THE INFLUENCING FACTORS OF COLLEGE STUDENTS' INNOVATIVE BEHAVIOR: A CASE STUDY OF YUNNAN COLLEGE OF BUSINESS MANAGEMENT

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Abstract

With the inevitable needs of innovation, the purposes of this quantitative study firstly, to explore the current situation of college students in Yunnan College of Business Management, leader-member exchange influence on innovation behavior and secondly, to explore the factor mediating leader-member exchange and college students' innovation behavior, and to analyze the relationship between each factor and innovation behavior. The data sources of this study were 485 sets of questionnaires distributed to 438 (90.30%) college students of Yunnan College of Business Management.

Through the analysis of structural equation model (SEM), we found that the development relationship between teachers and college students affected the innovation behavior of college students. College students' self-efficacy, as a mediator, affected the relationship between independent and dependent variables, because it made students feel capable of solving unknown problems when facing difficulties. It was worth noting that the relationship between teachers and students played a positive role in innovative behavior, and it needs to pay particular attention to the relationship between teachers and students.

Keywords: Innovation behavior; Leader-member exchange; Self-efficacy

Introduction

With the rapid development of science and technology, the country's demand for innovative talents was increasing. Innovation was the primary driving force for development, strengthening the construction of a national innovation system and training a large number of high-level innovation talents and innovation teams. Nowadays, with the rapid development of information science, and technology, education cannot be neglected in the national development strategy, especially higher education plays an important role in promoting social development and improving the quality of development. Colleges and universities were the important carriers of cultivating talents, financial and economic colleges, and universities mainly trained talents in economy and management, it can promote the cultivation of economic and management talents and the development of economy and society, and it was also an important aspect to solve social and economic problems associated with important practical significance.

Higher educational institutions have always taken innovation development as one of the national development strategies, and at the same time attached great importance to and develops higher education. In the cultivation of innovative talents, the quality of college students' education cannot be neglected. College students' education can provide intellectual support for the development of our country and bring strong impetus for national innovation. In the education stage of college students of finance and economics, students were required not only to study professional knowledge, but also to invest some time in scientific research and innovation, so as to optimize their ability in this respect. Therefore, it was worth paying attention to the cultivation of scientific research innovation behavior of college students (Wei et al., 2023).

The research results showed that there were three factors that affected university students' scientific research innovation behavior, they were students, teachers and their external environment. Besides, teachers were the main body that influenced the implementation of college students' education in our country. Therefore, the role and influence of college teachers on the cultivation of college students' innovative behavior were embodied. At present, many scholars have carried out the research from the angle of the teacher's guiding style and the teacher's guiding content, and the research results have analyzed and demonstrated the guiding style of the two types of teachers: the supporting type

and the controlling type, the final results show that these two types of teachers' styles have a significant impact on the cultivation of university students' scientific research innovation behavior. This also showed that a certain guidance style of teachers was helpful to the cultivation of university students' scientific research innovation behavior, teachers as leaders and university students as followers, from the perspective of leader and follower theory, there were relatively few researches on university students' innovative behavior. Some western studies have pointed out that in the field of education, especially in universities, the mode or style of teachers' guidance should be in a dynamic change, by constantly adapting to the needs of social development, therefore, it was more suitable for the Sustainable Development Goal of the society, the school and the students, so the leading teachers were needed to guide the students (Yang et al., 2024).

Research Objectives

1. To explore the current situation of college students in Yunnan College of Business Management, leader-member exchange influence on innovation behavior.

2. To explore the factor mediating leader-member exchange and college students' innovation behavior, and to analyze the relationship between each factor and innovation behavior.

Literature Reviews

This chapter mainly summarized the scholars' research on the related concepts and specific variables, which provided a theoretical basis for this study. At the same time, it analyzed the development background of LMX theory and the status quo of college students' innovative behavior, which laid a foundation for this study. **Leader and Member Exchange:** Leader-Member Exchange (LMX) referred to the quality of communication between leaders and followers within an organization, establishing different supervisory or role relationships. Rooted in social exchange theory proposed in 1975, LMX was a complex concept associated with the formation of in-groups and out-groups. Initially termed vertical dyad linkage, LMX was conceptualized in the 1970s to describe the dyadic relationships between leaders and followers. Based on the principle that leaders created different relationships with their followers through varied

types of communication, high-quality LMX relationships entailed attributes such as respect, trust, and mutual sense of responsibility, leading to emotional attachment between parties. In this context, both leaders and followers perceived these relationships as social and emotional, transcending mere transactional economic exchanges. This fostered a reciprocal cycle, as expressing care and concern toward subordinates enhanced the leader-follower relationship. Empirical evidence suggested that LMX was associated with various organizational outcomes (Wang et al., 2016).

The relationship between leaders and members gradually formed through the process of role definition. Initially, interactions between leaders and subordinates occurred within the performance of formally defined roles. However, as these relationships progress, they eventually developed interests and efforts beyond fixed roles, evolving into non-contractual social exchange relationships. This included situations where leaders requested cooperation from members in unstructured tasks or where members voluntarily engaged in activities and assume responsibilities beyond prescribed roles. When members accepted leaders' requests and leaders acknowledged members' activities beyond their roles, trust was formed, fostering the development of closer relationships (Scandura & Graen, 1984).

When a high-quality communication relationship was established, both parties made the utmost effort to exchange more information, provided financial and non-financial support, and assisted each other in growing within the organization. This relationship evolved into a partnership characterized by mutual trust, respect, obligations, and the pursuit of common goals, with both parties continuing to care about each other's job requirements and interests. In this relationship, employees were endowed with greater job autonomy, decision-making power, and opportunities to influence operations, and they devoted more energy to performing unstructured tasks. The empirical research verified that when the quality of Leader-Member Exchange (LMX) was high, leaders expanded their psychological discretion over work, such as decision-making scope, authorization, feedback, and support, thereby establishing job autonomy (Sparrowe & Liden, 2005). **Self-Efficacy:** Self-efficacy was the belief in one's capability to organize and execute necessary actions to accomplish specific tasks or achieve desired outcomes (Bandura, 1977). It encompassed an individual's beliefs, motivational capabilities, cognitive resources, and the factors required to

successfully complete specific tasks under particular circumstances. When faced with challenging problems, individuals with high self-efficacy attributed reasons to lack of effort and strive to enhance their abilities continually. Self-efficacy fostered an attitude of overcoming challenges rather than giving up, promoting a resilient response even in difficult situations to achieve high job performance. Conversely, individuals with low self-efficacy perceived their abilities as insufficient to achieve their goals, leading them to avoid or abandon tasks, even when they were relatively easy to accomplish (Schmidt & DeShon, 2010).

The higher the quality of LMX, the more formal and informal support members received in terms of financial, non-financial, and social aspects. Moreover, high-quality LMX ensured that members received positive support, encouragement, and constructive feedback when fulfilling their responsibilities This fostered the belief among members that they were capable of addressing increasingly difficult and complex problems (Martin et al., 2016). Higher-quality LMX was associated with increased sense of responsibility and expectation of self-efficacy. Additionally, creativity and innovation differred from routine work. Innovative behavior entailed considerable complexity and uncertainty; therefore, confidence in one's ability to perform creative and innovative work was essential for members to execute innovative actions effectively. Members with high self-efficacy set more challenging goals, exerted more effort to achieve them, and strived patiently toward their attainment. Consequently, LMX enhanced self-efficacy, which, in turn, fostered innovative behavior (Adil & Hamid, 2017).

Hence, it can be inferred that self-efficacy served as a parameter in the relationship between LMX and innovative behavior. As mentioned above, self-efficacy can be regarded as the judgment of whether a person can successfully complete a given task. This implied an individual's confidence in their control and utilization of factors such as the knowledge and skills required for task performance. Employees with strong self-efficacy tended to adopt a more proactive attitude towards demanding work requirements. Therefore, self-efficacy was highly likely to influence work behavior by reflecting individuals' perceptions of social and organizational resources. In other words, employees with self-efficacy were more likely to accept work resources, such as LMX, when they were provided. Moreover, individuals with high self-efficacy often engaged in innovative behavior because they had the confidence, knowledge,

and skills to generate ideas, applied them to work, and were more inclined to challenge and addressed uncertainty (Richter et al., 2012). **Innovative Behaavior:** Innovation was the soul of national progress, the continuous driving force of organizational development, and college students' innovation was the key. College students' innovative behavior referred to the process that college students produced and implemented creative behaviors in their study and work, which was of great significance to the sustainable development of organizations and the realization of college students' values (Alexander & Van Knippenberg, 2014).

This article focused on the individual level, because in the process of internal entrepreneurship was the action of individuals or groups of individuals. Most scholars believed that individual innovative behaviors, such as the creative reorganization of resources to exploit opportunities, were an integral part of entrepreneurship. In fact, employee innovation at the individual level can be seen as the basis for entrepreneurship, which was usually a concept at the organizational level. Thus, employee innovation behavior was the micro-foundation of entrepreneurship within an organization (Felin et al., 2015). In this article, we defined employee innovation behavior as the behavior of employees who generated or adopted new ideas and then tried to implement them. There were many aspects of innovation behavior that unfolded over time. In general, the generation and subsequent execution of ideas were major components of innovation (Bledow et al., 2009). Innovation also had a social dimension, such as the need to influence and convince others of the value of an idea or the need to mobilize others to help implement new ideas. Previous studies on employee innovation behavior and internal entrepreneurship tended to focus on a simplified model of employee innovation behavior (Krause, 2004).

The research proposed a model of college students' innovative behavior, which was one of the most fundamental technologies for achieving academic and professional goals, and research on students in educational settings was still limited(Chen & Chen, 2012). Universities also lacked the necessary tools to create innovative undergraduate abilities. Innovation characteristics, leadership and competence all played an important role in innovation behavior. This gap provided a framework for studying the innovative behavior of college students (Chen et al., 2013).

Research Methodology

This research adopted the quantitative research method using questionnaire for data collection and to analyze the influencing factors of leader member exchange variables on innovation behavior of college students in Yunnan College of Business Management. Based on the experience of using the classic scale, a unified five-point Likert scale was used, and the data were analyzed using Amos Software, this paper revealed the relationship between leadership and member exchange and innovation behavior under the influence of self-efficacy as a mediator variable. According to the analysis and summary of the influencing factors of college students' innovation, the influencing factors of college students' innovation behavior were the direct influence of leader and member exchange theory and the indirect influence of self-efficacy.

Questionnaire Design: The research object was full-time university students who have registered in Yunnan University of Economics and Management. Before designing the questionnaire, we reviewed, consulted and browsed a lot of research literature, and invited scholars in management and innovation and entrepreneurship fields to review the questionnaire and put forward corresponding suggestions.

The Items of Questionnaire and Variables: This survey mainly measured the observed variables in classic scales and targets college students as respondents. Design a questionnaire using the Likert 5-point scale and set the questions as single choice questions. Based on the research of relevant literature, combined with the leadership and member exchange theory in higher education institutions in China, a questionnaire survey was conducted on Yunnan higher educational institutions students to determine the factors affecting their innovative behavior.

LMX was measured using seven items developed by Scandura and Graen (1984); Self-efficacy as a mediation measured using three items developed by Spreitzer (1995); Innovative behavior as a dependent variable was measured using six items developed by Scott and Bruce (1994).

Hypotheses: H1: Leader-Member exchange has positively effect on innovation behavior. H2: Leader-Member exchange has positively effect on self-efficacy. H3: Self-efficacy has positively effect on innovation behavior. H4:

Self-efficacy was mediating the relationship between leader-ember exchange and innovation behavior.

Population and Sample Size: This research took the university students of Yunnan College of Business Management as the research object. The purpose of this study was to explore the impact of leader and member exchange theory on college students' innovative behavior. The database of this study was described in terms of sample size and problem set. The following was a detailed description of the study database. Sample size: according to Saunders et al. (2007), the current student population of Yunnan College of Business Management is 23,749. So, the required sample size is 383, in order to ensure the reliability of the study results, according to the research goal and the question obtained 438 valid samples, which conformed to the statistical standard.

Data Collection: This research mainly used the questionnaire survey method to collect the data. The contents of data collection were as follows: first, in order to facilitate data collection, this study designed a questionnaire, divided into two parts: the first part includes basic information, in the second part, a Likert scale survey was conducted on leadership and member exchange, self-efficacy and college students' innovative behavior, to understand the attitude of the respondents for subsequent data processing and results analysis. Secondly, we collected the data from January 2024 to March 2024, during which time we collected the data mainly from Yunnan College of Business Management students through the online questionnaire star-rating platform. Finally, 485 sets of questionnaires were distributed during the period of data collection, data were cleaned up and screened, and some invalid questionnaires were eliminated to ensure the quality and reliability of the data. A total of 438 valid sets of questionnaires were obtained, and the effective rate was 90.30%, which can be used as a basis for further research.

Descriptive Statistical Analysis: In this article, the questionnaire was rated using a 5-point Likert scale, and the collected data was analyzed using AMOS. The questionnaire consisted of a series of scales, each with five levels, from "strongly disagree" to "strongly agree", as shown below: 1) represents "strongly disagree"; 2) represents "disagree"; 3) represents "somewhat agree": 4) represents "agree"; 5) represents "strongly agree". Respondents were asked to choose the option that best reflects their views or attitudes.

After collecting and arranging the questionnaires, the data were sorted and summarized, the basic situation of college students was analyzed, and the factors that affected their innovative behavior were analyzed. The characteristics of respondents in this survey were descriptive statistics in Table 3.

Results

This research used Amos 26.0 to determine the model's reliability and validity which analysis to test our research hypotheses, and in using the bootstrapping approach to test the mediation hypothesis. The mediation hypothesis was analyzed by calculating the index of mediation.

The Measurement Model

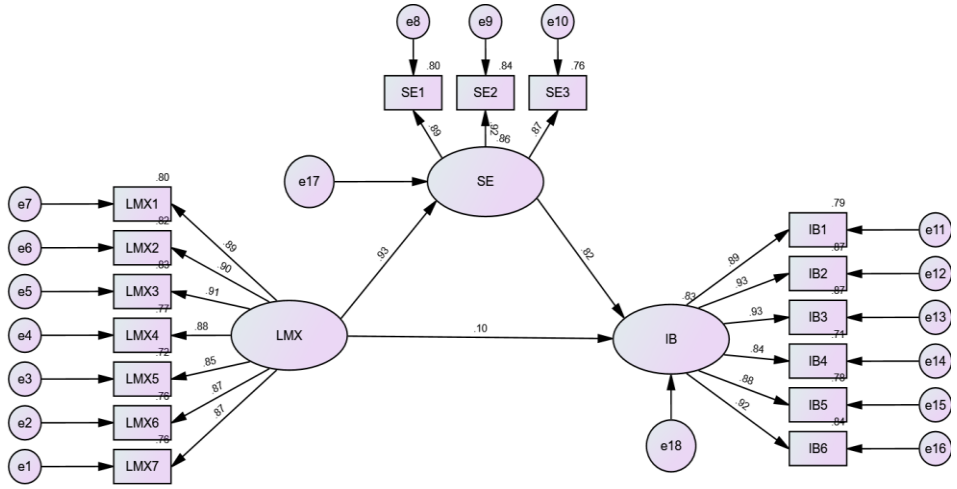

Figure 2: The Research Framework

The structural equation model (SEM) which measurement model and structural model would be acceptance (See Table 4 and Table 5).

Table 4 The SEM of Reliability and Validity Analysis

	Items	Unstd	S.E.	T	P	Std	SMC	CR	AVE
LMX	LMX7	1				0.872	0.760	0.961	0.780
	LMX6	1.052	0.022	47.525	***	0.870	0.757		
	LMX5	1.04	0.023	45.149	***	0.848	0.719		
	LMX4	1.094	0.023	48.599	***	0.879	0.773		
	LMX3	1.114	0.021	52.785	***	0.913	0.834		
	LMX2	1.091	0.021	51.538	***	0.903	0.815		

	LMX1	1.075	0.021	50.429	***	0.895	0.801		
	SE1	1				0.893	0.797		
SE	SE2	1.024	0.018	55.721	***	0.917	0.841	0.923	0.800
	SE3	1.013	0.02	49.668	***	0.873	0.762		
	IB1	1				0.887	0.787		
	IB2	1.041	0.018	58.13	***	0.930	0.865		
IB	IB3	1.072	0.018	58.814	***	0.935	0.874	0.962	0.808
	IB4	1.073	0.023	45.831	***	0.840	0.706		
	IB5	1.055	0.021	51.185	***	0.884	0.781		
	IB6	1.049	0.019	55.661	***	0.915	0.837		

Note: SMC=Item Reliability

Table 5 Convergent and Discriminant Validity

	AVE	LMX	SE	IB
LMX	**0.779**	**0.883**		
SE	**0.800**	0.826	**0.894**	
IB	**0.807**	0.859	0.813	**0.898**

The Structural Model: A full latent model was developed, and this is shown in Figure 2.1. Taking into consideration the effects of SE, the AMOS Output for Figure 2 is shown in the model. The full latent model was formed from the modified CFA of each construct with acceptable model fit estimates (CMIN/DF = 6.914, CFI=0.954, SRMR = 0.0264, RMSEA=0.096 based on the thresholds. But in AMOS the samples were not the normality distribution, and the Chi-square was extended. The final model fit estimates (CMIN/DF = 2.736, CFI=0.954, GFI=0.99, AGFI=0.98, NFI=0.99, RMSEA=0.03) which fit the thresholds. **The Direct Effect:** Based on the developed model which had research hypotheses. Utilized the Maximum Likelihood Estimation to estimate the relationship between the LMX, SE, and IB (See Table 5). The hypotheses of direct effect were supported. **Table 6** The Direct Effect**:**

Hypotheses			**Unstd**	**S.E.**	**T-value**	**P**	**Std**	**Supported**
SE	<---	LMX	0.990	0.023	43.599	***	0.926	YES
IB	<---	SE	0.812	0.051	15.99	***	0.822	YES
IB	<---	LMX	0.103	0.051	2.013	*	0.098	YES

Note: ***P<0.001; *P<0.05.

The Intervening Variable Effect: Baron and Kenny (1986) proposed that the value of path coefficient (Path a, b) was significantly account for variation mean the variable had mediated function. Hayes (2009) stated that Sobel test was a supplement to Baron and Kenny approach rather than instead of it. But the two methods were just simple Z test, and the sampling size was not fit the normality distribution. This study focused on the bootstrapping as better of the two options to calculate this framework (See Table 4.5).

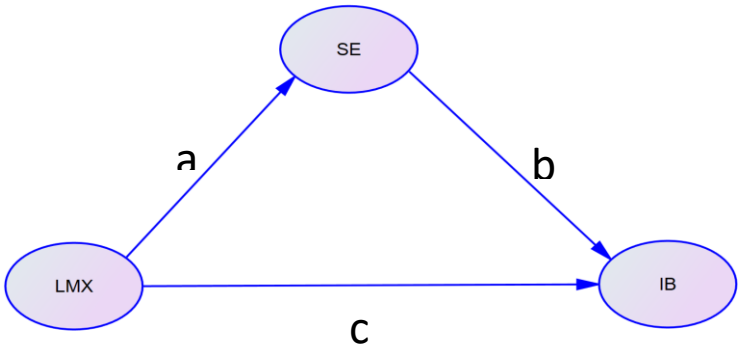

Figure 3: The Intervening Effect

The process was repeated for a total of 5000 times. Using the 2000 to generate a 95% confidence interval. This procedure yielded a percentile-based bootstrap and adjusted to yield a bias corrected or a bias-corrected and accelerated confidence interval. The two-tailed significance proved that the SE could partials mediated the relationship between LMX and IB (See Table 7).

Table 7 Standardized direct, indirect, and total effects of the hypothesized model

Point Estimate	Product of Coefficient		Bootstrapping				Two-tailed Significance
			Bias-Corrected 95% CI		Percentile 95% CI		
	SE	Z	Lower	Upper	Lower	Upper	
LMX→IB Total Effect							
0.908	0.024	37.833	0.858	0.954	0.858	0.955	***
LMX→IB Indirect Effect							
0.804	0.08	10.050	0.658	0.972	0.659	0.973	***
LMX→IB Direct Effect							
0.103	0.083	1.241	-0.067	0.26	-0.068	0.258	N.S.

Note: 2000 Bootstrap Samples; ***P < 0.001; N.S.= Not-Significance.

Hypotheses Testing and Results: The four hypotheses proposed in the research hypotheses section were tested, and the hypotheses were supported as shown in the table 8 below:

Table 8: Hypotheses testing and results

No.	Hypotheses	Supported
H1	Leader-Member exchange has positively effect on innovation behavior.	YES
H2	Leader-Member exchange has positively effect on self-efficacy.	YES
H3	Self-efficacy has positively effect on innovation behavior.	YES
H4	Self-efficacy was mediating the relationship between leader-Member exchange and innovation behavior.	YES

Discussions

To explore the current situation of college students in Yunnan College of Business Management, leader-member exchange influence on innovation behavior: According to the data results, teachers should be encouraged to build quality relationships with all students in their teams. It is necessary to train teachers to improve their communication, empathy, and mentoring skills, and promote positive communication with team-based students. This is to establish clear expectations and guidelines for fair treatment and equal opportunities within the organization to promote trust and transparency in teacher-student relations. The College should foster an open and collaborative culture in which teachers and students can easily share ideas, concerns, and feedback.

To explore the factor mediating leader-member exchange and college students' innovation behavior, and to analyze the relationship between each factor and innovation behavior: The College should promote interdisciplinary collaboration and multiple perspectives to stimulate creative thinking and problem-solving skills in order to establish the mechanism of the creation, evaluation and implementation of innovation consciousness, such as Innovation Laboratory and Innovation Institute. It is imperative to provide teacher training and development programs aimed at increasing students' self-efficacy beliefs, with a focus on building innovative skills, setting innovative goals and overcoming barriers to innovation. Students should provide constructive

feedback and recognition to strengthen their confidence in their abilities and achievements. Instructors could foster a supportive work environment that encourages risk-taking and learning from failure, rather than punishing mistakes.

New Knowledges

The leaders-members exchange theory will play a direct and positive role in improving college students' innovative behavior. According to the multi-level needs of college students, through the collection of data analysis to improve the self-efficacy of college students, can be used as independent variables and dependent variables of the intermediary factors.

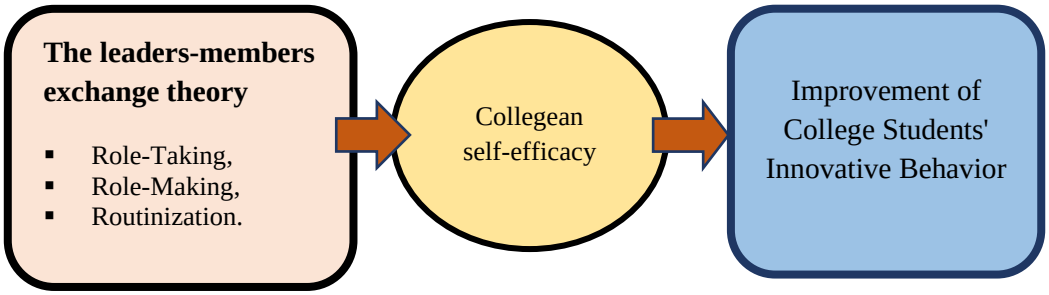

Figure 1: New Knowledges Diagram of The Influencing Factors of College Student's Innovative Behavior: A Case Study of Yunnan College of Business Management.

Conclusions

LMX has a positive impact on innovation behavior because followers of LMX can gain more support and resources from leaders to implement innovation. In colleges and universities, students who are followers can get more support from teachers, first, because LMX helps students generate innovative ideas. High LMX students are more likely to receive domain-related knowledge from teachers and to have teachers share their technical expertise and understanding of work-related issues with students. Such knowledge and experience may provide cognitive stimulation to these students, thus stimulating them to produce more creative thinking. Second, students with high-quality LMX are more likely to convince other important team members to embrace new ideas and establish the support and collaboration needed to implement them. An individual who is perceived as having a close relationship with the

teacher may also be viewed positively by other students in the group because of the perceived cognitive pressure in the observer's perception. Therefore, high LMX will enhance the reputation and credibility of focus students within the group. Students with high-quality LMX are also perceived as more powerful and influential because they are more likely to receive valuable information and resources from their teachers than students with low LMX. As a result, high LMX students earn the respect and trust of the rest of the team. With the support of teachers, high LMX students will have more confidence to promote and implement new ideas within the organization.

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