

The impact of team climate on team performance: the intermediary role of team commitment

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Abstract

how to improve the internal performance of the organization has long been a concern of management. In the past, it is from the individual level to study, this article from the perspective of the team, to study the impact of team climate on team performance and the intermediary role of team commitment. In this paper, a questionnaire survey was used to collect 295 valid questionnaires from 37 IT companies in Shanghai area. The research was carried out to verify the hypothesis of this research by descriptive analysis, validity analysis, factor analysis and correlation analysis method. The results of statistical analysis show that the team climate has a positive impact on team performance, team commitment plays partial intermediary role in the impact of team climate on team performance.

Keywords

Team climate; Team commitment; Team performance; Intermediary role.

1. Introduction

In recent years, with the change of market and the transformation of production technology, the competition among enterprises has become more and more fierce, the team is a form of organization, which plays an important role in the development of enterprises. However, there is flaccid performance of teams while their resources are extremely advantageous, which frequently happens within the development of considerable numbers of enterprises. In this context, the study of the impact of team performance and the mechanism of action is increasingly concerned by the scholars. Previous studies mainly from the team process factors, environmental factors and individual factors, etc, to explore the influence factors of performance. With the deepening of the research, scholars have found that as a team level factors, the team climate is the important variable of team input and output in the "input-process-output" model, so the research about the team climate is increasing. Most of these studies, however, focus on the team climate of the antecedent and the influence of team climate on team performance, and the mechanism of the effect of team climate on team performance is also very less, such as if the intermediary role exists in the mechanism research of the influence of team climate on team performance. Based on the above reasons, this paper tentatively introduces team commitment as an intermediary variable, to explore the relationship between team climate, team commitment and team performance through empirical analysis, and hopes to provide valuable reference for management theory and management practice.

2. Theory and hypothesis

2.1 Team climate and team performance

Jones (1979) argue that the team climate is a team of relatively stable internal environment characteristics, which team members perceive the difference with other teams, and is the result of interaction between team members. This paper based on the friendly climate, innovation climate and fair climate as the measured dimensions of the team climate, to examine the impact on the team performance. Friendly climate reflects the mutual trust, friendship and caring among team members. Innovative climate reflects the team's perception of encouragement and approval of the creative and new methods. The fair climate reflects the individual's perception of the fairness of team policy. Team

climate as the overall cognition of the team structure, team operation process and its results by team member, affects the team member behavior, and ultimately affects the team performance. Hongzhi Li (2010) argue that the friendly climate and innovation climate had a direct positive effect on the self-efficiency, and the fair climate had a direct positive effect on the results, and then ,affected the team effectiveness. On this basis, this paper puts forward the following hypothesis:

Hypothesis H1: friendly climate has a positive effect on team performance

Hypothesis H2: innovation climate has a positive impact on team performance

Hypothesis H3: fair climate has a positive impact on team performance

2.2 Team commitment and team performance

Team commitment refers to the team member's commitment to the team. In this paper, we study the effect of affective commitment, normative commitment and ideal commitment of team commitment on the performance of the team in the three dimensions. Affective commitment refers to employees' emotional attachment and input to the team, which reflects the extent of psychological recognition to the team, it also makes employees voluntarily contribute to achieving team goals. Normative commitment refers to the commitment within the organization which forms in the long term. The ideal commitment is that the team can provide conditions to achieve their goals, and whether the team can provide training, promotion opportunities, or help members to achieve the ideal. The impact of the various dimensions of team commitment on team performance of the literature, such as, Borman et al. (1993) showed that employees' team commitment to work performance had a certain explanatory power. Michael & Ricketta (2002) pointed out that the emotional commitment and external/ internal performance had certain correlation. Ashforth & Saks (1996) in the study showed that there is a positive correlation between the normative commitment and overall performance; Wenquan Ling et al. (2001) thought that ideal commitment is an important factor to affect the performance. Based on this, this paper puts forward the following hypothesis:

Hypothesis H4: affective commitment has a positive impact on team performance

Hypothesis H5: normative commitment has a positive impact on team performance

Hypothesis H6: ideal commitment has a positive impact on team performance

Review of the previous research, there were many relevant research achievements of intermediary variables between team climate and team performance, but the research of team commitment mediation role of team atmosphere and team performance is very less. Youzhen Lin (2010), in the study on the relationship among hotel organizational climate, organizational commitment and job satisfaction, pointed out that organizational commitment on organizational climate and job satisfaction played an intermediary role. In this study, the team commitment as an intermediary variable, that is, whether the team can play an intermediary role in the team climate and team performance, to influence the relationship between the team climate and team performance. Team climate is actually a kind of emotional climate, which team members show together. Whether it can affect the behavior and attitude of members and improve the performance of the whole group? Thus, this paper puts forward the following hypothesis on the intermediary role of team commitment:

Hypothesis H7: team commitment plays an intermediary role between team climate and team performance, that is, the team's commitment plays an intermediary role between team climate and team performance, to influence the relationship between team climate and team performance.

3. Research design

3.1 study sample

This study collects data through the questionnaire survey, the research object is 37 IT enterprise internal team in Shanghai area. A total of 345 questionnaires were distributed, 295 valid questionnaires were recovered, the effective recovery rate was 85.5%. Which men accounted for 63.31%, women accounted for 36.69%.From the age level, 20-30 accounted for 55%, 31-40 accounted for 37.65%, over 40 accounted for 7.35%.Degree in college and the following accounted

for 15.04%, Bachelor's degree accounted for 57.01%, graduate and above accounted for 27.95%. 17.65% of respondents for team managers, 82.35% for team members. From the point of team size, 10 people and the following accounted for 16.43%, 11-15 people accounted for 18.87%, 16-20 people accounted for 25.07%, more than 20 people accounted for 39.63%. From the set up time, 1-6 months is 10.66%, 6 months - 1 year is 11.03%, 1-3 years is 27.57%, more than 3 years is 50.74%. From the point of enterprise nature, state-owned enterprises accounted for 20.59%, private enterprises accounted for 63.24%, foreign investment enterprises (including joint ventures and wholly owned) accounted for 16.17%.

3.2 variable measurement

This article uses the Likert five level scale, with "on behalf of 1 to 5 points" from "very does not conform" to "very accord with", asked respondents to scale each item to give score according to oneself circumstance, all entries are reflected the team within the objective existence of the problem, and the stronger the score, the higher the degree. The questionnaire includes four parts: basic information, team climate questionnaire, team commitment questionnaire and team performance questionnaire.

Team climate questionnaire, which compiled by Back Gee-Woo (2005), is used in this survey, which included 3 dimensions: friendly climate, innovative climate, fair climate, and each includes five items respectively. The evaluation subject of friendly climate includes such as "Team members see keep close contact", etc. The evaluation subject of innovation climate includes such as "Team attaches great importance to the innovation behavior, even if the face of great uncertainty", etc. The evaluation subject of fair climate includes such as "Distribution system of team has industry standardization, it is on behalf of the majority of will", etc. Team commitment questionnaire, which compiled by Allen & Meyer (1990), is used in this survey. It included three dimensions: affective commitment, normative commitment, ideal commitment, and each includes three items respectively. Affective commitment evaluation subject including such as "I don't want to leave the team deep feelings for the team" etc., The evaluation items of normative commitment include "even if it is good for me, I still think leaving my team is inappropriate", the ideal commitment evaluation subject including "team provide me with some conditions which I can achieve ideal by these", etc. Team performance questionnaire, which compiled by Barker, Josvold & Andrews (1988), is used in this survey, which included five topics, such as "our team can achieve the expected targets", etc.

3.3 reliability and validity analysis

(1) reliability and validity analysis

The reliability of the variables is tested by Cronbach's Alpha coefficient, this study complete reliability analysis by using SPSS20.0 statistical software, and concrete results are shown in table 1. It is generally believed, Cronbach's Alpha value is greater than 0.7, the questionnaire has good reliability, the observation variables have good consistency. From table 1, it can be seen that each part of the questionnaire has a good reliability, so we can carry out the next step verification analysis.

Table 1. Cronbach's Alpha coefficient of variables

variable	Cronbach's Alpha
Team climate	0.919
Friendly climate	0.809
Innovation climate	0.771
Fair climate	0.837
Team commitment	0.885
Affective commitment	0.808
Normative commitment	0.789
Ideal commitment	0.832
Team performance	0.857

The validity of the variables is verified by the confirmatory factor analysis, the AMOS17.0 is used to verify the validity of the variables involved in the analysis, and concrete results are shown in table 1. It is generally believed that Chi - square/df < 3, RMSEA < 0.05, GFI, CFI, IFI, NFI were greater than 0.8, the questionnaire is suitable for the confirmatory factor analysis, and fitting degree is very good when their coefficients are greater than 0.9, and these items have a good validity. From table 2, each part of the analysis result is good, each factor has good convergent validity.

Table 2. The fitting degree coefficient of variables

variable	Chi-square/df	RMSEA	GFI	CFI	IFI	NFI
Team climate	2.144	0.062	0.911	0.901	0.903	0.833
Team commitment	1.802	0.051	.971	0.980	0.980	0.956
Team performance	2.797	0.048	0.982	0.981	0.982	0.972

(2) convergence analysis

Because the questionnaire is based on individual level data, this paper constructs the model of team level and the variables, so it needs to integrate the individual level data into team measured values. This paper uses a group internal consistency coefficient to valid whether it is fit for convergence analysis. When the R_{wg} coefficient is greater than 0.7, it can be inferred that the response of the individual should be the phenomenon of convergence. The RWG coefficient average of team climate, team commitment and team performance are all greater than 0.7 by the analysis of the convergence, the specific results are shown in table 3.

Table 3. The R_{wg} coefficient of variables

variable	Rwg coefficient
Team climate	0.802
Friendly climate	0.804
Innovation climate	0.792
Fair climate	0.811
Team commitment	0.798
Affective commitment	0.799
Normative commitment	0.801
Ideal commitment	0.794
Team climate	0.808

(4) correlation analysis and regression analysis

The correlation coefficient between the variables is shown in Table 4.

Table 4. The correlation coefficients between variables

variable	Mean	Std	1	2	3	4	5	6	7
1 Friendly climate	3.65	0.66	1.00						
2 Innovation climate	3.62	0.63	.737**	1.00					
3 Fair climate	3.62	0.66	.749**	.765**	1.00				
4 Affective commitment	3.66	0.67	.710**	.714**	.782**	1.00			
5 Normative commitment	3.76	0.66	.656**	.612**	.640**	.750**	1.00		
6 Ideal commitment	3.70	0.70	.639**	.636**	.622**	.606**	.678**	1.00	
7 Team climate	3.75	0.58	.723**	.678**	.707**	.738**	.781**	.725**	1.00

Table 4 shows that there is a significant positive correlation between team climate and team performance. Team commitment has significant positive correlation with team performance. From the whole, there is a certain relationship between team climate, team commitment and team performance, this test provides the basis for the back of the intermediary.

Through the above analysis, this paper analyzes the relationship among variables through hierarchical regression analysis, the results are shown in table 5 and table 6.

Table 5. Regression coefficient and significant coefficient

variable	Team climate on team performance regression		Team climate on team performance regression	
	Beta	t	Beta	t
Independent variable				
Friendly climate	.318	5.888		
Innovation climate	.237	4.264		
Fair climate	.350	6.179		
Intermediate variable				
Affective commitment			.243	5.712
Normative commitment			.323	6.916
Ideal commitment			.260	7.153
F	209.045		241.583	
R ²	0.583		0.714	
Adjusted R ²	0.580		0.711	

From table 5, Firstly, this study put together the various factors of team climate and the performance of the team in a regression, the results show that the friendly climate, innovation climate and fair climate positively predict team performance index ($F = 209.045$, $p = 209.045$), which verified the H1, H2, H3. Its specific regression model expressed as: team performance = 0.318 friendly climate + 0.237 innovation climate + 0.350 fair climate. Secondly, we put together the various factors of team commitment and the performance of the team in a regression, the results show that the affective commitment and normative commitment, ideal commitment also have a positive effect on team performance ($F = 241.583$, $p = 241.583$), which verified the H4, H5, and H6. Its specific regression model expressed as: team performance = 0.243 affective commitment + 0.323 normative commitment + 0.260 ideal commitment.

From table 6, there is a significant relationship between the independent variables of team climate and dependent variable of team performance when added to affective commitment, normative commitment or ideal commitment, which the coefficient is still significant, but the correlation coefficient is weak. This suggests that the affective commitment, normative commitment and ideal commitment play partial intermediary role in the relationship between team climate and team performance. When adding to affective commitment, the regression coefficient of friendly climate decreases from 0.318 to 0.266, the regression coefficient of innovation climate decreases from 0.237 to 0.106, the regression coefficient of fair climate decreases from 0.350 to 0.111. It suggests that the affective commitment plays partial intermediary role in the relationship between team climate and team performance. When adding to normative commitment, the regression coefficient of friendly climate decreases from 0.318 to 0.187, the regression coefficient of innovation climate decreases from 0.237 to 0.099, the regression coefficient of fair climate decreases from 0.350 to 0.147. It suggests that the normative commitment plays partial intermediary role in the relationship between team climate and team performance. When adding to ideal commitment, the regression coefficient of friendly climate decreases from 0.318 to 0.234, the regression coefficient of innovation climate decreases from 0.237 to 0.077, the regression coefficient of fair climate decreases from 0.350 to 0.192.

It suggests that the ideal commitment plays partial intermediary role in the relationship between team climate and team performance.

Table 6. Team commitment's all dimensions as intermediary variable regression results

variable	Team climate on team performance regression		Join the affective commitment		Join the normative commitment		Join the ideal commitment	
	Beta	t	Beta	t	Beta	t	Beta	t
Independent variable								
Friendly climate	.318	5.888	.266	5.049	.187	3.892	.234	4.614
Innovation climate	.237	4.264	.106	1.887	.099	2.007	.077	1.425
Fair climate	.350	6.179	.111	1.872	.147	2.995	.192	3.688
Intermediate variable								
Affective commitment			.303	5.703				
Normative commitment					.421	10.669		
Ideal commitment							.308	7.856
F	209.045		127.497		177.907		145.602	
R ²	0.583		0.637		0.701		0.668	
Adjusted R ²	0.580		0.632		0.706		0.663	

4. Conclusion

The main purpose of this study is to investigate the effect of team climate on team performance. Through regression analysis, it is concluded that team climate and team performance, team commitment and team performance have a significant positive correlation, significantly affect team performance. Through the level analysis, the team atmosphere has a direct impact on team commitment, the existence of indirect impact on team performance. The team commitment to the various dimensions of the team atmosphere on the team performance, the impact of the role played a part of the intermediary role. This revelation team development process should establish mutual trust, support team atmosphere, the better team atmosphere, the team member's commitment to the team, team performance is better, so pay attention to the team atmosphere of the building is crucial to the development of the team.

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