

Study on Influence Mechanism of Leader-member Exchange Differences to Team Performance

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Abstract—In the information explosion in twenty-first Century, enterprises are facing increasingly fierce competitions, the job content becomes more complex, so teams play a more prominent role in company. The purpose of this article is to study the effect of leader-member exchange on team performance, and the mediating role of team atmosphere. This research adopted the mature scales through the questionnaire in companies and universities in Hubei. The article confirmed that LMX makes positive influence on team performance, and partly intermediary function of team atmosphere. This article expands the research field of Leader-member Exchange theory and enriches the research model of team performance.

Keywords—leader-member exchange; team performance; team atmosphere

I. INTRODUCTION

Graen(1975)proposed the Leader-Member Exchange (LMX) theory. The theory has raised the awareness that there is a difference in how a leader treats subordinates in a team. At present, most of the researches on the theory of leadership exchange are focused on the individual level (Dechurch, 2010), neglecting the influence of team members' exchange differences on team results. In a team, due to the resources, time constraints, the exchange relationships between team leader and team members are quite different (Li, 2013). At this point, the team members will have a different perception of leader member exchange, which due to different work behavior and attitude, thus affecting team performance. Therefore, it is of great theoretical significance to study the team performance based on the difference of leader member exchange. In practice, this have significant practical value on enhancing the overall performance of enterprises.

From the theory of leader member exchange be proposed, the theory has been paid more and more attention by domestic and foreign scholars. Previous studies on the leader-member exchange and performance focused on individual performance. With the popularity of team work in modern enterprises, scholars began to integrate lead-member exchange with team work. Boies (2006) and other studies have shown that the quality of leader-members exchange can reduce team conflict and improve team effectiveness. Team members, which have high quality exchange with team

leader, can get more attention and trust from team leader as well as more rewards and promotion opportunities. Therefore, these employees will be based on the principle of social exchange feedback, in addition to personal performance improvement, this feedback also includes contribution to team work, and then improve team performance (Martin, 2010). The high quality of leader member exchange leads to an atmosphere of mutual respect and cooperation. Good team atmosphere and team interaction on the positive role of team performance has also been generally confirmed. But for those who do not maintain a high-quality exchange with the leaders, leaders' differential treatment will make them feel unfair, which could result in team conflict, reduce the cohesion of team members, and have a negative impact on team performance(Liu, Zhang and Zhong, 2009).

However, these studies only show the effect of the quality of leader-member exchange on individual and team performance, not the influence of the difference of leader-member exchange on team performance. In recent years, the different relationship in leader-member exchange has become a hot issue (Wang and Zhong, 2011). Team leader and members have differences in exchange quality, which called lead member exchange differences (Erdogan and Bauer, 2010). The quality of the exchange usually coexist in a team. Employees perceive the difference in the exchange relationship between others and leader also affects their work attitude and behavior. As to the influence of the difference of leader member exchange on team performance, early researchers generally agreed that the existence of differences on the team is harmful. Research has shown that differences can reduce team effectiveness and increase team conflict. Schyns 'research suggests that differences may reduce team members' job satisfaction. As the research progresses, scholars have found that differences in relationships do not always have a negative impact. Liden (2006) found that in a team with a low level of leader exchange, relationship difference can improve team performance to a certain extent. In the latter part of the team work, leader treats team members differently can improve team performance (Wang and Zhong, 2011). In addition, Erdogan and Bauer (2010) found that when the team fair atmosphere is high, the motivation of the team members is not affected by the difference of the relationship. Chinese scholars (Zhao and

Song, 2010) also show that the relationship differences does not always have a negative impact on team effectiveness.

II. HYPOTHESES

A. Team Atmosphere and Team Performance

Team members' perceptions of specific contexts form a team atmosphere. It can affect members' attitudes, behaviors and values (Liu, Xie and Meng, 2011). When the team members feel good about the team atmosphere, their job satisfaction and work efficiency will increase (Xie, 2012). Team innovation atmosphere, service atmosphere, fair atmosphere all have an impact on team performance. Mutual trust between team members can increase the cooperation between members as well as enable them to understand each other's strengths and weaknesses. This avoids unfamiliarity between members which could result in inefficiencies. In a trusty team atmosphere, the interpersonal relationship between team members is good, which enable them to have in-depth communication and due to high team performance. Improving team members' sense of participation can improve team communication efficiency, which is conducive to creating a positive team atmosphere. This is the driving force for team members to work hard to improve their performance (Zhang, 2014). In a good atmosphere of communication team, the contradictions and misunderstandings can be handled well, and team members have mutual recognition. This contributes to a sense of belonging among the members, which drives performance. For the cross-cultural team, a good communication atmosphere can solve the misunderstanding caused by different cultures, contribute to the establishment of mutual trust and a fair atmosphere, and improve team innovation performance. Fair team atmosphere will also affect performance. Lester's (2002) study confirmed that when a team has a fair atmosphere, team members feel that they have been treated fairly and that the efforts they make are positive. This can reduce the team members of the psychological gap, enhance their team identity, and finally improve performance. The atmosphere of adventure and cooperation can positively affect the team's knowledge integration. This is especially true for high-tech teams, which can accelerate the development of new products and play a positive role in team innovation performance (Baer, 2012). Therefore, we propose the following hypothesis:

H1: Team atmosphere has a positive impact on team performance.

B. Leader-member Exchange and Team Atmosphere

Leaders and team members in order to complete the team goals, work together, the two sides through the exchange of interaction, forming team atmosphere. But in this process, the leader and the team members formed different exchange relationship, so members feel the team atmosphere will be different. In the high-quality exchange of leadership members, team members are given greater decision-making and feel a higher sense of trust. They feel the leader's love and support, and will be more willing to make excessive efforts to team goals. Members will enhance the exchange of

information and mutual assistance, which will to some extent to promote the team atmosphere of trust and innovation atmosphere (Sun, 2009). Differences in the exchange relationship will make team members feel differential treatment from team leader. For members have good relations with team leader, they want to continue to maintain their competitive advantage in the team. While those who are more distant from the leader are trying to narrow the gap with leadership by hard work. So leading members of the exchange of differences will enhance the team competitive atmosphere. To sum up, we propose the following hypothesis:

H2: Leader-member exchange differences have a positive impact on the team atmosphere.

C. The Intermediary Role of Team Atmosphere

Leadership is an important factor affecting the team atmosphere, team leaders play an important role in fostering a positive work ethic. Leader treats subordinates differently because of their own personality traits, Subordinate personality characteristics, and their ability. Some employees in the work can get trust and support from leader, and frequent exchanges of leadership. They will naturally come back through hard work leadership for their support and help, pay extra effort for team performance and pay or even do outside the scope of the work. Such employees are aware of a positive team atmosphere, harmonious relationship with the leadership, so they have high job satisfaction as well as high job performance (Dulebohn, Bommer, Liden et al. 2012). On the contrary, for members have low exchange quality, they are less concerned about the leadership and support, low sense of belonging to the team and poor work motivation, which could reduce work performance. The differences in the exchange of leadership members affects the fair atmosphere of the team. Obviously, for employees in low-quality exchange relationships, they are less likely to feel team equity. This will aggravate the formation of team conflicts, and have negative impact on team performance (Harris, Li and Kirkman, 2014). On the other hand, differences in exchange will enhance the team's competitive atmosphere. For "in-the-box" employees, they want to have existing resources continuously and maintain existing strengths, so they will work harder to improve performance. While for "out-of-the-box" employees, they realize that they can get leader's attention by improving their performance and become "in-the-box" members. This relationship difference can improve their performance. It can be seen that the differences in exchange affect the team interaction, which also relates to the team atmosphere. Therefore, we propose the following hypothesis:

H3: The team atmosphere plays an intermediary role in the positive effect of the leader member exchange differences on team performance.

III. METHODS

A. Variable Design

1) *Independent variable (LMX)*: This study refers to Wang Hui revised LMX four-dimensional scale. "Table I" The scale is based on Liden and Maslyn (1998) LMX four-dimensional scale, combined with Chinese culture to amend. We select emotion, loyalty and contribution to measure leader-member exchange.

TABLE I. LEAD MEMBER EXCHANGE MEASUREMENT SCALE

NO.	Dimensions	Items
LMX1	Emotion	I really like the person I am in charge of.
LMX2		It's interesting to work with my supervisor.
LMX3		I would like to associate with my supervisor and work together.
LMX4	Loyalty	My leader would defend my work behavior in front of his/her superior, even if he/she doesn't know enough about it.
LMX5		My supervisor will defend me in front of other people if I made a mistake.
LMX6		My supervisor will be on my side, when I conflict with others.
LMX7	Devotion	I'm willing to pay extra effort for the benefit of my supervisor.
LMX8		I would like to do more work than I do for my supervisor.
LMX9		In order to my supervisor, I will try my best to do my own job, and even out of the job.

2) *Dependent variable*: We use the scale prepared by Van Scotter (1996), and reference to Huang Qing's Chinese translation to measure team performance. The scale measures team performance from three aspects: task achievement, member satisfaction and team survival. "Table II"

TABLE II. TEAM PERFORMANCE MEASUREMENT SCALE

NO.	Dimensions	Items
TP1	Task achievement	Team members are aware of the mission objectives and can accomplish the task within the planned time.
TP2		Team members work very hard and have high work efficiency.
TP3		Team members have the ability to adapt to different jobs.
TP4		Team members work together and share their joys and sorrows.
TP5	Member satisfaction	Team members are satisfied with their performance at work.
TP6		Team members are satisfied with the results of the work of the team.
TP7		Team members are satisfied with the work style.
TP8	Team survival	Team members can learn something useful when they work together.
TP9		Team members have a strong willingness to learn.
TP10		Team members are encouraged when they are in trouble.
TP11		Team members are able to accept new things.

3) *Mediator variable*: This article according to Sun and Liu's research (2008), using team trust and team openness to measure team atmosphere. The team trust dimension also refers to the trust scale developed by Rauniar (2005). "Table III"

TABLE III. TEAM ATMOSPHERE MEASUREMENT SCALE

NO.	Dimensions	Items
TA1	Team trust	Team members fully trust each other and are willing to share all relevant information.
TA2		Team members are convinced that they can be trusted.
TA3		Team members agree that all members are honest.
TA4		Team members believe that the information provided by others is true.
TA5	Team openness	The different opinions of team members can be taken seriously.
TA6		Team members agreed that the quality of decision-making will improve when everyone participate in the discussion.

B. Data Collection

This research takes the team leader and team members of the enterprise team (including the marketing team, R & D team, etc.), the college student organizations, the students' unions as the research object. We choose 28 teams randomly in Hubei Province to hand out questionnaires. A total of 360 questionnaires were sent out, and 346 questionnaires were collected including 332 valid questionnaires. The recovery rate and effective rate were 96.1% and 92.2% respectively.

IV. RESULTS

A. Reliability

We use SPSS19.0 to analyze the reliability of each variable. We found that the total Cronbach was 0.951, and single variable-LMX(leader member exchange), TP(team performance), TA(team atmosphere) Cronbach was 0.887, 0.941, 0.844 respectively. That shows the reliability of the data is reliable. "Table IV"

TABLE IV. RELIABILITY STATISTICS

	Cronbach's Alpha	N
All variable	.951	26
LMX	.887	9
Team performance	.941	11
Team atmosphere	.844	6

We also discussed the correlation coefficients of each variable. We can find in "Table V" that the correlations between variables LMX, TP and TA are all significant. While the correlations between the four control variables, age, educational level, working time in the team and team size, are not significant.

TABLE V. CORRELATION MATRIX

	Age	Degree	Time	Scale	LMX	TP	TA
Age	1						
Degree	.074	1					
Time	.003	-.109	1				
Scale	-.025	-.112	.157*	1			
LMX	-.159*	-.054	-.088	.076	1		
TP	-.212*	-.116	-.015	.122	.706**	1	
TA	-.142	-.003	-.139	.113	.568**	.697**	1

a. **. Correlation is significant at the 0.01 level (2-tailed).

b. *. Correlation is significant at the 0.05 level (2-tailed).

B. Confirmatory Factor Analysis

We use SPSS19.0 to confirmatory factor analysis for each variable. The academic community generally agreed that to make the factor analysis valid, the sample size is at least 5 times the observed variable. When the sample size is more than 10 times of the observed variable, the factor validity analysis is more ideal. The sample size of this survey is 354, the number of observable variables is 26, and the number of samples is 14 times of the variables, which meets the requirements. KMO (Kaiser-Meyer-Olkin) and Bartlett ball tests were performed prior to confirmatory factor analysis, as shown in "Table VI".

TABLE VI. KMO AND BARTLETT BALL TEST

Kaiser-Meyer-Olkin	.928
Bartlett ball test approximate chi square	2903.658
df	325
sig	.000

KMO value is proportional to the suitability of factor analysis. In other words, the greater the KMO value, the more effective factor analysis. In this study, the KMO value reached 0.928, indicating that the observed values are suitable for factor analysis. The exploratory factor analysis of this study was carried out by principal component analysis (PAC) in SPSS19.0 and variance maximum orthogonal rotation. According to factor load factor for each item to choose, the various factors classified as three categories. "Table VII"

TABLE VII. ROTATION COMPONENT MATRIX

	component		
	1	2	3
TP4	.754	.228	.266
TP6	.733	.193	.270
TP5	.727	.201	.168
TP3	.726	.240	.271
TP2	.712	.287	.253
TP8	.712	.271	.250
TP11	.662	.290	.317
TP1	.661	.296	.264
TP7	.655	.195	.374
TP10	.651	.260	.338
TP9	.622	.157	.326
LMX6	.077	.766	.277
LMX5	.250	.721	.150
LMX7	.194	.718	.323
LMX3	.529	.616	-.031
LMX2	.548	.608	-.089
LMX4	.335	.596	.174
LMX1	.510	.580	-.069
LMX9	.304	.558	.234
LMX8	-.004	.545	.509
TA2	.122	.098	.787
TA4	.344	.133	.630
TA1	.357	.140	.583
TA6	.328	.248	.575
TA3	.456	.078	.575
TA5	.384	.311	.564

C. Mediating Role Model

TABLE VIII. MEDIATION FUNCTION REGRESSION ANALYSIS

Variables	① JX	② JX	③ FW	④ JX
Age	-.047	-.116	.045	-.068
Degree	-.072	-.114	.030	-.086
Time	.042	.098	-.112	.093
Scale	.052	.009	.094	.010
LMX	.695***		.559***	.442***
FW		.701***		.452***
R2	.511	.516	.341	.633
△R2	.511	.516	.341	.646
F	33.432**	34.130***	16.541**	48.334**

c. *** Correlation is significant at the P≤0.001 level

V. CONCLUSION

In the team, the leaders should try to maintain good relations with each member, and provide guidance and help for their work. A high-quality leader member exchange enhances team performance by enhancing communication efficiency and information exchange. For employees have high-quality leader member exchange, they get more attention and work support from the leaders, the enthusiasm of the work will be higher. Leaders will give these employees a higher rating as well as more support for their work.

Leaders in the usual work should pay attention to create a good team atmosphere. A positive team atmosphere can influence the team members' work attitude and work behavior, finally affecting the work performance of the entire team. A good team atmosphere can enhance team cohesion and information exchange between team members. Effective

communication can eliminate the contradictions and friction between team members. Fair, trust team atmosphere could motivate team members to work enthusiasm and creativity, and make the team full of energy.

Leaders should encourage team members to enhance communication and collaboration. Interacting with team members can reduce work pressure, activate team atmosphere, and make it easier to reach consensus when opinions are inconsistent. The establishment of the team collaboration mechanism can reduce the burden on the management of leaders, and improve team members' self-management ability. Leaders give the team members full trust can enable employees to feel leaders' affirmation and attention, which can effectively encourage them to accept more challenging tasks and make efforts to complete. Not only can improve personal performance, the performance of the entire team will be a corresponding increase.

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