

The Relationships between Transformational Leadership, LMX, and Employee Innovative Behavior

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In this paper, we use solid evidence to examine the relations of transformational leadership, leader-member exchange (LMX) and employee's innovative behavior. The results showed: (1) transformational leadership was significant positively related to leader-member exchange, which mostly comes from morale modeling and individualized consideration; (2) transformational leadership was significant positively related to employee's innovative behavior, which mostly comes from vision and charisma; (3) leader-member exchange was significant positively related to employee's innovative behavior, which mostly comes from contribution and respect; (4) leader-member exchange help displayed a mediating effect on the relationship between transformational leadership and employee's innovative behavior.

INTRODUCTION

Innovation is not only a competitive advantage of an enterprise and an important factor of success, but also an important driving force for economic development. Today, almost all organizations are faced with such a dynamic environment, where technology updates quickly, the production cycle is shorter, and economic globalization is faster and faster. In this environment, the enterprise or the organization to survive and develop should have a stronger innovative capacity and force for change. In a 2008 survey by The Boston Consulting, most executives thought innovation was one of three important development strategies (Andrew et al, 2008).

From a different perspective, innovation includes staff innovation, team innovation and organizational innovation. In 2001, a Chinese enterprisers' growth and development findings report pointed out that the lack of creative talents prevents the first element of the enterprises' technological innovation. Innovation is the internal power of economic development, and also the core part of the optimization of industrial structure. Therefore, we should strengthen independent innovation, to create a new model of development and a new economic growth point. A growing number of studies has shown that the innovation of employees is the most critical factor in organizational innovation and is positively related to the organization's long-term performance.

With the increase in demand for organizational innovation, the eyes gradually shift to promote a staff innovation leader, who is a leader who in certain circumstances leads and motivates subordinates to achieve organizational goals and efforts. Most studies show, leader behavior directly affects the behavior and performance of subordinates. That means leadership plays an irreplaceable role in the process of

employee innovation. Thus, employee innovative behavior, such as whether the staff was willing to innovate, to further implement their creative ideas, to share their ideas with other members of the organization, will be impacted by the organizational leader.

Leader member exchange theory (LMX theory) was first put forward by Graen and Dansereau et al in 1972. This theory studied the relationship between leaders and members of the development process. The leader plays an important role in the organization, and thus the relationship between leadership and members will impact employees' innovation to a large extent. Especially in the Chinese cultural context, relations in the organization play a crucial role. John and Richard (2000) said that relationships through social networks (networks) achieve two-way communication for personal or social transactions, individuals and organizations acquire the interests, and they ensure the long-term sustainability of bilateral relations. Organizational relationships based on personal relationships are formed, and through the diversity of personal relationships consolidate and strengthen in most of the business or organization. A leader plays the dominant role on the formation of relationships between the leader and members, and then inevitably affects employee innovative behavior.

Now that China is facing a period of industrial restructuring, organizational leaders need to constantly adjust and improve their style of leadership, and their relationship with subordinates, to establish a good, organizational development, which not only meets the social needs of employees, but also is conducive to individual, team or organizational innovation, and which will achieve the sustainable development of enterprises. However, because most scholars at home and abroad are only focused on the direct relationship between leadership behavior and employee innovation, the "black box"-leadership behavior on the employee innovation process- is not yet open (Shalley & Gilson, 2004).

Based on the above background, this paper established a transformational leadership on employees' innovative behavior model. The paper first discussed transformational leadership, LMX and employees' innovative behavior, and then through empirical analysis validates transformational leadership on employee innovative behavior, as well as the role LMX plays as an intermediary between transformational leadership and employee innovative behavior.

THEORY AND HYPOTHESIS

Transformational Leadership

When he summarized the development process of the first two decades of leadership theory, Bass (1999) pointed out that study on the mechanism of transformational leadership on employee behavior and performance was one of the trends of the future. The previous literature shows that in recent years, scholars at home and abroad studying transformational leadership have focused on several aspects. The first aspect is the outcome variables of the study. Usually, the transformational leadership outcome variables of the study are mainly to verify the validity of leadership. Continuously since then, the effectiveness of leadership has been the focus of research in the field of leadership. Previous studies on transformational leadership outcome variables of the study can be summarized in two aspects: objective performance (performance, team performance, employee performance) and the subjective performance (team cohesion, employee / group / team innovation, role perception, job satisfaction, organizational commitment, organizational citizenship behavior, extra effort).

The second aspect of previous research on transformational leadership is mediating variables of transformational leadership. At present, there are relatively few studies on transformational leadership mediating variables. The domestic scholars Li Chaoping, Tian Bao and Shi Kan (2006) summarized three aspects of transformational leadership mediating variables: mental cognitive repositioning (psychological empowerment, self coordination, collective efficacy, group / the sense of personal identity, attitude and so on), social relations reappraisal (LMX, social exchange, organizational citizenship behavior etc.) and the work environment on reinterpreting (engine, core job characteristics, perceived psychological security, trust, organizational justice).

The third aspect focused on by recent research on transformational leadership is on variables regulating research. Integrating domestic and foreign literature, the scholars on transformational

leadership of variables regulating research mainly study the following five aspects: organizational culture, control points, LMX, substitute for leadership and organizational tasks. Kerr and Jermier proposed a series of acts of leadership as substitution variables, such as employee demand, capacity, standardized procedures and methods, high cohesive team, and what effect these factors may have on leadership behavior and employee satisfaction, morale and performance relationship.

In recent years, research on leadership style has mainly focused on the properties and behavior of subordinate leaders, and team or organization performance effects, but few scholars have analyzed the relationship between leadership style and LMX. At present, studies which have combined the two theories of transformational leadership and LMX are: Howell and Hall-Merenda (1999), Basu and Green (1997) and Deluga (1992). At present, most studies have shown transformational leadership has positive effects on LMX (Wang, 2004; Deluga, 1992). Therefore, this paper proposes the following hypothesis H1:

H1: Transformational leadership styles have a significant positive effect on LMX.

Many foreign scholars believe that transformational leadership is positively related to employee innovative behavior (Shin & Zhou, 2003). However, scholars have pointed out that there is no correlation between the transformational leadership style and personal innovation performance (Jaussi & Dionne, 2003). This inconsistency is mainly from the study design as well as the research samples of different research experiments. Therefore, we need more empirical studies to prove that transformational leadership on employees' innovation has a positive effect. Therefore, this paper proposes the following hypothesis:

H2: Transformational leadership styles have a significant positive effect on employee innovative behavior.

Leader Member Relations

Leader member exchange theory, also known as "leader member relations theory" or "LMX theory", was first proposed by Graen and Dansereau in 1972. This study found that: the leader treated subordinates differently: organizational members relationship usually includes part of high-quality exchange relationship (the insiders) and the majority of low-quality exchange relationship (between outsiders and insiders). In recent years, domestic and foreign scholars on leader member relations (LMX) studies have mainly focused on the following three aspects: the antecedent variables (subordinate characteristics, leadership traits, interaction), outcome variables (attitude and perception, behavior and organizational outcomes) and mediating variables (cognitive, employee attitude and behavior of employees mode).

High quality LMX means the leader will give employees more challenging tasks, the leader will give support and encouragement in an environment of risk, and will provide relevant resources and recognition tasks. These are conducive to the promotion of innovative behavior. Judging from research home and abroad, LMX and employee innovative behavior are positively related. For example: Graen and Scandura (1987) considered high quality LMX on innovation to have positive effects. Scott and Bruce (1994) pointed out that LMX and employee innovative behavior has positive correlation. Chi-Tung Tsai (2006) found, the higher employees perceived LMX quality, the more innovative behaviors were produced. Therefore, this paper proposes the following hypothesis H3:

H3: The leading member of the relationship has a significant positive effect on employee innovative behavior.

Clapham (2000) found that the way a leader affected employee innovative behavior can be divided into two: one is the leader's characteristics and behavior, the other is the relationship between leaders and subordinates. However, almost no scholars at home and abroad have done direct empirical analysis on LMX as the mediating variable between a transformational leadership and employees' innovative behavior. Previous literature has shown that transformational leadership is related to LMX and employee

innovative behavior, and there is correlation between LMX and employee innovative behavior. So, LMX may be the mediating variable between transformational leadership and employees' innovative behavior, through the interaction between leaders and members on staff innovative behavior. Therefore, this paper proposes the following hypothesis H4:

H4: Leader-member exchange helps display a mediating effect on the relationship between transformational leadership and employee's innovative behavior.

DATA AND RESEARCH METHOD

The Sample and the Sampling Process

We distributed more than 300 questionnaires to enterprises in the Pearl River Delta region. Two hundred eighty-six questionnaires were returned, 251 were used, and therefore the effective recovery rate was 83.7%. The questionnaire had three main target groups: the first was some Guangzhou University MBA, EMBA students and adult students; the second was some enterprise staffs from the Pearl River Delta region; the third was our classmates and friends.

Variable Measurement

Transformational leadership

This study used Li Chaoping and Shi Kan's (2005) compilation of transformational scale. The scale includes four dimensions: (1) moral example (78 items), (2) vision stimulation (6 items), (3) leadership charm (6 items), and (4) individualized care (6 items). Employees evaluated their direct superiors by Likert5.

The LMX questionnaire used Wang Hui and Niu Xiongying (2004) compilation of scale. The scale includes four dimensions: (1) emotional (4 items), (2) loyalty (4 items), (3) the contribution (4 items), (4) professional respect (4 items). Employees evaluated their direct superiors by Likert5.

Employee innovative behavior is measured by the scale which is weaved by Wu Jingji (1996) on the basis of Scott and Bruce (1994). The scale has only one dimension, a total of 7 questions. Employees evaluated their direct superiors by Likert5.

Data Analysis

This paper uses two forms: qualitative analysis and quantitative research. The qualitative analysis is mainly used in documentary research; quantitative study uses a questionnaire to measure. This paper reviews the literature of the past at home and abroad, and verifies the correlation between transformational leadership, LMX and employee innovative behavior. This article builds a mechanism of transformational leadership on employee innovative behavior, and leader-member exchange as the mediating variable.

This paper adopted the method of questionnaire for data collection, used SPSS and AMOS software to carry out statistical data and analysis. It used SPSS analysis: reliability analysis, exploratory factor analysis, correlation analysis, regression analysis and single factor analysis of variance. It also used AMOS analysis: confirmatory factor analysis and structural equation modeling analysis.

ANALYSIS OF THE RESULTS

Results of Confirmatory Factor Analysis

This paper conducted confirmatory factor analysis on transformational leadership and employee creativity, LMX, and contrast one-factor model (all options to the same dimension) with four-factor model of the transformational leadership, one-factor with four factor model of LMX. From table 1, 2, 3, the four factor model of transformational leadership, the four factor model of LMX and the factor structure of employee creativity are verified.

**TABLE 1
THE RESULTS OF CONFIRMATORY FACTOR ANALYSIS**

Model	χ^2	df	RMR	GFI	NFI	TLI	RMSEA	CFI
One factor model	1458.705	299	0.109	0.612	0.639	0.660	0.125	0.687
Four factor model	684.151	293	0.074	0.827	0.830	0.883	0.073	0.895

**TABLE 2
LMX CONFIRMATORY FACTOR ANALYSIS RESULTS**

Model	χ^2	df	RMR	GFI	NFI	TLI	RMSEA	CFI
One factor model	762.179	104	0.107	0.662	0.684	0.669	0.159	0.713
Four factor model	135.282	98	0.047	0.939	0.944	0.980	0.039	0.984

**TABLE 3
EMPLOYEE INNOVATIVE BEHAVIOR RESULTS OF CONFIRMATORY
FACTOR ANALYSIS**

Model	χ^2	df	RMR	GFI	NFI	TLI	RMSEA	CFI
One factor model	51.086	9	0.039	0.939	0.898	0.856	0.137	0.913

Descriptive Statistical Analysis of Variables

Results of the analysis for each study variable is given in Table 4. As can be seen from the table, the four dimensions (moral example, vision to inspire, individualized care and leadership) and the four dimensions of leader member exchange (emotion, loyalty, respect, professional contribution), employee innovative behavior are correlated at the 0.01 level, indicating that transformational leadership and leadership member relations, and employee innovative behavior have a large positive correlation. Leader member relations in emotion, loyalty, respect, professional contribution and innovative behavior of the staff are positively correlated at the 0.05 level, suggesting that between leader-member exchange relationship and Employee Innovative Behavior exists the larger positive correlations.

**TABLE 4
THE CORRELATIVE COEFFICIENT**

<i>Gene</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
1.Moral example	(0.89)								
2. Shared-vision	.474**	(0.88)							
3. Individualized consideration	.642**	.634**	(0.88)						
4. Leaders glamour	.628**	.527**	.567**	(0.88)					
5.Sensibility	.538**	.326**	.517**	.420**	(0.77)				
6.Faithfulness	.474**	.364**	.534**	.419**	.516**	(0.82)			
7.Contribution	.489**	.337**	.445**	.376**	.545**	.503**	(0.87)		
8. Professional authority	.569**	.433**	.475**	.680**	.506**	.453**	.535**	(0.90)	
9.Innovative behavior	.297**	.325**	.219**	.269**	.129*	.133*	.185**	.215**	(0.84)

Note: **P <0.01, *P<0.05

Structural Equation Modeling Analysis

From table 5 we can see that, overall, the regression coefficient for transformational leadership on leader member relationship is 0.706, and significant at the 0.001 level. Therefore, we consider transformational leadership (total) has positive effects on leader member relations (total). Considering the dimensions of transformational leadership, the effect of moral practice and individualized care on leader member relations effect is obvious. H1 has been verified. The regression coefficient for leader member relations on staff innovative behavior is 0.192, and significant at the 0.005 level. In which contribution and professional authority have more direct influence on staff innovative behavior than other genes. H2 has been verified. The regression coefficient for transformational leadership on employees' innovative behavior is 0.314, and significant at the 0.001 level, which illustrates that the vision to inspire, and charismatic leadership, has a large influence on staff innovative behavior. H3 has been verified.

**TABLE 5
TRANSFORMATIONAL LEADERSHIP, LEADER MEMBER RELATIONS AND EMPLOYEE INNOVATIVE BEHAVIOR REGRESSION RESULTS**

<i>Variable</i>		β	<i>Sig.</i>	<i>F</i>	<i>After adjustment R2</i>
Dependent variable	leader member relations (total scores)			189.387***	0.423
Independent variable	transformational leadership (total scores)	0.706	0.000		

Dependent variable	employee innovative behavior			8.463**	0.178
Independent variable	leader member relations (total scores)	0.192	0.004		
Dependent variable	employee innovative behavior			25.303***	0.186
Independent variable	transformational leadership (total scores)	0.314	0.000		
Dependent variable	leader member relations			54.255***	0.451
Independent variable	moral example	0.305	0.000		
	shared-vision	0.020	0.730		
	individualized consideration	0.311	0.000		
	leaders glamour	0.080	0.166		
Dependent variable	employee innovative behavior			30.205***	0.224
Independent variable	moral example	0.004	0.897		
	shared-vision	0.288	0.001		
	individualized consideration	-0.029	0.667		
	leaders glamour	0.150	0.037		
Dependent variable	employee innovative behavior			5.827***	0.238
Independent variable	sensibility	-0.029	0.565		
	faithfulness	0.062	0.836		
	contribution	0.103	0.038		
	professional authority	0.194	0.009		

The Intermediary Role Analysis

From the results of the analysis, the intermediary model regression coefficient is 0.227, and is significant at the 0.001 level. Compared with the first step regression coefficients, with the leader member relations (M) joining, the regression coefficient of transformational leadership(X) on staff innovative behavior(Y) falls from 0.298 to 0.260. This indicates that leader member relations in transformational leadership and employee creativity behavior plays an intermediary role. Therefore, H4 has been confirmed.

TABLE 6
RESULTS OF THE INTERMEDIARY ROLE OF LEADER MEMBER RELATIONS

process	model	F
1	$Y=0.298^{***}X+e1$	12.018**
2	$M=0.601^{***}X+e2$	168.63***
3	$Y=0.230^{**}M+e3$	18.463**
4	$Y=0.260X+0.111M+e4$	10.804***

CONCLUSIONS OF THIS RESEARCH

In this study, the employees of some companies in the Pearl River Delta region were surveyed in order to verify the relationship between transformational leadership, LMX, and employee innovative behavior. The purpose of this study is not only to advance the theory of transformational leadership, but also to explore the impact of transformational leadership on employee innovative behavior. More importantly, I hope the conclusions of this study have implications for the management practices of the leader. The study mainly encompasses the following aspects:

1. The leader should pay attention to cultivating a high quality of leader-member exchange relationship. As the conclusion of this paper shows, high quality of leader member exchange is conducive to stimulating the innovative behavior of the staff. From previous literature, a high quality of leader-member exchange relationship can help to improve job satisfaction, job performance, and organizational justice. Therefore, leaders should pay attention to the interaction with subordinates, and cultivate a high-quality leader-member exchange relationship. In order to form a high quality relationship, the leader should pay attention to two things: on one hand, the leader should strengthen the quality of his own culture, and with dedication try to make it work. He should make himself an example, he should sacrifice his self-interest, he should match his words with his deeds, he should make strict demands on himself. On the other hand, the leader should pay attention to employee personalized care, as far as possible when leading staff he should consider the actual situation of the individual employee. He should assist the staff create an environment friendly to development; he should be concerned about staff development, the staff's family and also the daily life of the staff.
2. The key how to incent innovative behavior of the staff lies in leaders. As the conclusion of this paper shows, transformational leadership on employees' innovative behavior has a significant positive effect. Innovation is the life of an enterprise, and it promotes social development. The innovation of the enterprise mainly depends on its employees; therefore, the employees' innovation plays an important role in the development of enterprises. In China, most of the leaders uses a transactional leadership style, and not a transformational leadership style. In order to greatly promote staff innovation, leaders should pay attention to two aspects: one, the leader should pay attention to the importance of vision to inspire, and as far as possible to describe the future of the work to employees, in order to let the staff know the prospects for the development of the unit or department. The transformational leader should specify the goals and direction of development for the staff in order to explain the significance of the work; and in addition, leaders should focus on the enhancement of their own charm, and they should try to develop excellent business ability. They should endeavor to be open-minded, to have a sense of innovation and a strong sense of professionalism and job involvement, and to have high standards for their work.
3. High quality leader member relations is conducive to stimulate the innovative behavior of the staff, but the personal feelings between leaders and subordinates is not conducive to employee

innovative behavior. As the conclusion of this paper shows, leader member exchange on staff innovative behavior has significant positive effects. These effects mainly come from the contribution and professional authority. The influence of contribution on staff innovative behavior can be manifested as: if the employees are willing to lead and make extra effort, to do more than their duty, then the employee would be most willing to blaze new trails. In addition, professional respect for employee innovative behavior can be expressed as: if the employees know the leader has professional knowledge and skills, so employees can confidently make bold attempts to innovate; because if there is any problem, the worker can go to the leader for advice and help. In addition, this paper also finds that, emotion has negative effects on staff innovative behavior, but this effect is not significant. In China, under the influence of traditional culture, emotion is an important link in people relationships, and it plays a significant role in interpersonal communication. However, if personal feelings between leader and subordinate are too close, these feelings may affect the leader's decision-making, and subordinates, in order to maintain such feelings, might become complacent, unwilling to break with the original situation, and thus, deep emotional ties between leader and subordinate may not be conducive to employee innovation. Therefore, leaders should pay attention to the degree with which they have an emotional relationship with their subordinates.

However, this study is still inadequate in the following particulars: Data was only collected from employees and not from leaders.

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