

Research on the Influence Mechanism of Collective Mental-Model and Innovative Behaviors of Party-Branch Organizations in Finance-Commerce Higher Vocational Colleges Under Organizational Leadership

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Abstract: Against the backdrop of China's full implementation of the innovation-driven development strategy and the quality-improvement initiative for higher vocational education, exploring how organizational leadership empowers grassroots governance in higher vocational colleges has become an important research topic. Taking grassroots Party branches of finance-commerce higher vocational colleges as research subjects, this study constructs a theoretical model of "organizational leadership—collective mental-model—innovative behaviors" and conducts empirical tests via questionnaire surveys and structural equation modeling. The results show that organizational leadership exerts a significant positive effect on collective mental-model; collective mental-model significantly and positively predicts innovative behaviors and plays a partial mediating effect between the two variables. This study expands theoretical perspectives at the intersection of organizational leadership and organizational behavior, and provides practical paths for grassroots Party-branch organizations in higher vocational colleges to translate political advantages into development momentum.

Keywords: Finance-commerce; Collective mental-model; Innovative behaviors; Higher vocational colleges; Mediating effect

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1. Introduction

At present, vocational-education reform in China has shifted from "scale expansion" to "connotative development". Building a high-quality vocational-education system has become a national strategy for the coordinated development of education, science-and-technology, and talent resources ^[1]. Against this background, the positioning of Party-building work in higher vocational colleges has risen from

an administrative auxiliary function to a core engine leading high-quality development. Nevertheless, reviewing grassroots-governance practice, the phenomenon of disconnection between Party-building work and professional business remains prominent. Organizational power insufficiently penetrates into front-line teaching and scientific-research work, and research on quantitative evaluation and realization paths for Party-building effectiveness is still inadequate ^[2]. As a main platform connecting modern service industries, finance-commerce higher vocational colleges are confronted with dual challenges of insufficient industry-education-integration depth and lagging digital transformation amid the digital-economy boom. There is an urgent need to explore effective mechanisms for Party-building to empower organizational innovation.

Existing studies have fully discussed the influences of leadership styles and organizational culture on innovation performance, yet paid insufficient attention to the dynamic evolution of internal team cognitive structures ^[3]. Introducing the cognitive-psychology concept of “collective mental-model” and revealing the internal mechanism transforming Party-building effectiveness into innovation output from the perspective of team-member knowledge sharing and meaning construction carries important theoretical and practical significance. Focusing on finance-commerce higher vocational colleges, this study constructs an integrated analytical framework and offers new academic perspectives for understanding how political advantages of grassroots Party-branch organizations are converted into organizational-innovation motivation.

2. Literature review and research hypotheses

2.1. Organizational leadership and collective mental-model

Organizational leadership refers to systematic practices for maintaining an advanced nature and fulfilling missions in grassroots governance ^[4]. High-quality organizational construction transforms political advantages into governance effectiveness through value embedding, organizational-structure optimization, and resource integration ^[5]. The collective mental-model represents shared knowledge structures formed through interaction and collaboration among organizational members, consisting of three core dimensions: shared vision, psychological safety, and cognitive alignment ^[6]. By strengthening political guidance and value consensus, organizational leadership promotes cognitive convergence among organizational members in terms of goal identification and collaboration norms. Accordingly, the hypothesis is proposed:

H1: Organizational leadership has a significant positive impact on the collective mental-model of Party branches in finance-commerce higher vocational colleges.

2.2. Collective mental-model and innovative behaviors

Innovative behavior refers to the dynamic process in which individuals identify problems, generate creative ideas, and promote implementation within an organization ^[7]. When a highly consistent, inclusive mental-model is formed within a team, members’ willingness to innovate and innovation performance in teaching, scientific research, and technical services will be greatly improved ^[8]. Through building shared cognitive frameworks, collective mental-models reduce collaboration frictions and enhance psychological safety, thereby stimulating innovative behaviors. Accordingly, the hypothesis is proposed:

H2: The collective mental-model exerts a significant positive effect on faculty and staff’s innovative behaviors in finance-commerce higher vocational colleges.

2.3. Mediating effect of collective mental-model

Existing research indicates that external driving factors usually influence behavioral output by reshaping individual cognitive preferences^[9]. Party-building work does not act directly on innovation output. Instead, it stimulates innovative practices by reshaping faculty-staff ideological consensus and collaboration logics and optimizing internal organizational cognitive structures^[10]. Accordingly, the hypothesis is proposed:

H3: The collective mental-model plays a mediating role between organizational leadership and innovative behaviors.

3. Research design

3.1. Sample selection and data collection

The subjects of this study are faculty and staff from grassroots Party branches of five finance-commerce higher vocational colleges in Shandong Province. Questionnaires were distributed via stratified random sampling. A total of 380 questionnaires were sent out, and 342 questionnaires were returned. After eliminating invalid responses, 318 valid samples were obtained, yielding an effective response rate of 83.7 %. Sample characteristics: males account for 38.36 %, females 61.64 %; respondents aged 25–35 years old account for 32.7 %, 36–45 years old 41.51 %, over 46 years old 25.79 %; teaching experience below 5 years accounts for 22.33 %, 5–10 years 35.22 %, over 10 years 42.45 %.

3.2. Variable measurement

Mature scales are adopted for measurement. The organizational-leadership scale draws on existing research, containing 12 items across three dimensions: political leadership, organizational construction, and cultural creation. The collective-mental-model scale refers to the theoretical framework proposed by Senge et al., including 12 items in three dimensions: shared vision, psychological safety, and cognitive alignment^[6]. The innovative-behavior scale adopts the classic model developed by Scott and Bruce, covering 9 items in three dimensions: idea generation, support-seeking, and innovation implementation^[7]. All items adopt the 5-point Likert rating scale.

3.3. Reliability and validity test

SPSS 26.0 software is used for reliability-validity analysis. The results are shown in **Table 1**. Cronbach's α coefficients for all variables range from 0.826 to 0.891, and composite reliability (CR) values range from 0.835 to 0.898, all above the recommended threshold of 0.7. Confirmatory factor analysis shows that factor loadings for each item are between 0.682–0.893, and average variance extracted (AVE) values range from 0.531–0.612. The square root of the AVE of each variable is larger than its correlation coefficient with other variables, which demonstrates satisfactory convergent validity and discriminant validity of the scales.

Table 1. Reliability and validity test results

Variable	Number of Items	Cronbach's α	CR	AVE
Organizational Leadership	12	0.891	0.898	0.612
Collective Mental-Model	12	0.876	0.883	0.587
Innovative Behaviors	9	0.826	0.835	0.531

4. Empirical results and analysis

4.1. Descriptive statistics and correlation analysis

Means, standard deviations, and correlation coefficients of major variables are presented in **Table 2**. Organizational leadership (M=3.842, SD=0.631) is significantly positively correlated with collective mental-model (M=3.756, SD=0.678) ($r=0.542$, $P<0.01$). Organizational leadership also shows a significant positive correlation with innovative behaviors (M=3.621, SD=0.704) ($r=0.468$, $P<0.01$). The correlation coefficient between collective mental-model and innovative behaviors equals 0.613 ($P<0.01$), which preliminarily supports the research hypotheses. All correlation coefficients among variables are below 0.7, indicating no serious multicollinearity.

Table 2. Descriptive statistics and correlation-coefficient matrix

Variable	Mean	Standard Deviation	1	2	3
1. Organizational Leadership	3.842	0.631	1		
2. Collective Mental-Model	3.756	0.678	0.542**	1	
3. Innovative Behaviors	3.621	0.704	0.468**	0.613**	1

Note: ** $P<0.01$

4.2. Structural-equation-model test

AMOS 24.0 is adopted to construct the structural equation model. Path coefficients and model-fit indices are shown in **Table 3**. Model-fit indices: $\chi^2/df=2.318$, RMSEA=0.056, CFI=0.931, TLI=0.918, SRMR=0.043. All indices meet acceptable criteria ($\chi^2/df<3$, RMSEA<0.08, CFI/TLI>0.90). Path-analysis results show that the standardized path coefficient of organizational leadership toward collective mental-model is 0.526 ($P<0.001$), so H1 is supported. The standardized path coefficient of collective mental-model toward innovative behaviors is 0.584 ($P<0.001$), so H2 is supported.

Table 3. Path coefficients and fit indices of the structural equation model

Path	Standardized Coefficient β	S.E.	C.R.	P-value	Result
Organizational Leadership → Collective Mental-Model	0.526	0.062	8.484	<0.001	Supported
Collective Mental-Model → Innovative Behaviors	0.584	0.058	10.069	<0.001	Supported
Fit indices $\chi^2/df=2.318$	RMSEA=0.056	CFI=0.931	TLI=0.918	SRMR=0.043	

4.3. Mediating-effect test

The Bootstrap method (5000 repeated samplings) is used to test the mediating effect. Results are displayed in **Table 4**. The indirect-effect value of organizational leadership influencing innovative behaviors via the collective mental-model is 0.307, with a 95 % confidence interval [0.214, 0.412] excluding zero, which proves a significant mediating effect. The direct-effect value of organizational leadership on innovative behaviors is 0.183, 95 %CI [0.068, 0.301], also statistically significant. Therefore, the collective mental-model exerts a partial mediating effect between organizational leadership and innovative behaviors, with a mediating-effect ratio of 62.7 % (0.307/0.490). H3 is verified.

Table 4. Bootstrap test results for mediating effect

Effect Type	Effect Value	Boot SE	95 % CI Lower Bound	95 % CI Upper Bound	Effect Proportion
Indirect Effect	0.307	0.051	0.214	0.412	62.7 %
Direct Effect	0.183	0.059	0.068	0.301	37.3 %
Total Effect	0.490	0.054	0.384	0.596	100 %

5. Conclusions and suggestions

5.1. Research conclusions

This study draws the following conclusions:

Through political guidance, organizational construction, and cultural cultivation, organizational leadership significantly and positively shapes the collective mental-model ($\beta=0.526$, $P<0.001$).

The collective mental-model serves as a key endogenous driving force for innovative behaviors. Coordinated optimization of shared vision, psychological safety, and cognitive alignment can effectively improve innovation performance ($\beta=0.584$, $P<0.001$).

The collective mental-model plays a partial mediating effect, accounting for 62.7 %. Party-building work provides psychological energy and collaboration mechanisms for innovative behaviors by reshaping cognitive preferences.

5.2. Practical suggestions

Based on research findings, the following suggestions are put forward:

Strengthen political guidance and value consensus. Deeply embed Party-building work into the whole process of specialty-group construction and industry-education integration to avoid the disconnection between Party-building and professional-business work.

Foster a psychologically-safe and inclusive organizational atmosphere. Encourage interdisciplinary collaboration and knowledge sharing to stimulate grassroots innovation vitality.

Establish a “Party-building + professional business” collaborative evaluation mechanism. Incorporate the effectiveness of collective-mental-model construction into grassroots Party-branch assessment systems, so as to realize effective transformation from political advantages to development momentum.

5.3. Research limitations and prospects

This study adopts cross-sectional data. Longitudinal tracking designs can be introduced in future research to strengthen causal-inference validity. Samples are mainly collected from higher vocational colleges in Shandong Province. Subsequent studies may expand to comparative research covering multiple regions and disciplines nationwide. Moreover, moderating effects of organizational-context factors (e.g., digital-transformation level, university-enterprise-cooperation depth) within this model can be further explored, so as to enrich the theoretical framework for governance effectiveness of organizational leadership.

Disclosure statement

The authors declare no conflict of interest.

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