and team dynamic capabilities, within a context characterized by resource constraints and multidimensional innovation dynamics. There are recommendations for applying the research results and for future research as follows:

Recommendations for Applying the Research Findings

1. Application level

Optimize the scientific research management system, establish a differentiated scientific research evaluation mechanism, incorporate the quality, innovation (CTT), and practical application value (ADV) of scientific research results into the assessment system, reduce the single reliance on the number of papers, and stimulate member creativity (MC); establish a special fund for Dynamic Competence, cultivate the perception ability (SSC) and reconstruction ability (RFC) of the scientific research team, support interdisciplinary cooperation and technology transformation practices, and enhance dynamic competence (DC); implement flexible talent introduction policies, attract high-level talents through "dual employment system" and "part-time professors" and other models, and make up for the shortcomings of insufficient establishment in private universities. Strengthen resource integration capabilities, build a school-enterprise cooperation platform, co-build laboratories or joint R&D centers with high-tech enterprises, broaden the channels for the transformation of scientific research results, and enhance academic value (IWM) and social benefits; share academic database resources, solve the problem of lack of academic resources in private universities through inter-school alliances or purchase of public database services, and support the literature retrieval needs of scientific researchers. Create an innovative cultural atmosphere, hold innovation workshops and academic salons regularly, encourage cross-team exchanges, promote the interaction between coaching leadership (CLS) and members, and stimulate the collision of creative thinking; establish a fault-tolerant and incentive mechanism, give a phased tolerant evaluation to research with high innovation but high risks, and commend the breakthrough of member creativity (MC) through the "Innovation Contribution Award".

2. Team level

Promote the practice of coaching leadership (CLS), implement personalized guidance plans, formulate differentiated scientific research task allocation plans according to members' research directions (such as Guiding Behavior, GDB) and career plans, and enhance members' intrinsic motivation (IWM); establish an open communication mechanism, promote two-way feedback between leaders and members through regular "one-on-one coaching" and team brainstorming meetings, and optimize the team atmosphere. Strengthen the cultivation of Dynamic Competence (DC), carry out technology foresight training, and improve the team's perception capabilities (SSC) and opportunity capture capabilities (SZC) through training such as industry trend analysis and competitive intelligence mining; promote interdisciplinary project-based collaboration, encourage team members to participate in multi-field cross-disciplinary research, enhance reconstruction capabilities (RFC), and adapt to changes in complex scientific research environments. Optimize team structure and division of labor, implement a "core-periphery" flexible architecture, with core members focusing on major research topics, and peripheral members participating in horizontal projects or short-term cooperation to balance stability and flexibility; introduce external expert advisory groups, use industry expert resources to make up for team capabilities, and improve the efficiency of practical transformation of scientific research results (PGC).

3. Researchers level

Improve the career development channel for scientific researchers, design a dual-track promotion path, allow scientific researchers to flexibly switch between "teaching" and "research" positions, and meet diverse career needs; establish a special zone for professional title evaluation in private universities, jointly formulate professional title evaluation standards that meet the characteristics of private universities with the education department, and strengthen the weight of scientific research results transformation (DGI). Strengthen the cultivation of innovative ability, implement the "Innovative Thinking Training Program", and improve the members' innovative degree (CTT) through courses such as Design Thinking and TRIZ theory; encourage short-term academic visits, support young teachers to exchange with high-level institutions at home and abroad, broaden academic horizons, and enhance academic value (ADV) recognition. Improve dynamic adaptability, carry out digital skills training, focus on the application of tools such as artificial intelligence and big data analysis, and improve members' technical reconstruction capabilities (RFC); establish personal dynamic capability archives, regularly evaluate members' perception (SSC), capture (SZC), and reconstruction (RFC) capabilities, and formulate targeted improvement plans.

4. Government level

Break down institutional barriers, open up the application qualifications for national scientific research projects, set up special channels for scientific research teams of private universities, and allow them to participate in the competition of key R&D plans, natural science funds and other projects; pilot the separate scientific research establishment of private universities, and provide some career establishment for private universities through the "provincial scientific research special appointment position" system to stabilize the core scientific research team. Strengthen funding and platform support, set up a special fund for scientific research development in private universities, focus on supporting the transformation of scientific research results (PGC) and the construction of Dynamic Competence (DC), and alleviate the problem of funding shortage; build a regional scientific research resource sharing platform, integrate the laboratories and large-scale instrument and equipment resources of public universities, and open low-cost use rights to private universities. Build a collaborative ecosystem of industry, academia and research, promote the "government-school-enterprise" innovation consortium, and encourage enterprises and private universities to jointly build technology research institutes through tax incentives, land support and other policies to promote the implementation of results; establish a scientific research results transformation exchange for private universities, provide market-oriented services such as patent auctions and technology equity, and improve the efficiency of results transformation (DGI).

Recommendations for Future Research

Based on this research foundation and current trends in educational innovation domestically and internationally, future research directions and specific project topics will continue to focus on deepening leadership capabilities, empowering technology, and adapting policies in scientific research teams at private universities. Researchers may explore the following directions:

1. Generative AI-Driven Coaching Leadership Model for University Research Teams: A Multimodal Behavioral Data Analysis
2. Dynamic Capability Formation Mechanism in Private Universities under the Qinchuangyuan Platform: Empirical Examination of the Government-Industry-University Triple Helix Model
3. Intervention Study on Innovation Behaviors of Generation Z Researchers: Gamified Behavioral Interventions Based on Coaching Leadership
4. Emergency Response Mechanism of Coaching Leadership in Major Public Crises: Longitudinal Investigation of Research Teams in Private Universities

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