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Power Distance and Dual Innovation Behavior: Medium based on Organizational Commitment

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ABSTRACT
Based on self-consistency theory and self-verification theory, this paper investigates the direct effect between power distance and dual innovation behavior and introduces the intermediary variable of organizational commitment to study the mechanism of power distance and dual innovation behavior. Through a questionnaire survey, the following conclusions are drawn: power distance significantly positively influences incremental innovation behavior, and negatively influences mutation innovation behavior; sustained commitment and normative commitment play a positive mediating role between power distance and incremental innovation behavior, while emotional commitment plays a negative mediating role between them. Emotional commitment, sustained commitment, and normative commitment play a negative mediating role between power distance and mutation innovation behavior.

Keywords: *Power distance, Dual innovation behavior, Emotional commitment, Sustained commitment, Normative commitment*

1. INTRODUCTION

Under the background of "new normal" economy, China is facing a complicated stage of transition to innovation-driven. In the actual process of corporate innovation practice, many enterprises at home and abroad, facing the rapidly changing market environment, will continue to improve their resource development and utilization capacity by adhering to their competitive advantages and relying on existing resources (i.e., innovation behavior), and some enterprises choose to break away from the existing resource and capability structure and explore new resources and capabilities (i.e., mutation innovation behavior). At present, some scholars have made preliminary research achievements in the theory of progressive and mutation innovation behavior [1], but the existing research still tends to the enterprise level, and there is little research on the dual innovation behavior of employees at the individual level. Therefore, it is of great theoretical significance to clarify what innovation paths employees will take in the face of the complex environment.

Culture is also regarded as the key factor influencing employees' innovative behavior. Power distance, as one of the typical cultural factors, is an individual's cognition of the difference of power distribution in the organization, which has a subtle influence on the innovative behavior of enterprise employees. Compared with the previous studies on the influence of employees' innovative behavior, most of them regard power distance as the moderating variable [2][3], but seldom reveal the intermediary path between power distance and employees' innovative behavior. In addition, there are relatively few researches on dual innovation behaviors in innovation research by predecessors. Based on this, this paper, based on China's typical cultural orientation power distance, divides employees' innovation behavior into incremental innovation behavior and mutation innovation behavior, and explores its influence on dual innovation behavior.

According to the self-consistency theory, individuals' own values will drive them to produce corresponding attitudes and show corresponding behaviors under the influence of their own attitudes [4]. Focusing on the situation of employee innovation in this paper, organizational commitment, as an inner tendency and positive working attitude of employees to identify with organizational work, is not only influenced by their values of power distance, but also plays an important role in predicting their innovative behavior. Based on this, this study introduces organizational commitment, a variable that affects employees' innovation behavior. Starting

from the three-dimensional structure of emotional commitment, sustained commitment and normative commitment, this paper discusses the formation mechanism of employees' innovation behavior and speculates that organizational commitment plays an intermediary role between power distance and binary innovation behavior.

To sum up, this study will take power distance as the antecedent variable, dual innovation behavior as the result variable, and organizational commitment as the intermediary, to reveal the influence mechanism of power distance on dual innovation behavior.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESIS

2.1. Power distance and Dual Innovation Behavior

As a value tendency, power distance is a cultural context variable that cannot be ignored [3]. Moorhead and Griffin (1989) defined power distance as "the fact that employees accept the unequal distribution of power in the organization and they have different levels of power" from the perspective of individual employees. Jiantao Zhou (2013) pointed out that the power distance is the degree of employees' acceptance of the fact that the power distribution in the organization is not balanced [11]. Referring to Moorhead's research, this paper defines it as the employees' acceptance of unequal distribution of power and different levels of power in the organization.

Jinfeng Wang, et al. (2020) pointed out that dual innovation behavior can be divided into incremental innovation behavior and mutation innovation behavior [6]. Incremental innovation behavior refers to the innovative behavior that employees use existing technical resources to make simple improvements and achieve short-term goals of enterprises; mutation innovation behavior refers to the innovative behavior of employees based on new knowledge and technology, which completely changes the survival and development of existing enterprises and meets the long-term goals of enterprises [1]. According to the self-consistency theory, employees' behavior will be driven by their beliefs and values to be consistent with their words and deeds [5]. Focusing on this study, when employees of high power distance get along with their superiors, they think there are equal differences with superiors, and they usually don't take the initiative to communicate with superiors in an equal manner. [15]; At this time, employees are often limited by their cognition, and the acquired value resources are generally relatively scarce, so they can only engage in the gradual innovation behavior of tinkering and mending. On the contrary, employees with low power distance have a weak sense of hierarchy, are more willing to actively communicate with their superiors effectively, and can usually get more material and emotional support from their superiors, so employees are more inclined to engage in mutation innovation behavior. It can be seen that power distance is beneficial to incremental innovation behavior, but not conducive to mutation innovation behavior. Accordingly, the following assumptions are put forward:

H1a: positively affects incremental innovation behavior.

H1b: Power distance negatively affects mutation innovation behavior.

2.2. Mediating effect of organizational commitment

Organizational commitment is one of the focuses of contemporary academic research, which mainly reflects employees' participation, loyalty and recognition to the organization [13]. Meyer and Allen (1993) put forward the three-factor structure of organizational commitment "normative commitment, sustained commitment and emotional commitment" based on previous studies. The normative commitment means that employees fulfill their obligation of loyalty to the organization by their sense of social responsibility and obligation. The sustained commitment is the psychological attitude of employees to retain long-term investment and therefore they can continue to stay in the organization The emotional commitment refers to the psychological attitude of employees to have emotional dependence on the organization and follow the organization [12]. Because Meyer and Allen's theoretical research has been widely concerned and accepted, and it is suitable for this research situation, this study follows Allen and Meyer's definition of organizational commitment.

According to the self-consistency theory, employees' behavior will be driven by their beliefs and values to be consistent with their words and deeds [5]. In the organization, the higher the distance between employees' power, the more emphasis is placed on all work to complete the task as the ultimate goal, and the more yearning for power [17]. At this time, employees are more likely to take the resources and services provided by the organization for granted, and they usually have less emotional connection with the organization, thus resulting in lower emotional commitment to the organization. Because employees invest more time and energy in the pursuit of power, they are often reluctant to lose their existing status and treatment, so they prefer to stay in the organization [16], resulting in a high continuous commitment to the organization. At the same time, in order to maintain or expand the power gap between themselves and others, employees can well obey the arrangement of the organization, that is, they have responsibilities and obligations to the organization, so they tend to show a higher level of normative commitment. In view of the above discussion, the following assumptions are put forward:

H2a: Power distance negatively affects emotional commitment.

H2b: Power distance positively affects sustained commitment.

H2c: Power distance positively affects normative commitment.

According to the self-verification theory, employees tend to keep their views (attitudes) and make behaviors consistent with their views [14]. Focusing on this study, first of all, employees with high emotional commitment have a relatively close emotional connection with the organization, which is usually consistent with the values and goals of the organization. Employees will actively put forward innovative ideas for the all-around development of the organization and contribute to the organization [13]. Dual innovation behavior will bring benefits to the organization and benefit the development of enterprises. Therefore, emotional commitment is beneficial to dual innovation behavior. Secondly, in order to improve their own capital stock in exchange for the corresponding remuneration, power and status, employees with high sustained commitment usually continue to invest in innovation activities, preferring gradual innovation behaviors with predictable results in the short term and low-cost investment risk rather than mutation innovation behaviors with high risk. Finally, out of serious responsibility for the organization, employees with high standard commitment usually tend to make innovative behaviors beneficial to the organization, and consciously adjust their innovative behaviors to meet the organization's goals and interests. At the same time, dual innovation behavior can reflect employees' sense of responsibility to the organization. To sum up, this study puts forward the following assumptions:

H3a: Emotional commitment positively affects incremental innovation behavior.

H3b: Emotional commitment positively affects mutation innovation behavior.

H3c: Continuous commitment positively affects incremental innovation behavior.

H3d: Continuous commitment negatively affects mutation innovation behavior.

H3e: Normative commitment positively influences incremental innovation behavior.

H3f: Normative commitment positively affects mutation innovation behavior.

Combined with the hypothesis of the pairwise logical relationship between power distance and dual innovation behavior, power distance and emotional commitment, emotional commitment and dual innovation behavior, power distance and sustained commitment, sustained commitment and dual innovation behavior, power distance and normative commitment and dual innovation behavior, that is, power distance indirectly acts on dual innovation behavior through the intermediary mechanism of emotional

commitment, sustained commitment and normative commitment. Therefore, the following assumptions are put forward:

H4a: Emotional commitment plays an intermediary role between power distance and incremental innovation behavior.

H4b: Emotional commitment plays an intermediary role between power distance and mutation innovation behavior.

H4c: Continuous commitment plays an intermediary role between power distance and incremental innovation behavior.

H4d: Continuous commitment plays an intermediary role between power distance and mutation innovation behavior.

H4e: Normative commitment plays an intermediary role between power distance and incremental innovation behavior.

H4f: Normative commitment plays an intermediary role between power distance and mutation innovation behavior.

Based on the above research assumptions, the theoretical model of this study is shown in Figure 1.

3. RESEARCH METHODS

3.1. Scale design

The scale of power distance is selected from the research of Dorfman and other scholars [10], a mature scale widely recognized and used in China, with a total of six items. The scale of organizational commitment is selected from Meyer and Allen (1993) research, each of which uses 6 items to measure the variables of emotional commitment, sustained commitment and normative commitment, with 18 items [12]. The scale of dual innovation behavior originates from the scale compiled by Madjar, Greenberg and Chen (2011), and three items are used to measure the two variables of incremental innovation behavior and mutation innovation behavior respectively [7][9], and the scale of dual innovation behavior has good reliability and validity through analysis.

In view of previous studies [8], this paper selects gender, age, education and working years as control variables. In terms of item measurement, the Likert5-point scale is used for all variables (except control variables).

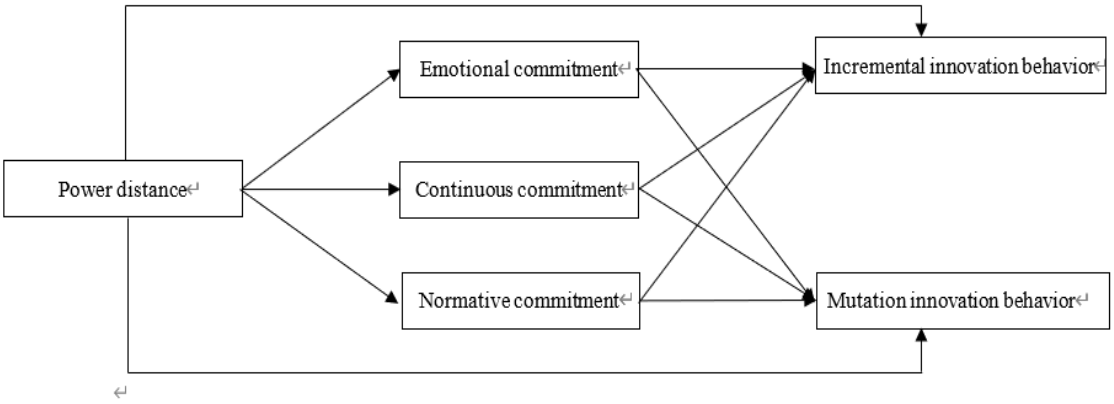

Figure 1 Theoretical model

3.2. Data acquisition

In this study, the internal R&D personnel of high-tech enterprises in Jiangsu, Anhui and Beijing are the subjects of this survey, and the data collection is carried out by the online survey platform " Questionnaire Star ". A total of 352 questionnaires were actually collected, and then 54 invalid questionnaires were eliminated, and finally, 298 valid samples were obtained, with an effective recovery rate of 84.659%. Among the valid samples, males accounted for 54.70%, with a relatively balanced gender. The age of employees is mainly between 25 and 35 years old, accounting for 81.88%. According to statistics, 50.34% of undergraduates and 30.87% of postgraduates have academic qualifications, which indicates that the samples have higher academic qualifications. Working experience of 3 years or less accounted for 38.59%, 4 to 9 years accounted for 43.96%, and most of the samples worked for less than 10 years. To sum up, the employee sample structure is reasonable.

4. DATA ANALYSIS AND RESULTS

4.1. Data quality analysis

First of all, the α value of each variable ranges from 0.777 to 0.809 (>0.7), and the CR value ranges from 0.843 to 0.886 (>0.6), which indicates that it has high internal consistency and combination reliability. AVE values of each variable range from 0.498 to 0.720 (both of which are greater than 0.5), indicating that it has good aggregation validity. Secondly, the fitting effect of the six-factor model is the best ($\chi 2/df$ =1.218, RMR=0.05, RMSEA=0.027, GFI=0.903, TLI=0.969, CFI=0.972), which proves that the structural validity of the questionnaire is good. Finally, using correlation analysis, it is found that the power distance is positively correlated with incremental innovation behavior (r=0.441, p<0.01), while the power distance is negatively correlated with mutation innovation behavior (r=-0.460, p<0.01), which is consistent with the expectation of the research hypothesis and lays a foundation for subsequent hypothesis testing.

4.2 Hypothesis test

4.2.1 Main effect test

As shown in Table 1, it can be seen from M2, M4 and M5 that power distance (β=0.449, p<0.001), continuous commitment (β=0.461, p<0.001) and normative commitment (β=0.560, p<0.001) significantly positively influence the incremental innovation behavior, H1a, H3c and H3e are supported. From M3, emotional commitment (β=-0.134, p<0.01) significantly negatively affects incremental innovation behavior, H3a is not supported. As M7, M9 and M8 show, power distance (β=-0.452, p<0.001), continuous commitment (β=-0.357, p<0.01) significantly negatively affect the mutation innovation behavior, and emotional commitment (β=0.494, p<0.001) significantly positively affect the mutation innovation behavior, H1b, H3d, H3b are supported. In M10, normative commitment (β=-0.339, p<0.001) and mutation innovation behavior are significantly negatively affected, H3f is not supported.

4.2.2 intermediary effect test

As shown in Table 2, M13, M17, and M21 show that power distance (β=-0.515, p<0.001) significantly negatively affects emotional commitment, power distance (β=0.449, p<0.001) significantly positively affects sustained commitment, and power distance (β=0.463, p<0.001) will significantly positively affect normative commitment, H2a, H2b, H2c are supported. From M11, M14, M15, M18, M19 and M22, we can see that emotional commitment (β=0.131, p<0.05), continuous commitment (β=0.323, p<0.001), normative commitment (β=0.452, p<0.001) are significantly related to incremental innovation behavior, and emotional commitment (β=0.357, p<0.001), continuous commitment (β=-0.189, p<0.05) and normative

commitment (β=-0.171, p<0.01) significantly affect the mutation innovation behavior. that is, organizational commitment partially mediates between power distance and dual innovation behavior, H4a, H4b, H4c, H4d, H4e and H4f are supported.

Table 1 Analysis of the main effect

Variable	Incremental innovation behavior							Mutation innovation behavior		
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
Gender	-0.280*	-0.195	-0.279*	-0.193	-0.209*	0.042	-0.043	0.037	-0.025	-0.001
Age	0.092	0.141*	0.123	0.081	0.031	0.225**	0.175**	0.111	0.233***	0.261***
Academic degree	0.037	-0.094	0.006	-0.066	-0.01	-0.14	-0.007	-0.022	-0.06	-0.111
Working year	0.01	-0.058	-0.021	-0.06	-0.018	-0.200*	-0.132*	-0.087	-0.146*	-0.183**
Power distance		0.449***					-0.452***			
Emotional commitment			-0.134*					0.494***		
Continuous commitment				0.461***					-0.357***	
Normative commitment					0.560***					-0.339***
R2	0.039	0.226	0.055	0.233	0.339	0.041	0.231	0.27	0.158	0.151
ΔR2	0.039*	0.187***	0.017*	0.195***	0.300***	0.041*	0.190***	0.228***	0.117***	0.110***
Variance ratio	2.942*	17.056***	3.418*	17.786***	29.923***	3.164*	17.582***	21.570***	10.953***	10.401***
ΔF	2.942*	70.711***	5.156*	74.221***	132.562***	3.164*	72.179***	91.294***	40.41***	37.764***

Note: * p <0.05, ** p <0.01.

Table 2 Analysis of mediating variable of organizational commitment

Variable	Incremental innovation behavior				Emotional commitment	Continuous commitment	Normative commitment
	M2	M11	M15	M19	M13	M17	M21
Gender	-0.195	-0.184	-0.162	-0.178	-0.087	-0.103	-0.038
Age	0.141*	0.118	0.118	0.069	0.174**	0.073	0.159*
Academic degree	-0.094	-0.083	-0.124	-0.071	-0.086	0.093	-0.051
Working year	-0.058	-0.038	-0.084	-0.048	-0.152**	0.083	-0.021
Power distance	0.449***	0.516***	0.304***	0.240***	-0.515***	0.449***	0.463***
Emotional commitment		0.131*					
Continuous commitment			0.323***				
Normative commitment				0.452***			
R2	0.226	0.238	0.302	0.381	0.313	0.271	0.241
ΔR2	0.187***	0.012*	0.076***	0.155***	0.247***	0.187***	0.199***
Variance ratio	17.056***	15.140***	20.974***	29.861***	26.584***	21.720***	18.584***
ΔF	70.711***	4.530*	31.623***	72.893***	104.921***	75.026***	76.738***

Continued form

Variable	Mutation innovation behavior				Emotional commitment	Continuous commitment	Normative commitment
	M7	M14	M18	M22	M13	M17	M21
Gender	-0.043	-0.012	-0.063	-0.05	-0.087	-0.103	-0.038
Age	0.175**	0.113	0.189*	0.202**	0.174**	0.073	0.159*
Academic degree	-0.007	0.023	0.01	-0.016	-0.086	0.093	-0.051
Working life	-0.132*	-0.078	-0.117	-0.136*	-0.152**	0.083	-0.021
Power distance	-0.452***	-0.268***	-0.367***	-0.373***	-0.515***	0.449***	0.463***
Emotional commitment		0.357***					
Continuous commitment			-0.189*				
Normative commitment				-0.171**			
R2	0.231	0.319	0.258	0.254	0.313	0.271	0.241
ΔR2	0.190***	0.088***	0.026**	0.022**	0.247***	0.187***	0.199***
Variance ratio	17.582***	22.709***	16.825***	16.475***	26.584***	21.720***	18.584***
ΔF	72.179***	37.389***	10.258**	8.640**	104.921***	75.026***	76.738***

Note: * p <0.05, ** p <0.01

5. CONCLUSION

When studying the influence mechanism of power distance on incremental innovation behavior, it is found that power distance will significantly positively influence incremental innovation behavior; At the same time, continuous commitment and normative commitment play a positive intermediary role between power distance and incremental innovation behavior, while emotional commitment plays a negative intermediary role between them, that is, there is a "covering effect". When studying the influence mechanism of power distance on mutation innovation behavior, it is found that power distance will significantly negatively affect mutation innovation behavior; At the same time, power distance will indirectly affect the mutation innovation behavior by influencing emotional commitment, sustained commitment and normative commitment.

REFERENCES

[1] Jinfeng Wang, Hao Cai, Lijie Feng, et al. Study on the relationship among external environment uncertainty, network convention and dual innovation[J]. Science and technology progress and countermeasures, 2020, 37(06): 37-45.

[2] Puhua Ji. Research on the influence of leadership member exchange based on psychological empowerment and power distance on employees' innovative behavior[D]. Chongqing: Southwest University, 2018.

[3] Yongyue Wang, Ling Zhang, Shuyuan Zhang. Virtue leadership, relationship and creativity: the moderating effect of power distance [J]. Applied Psychology, 2018, 24(01): 80-88.

[4] Sirgy M J. Self-Conception in Consumer Behavior: A Critical Review[J]. Journal of Consumer Research, 1982, 09(03): 287-300.

[5] Ocean Lu, Zhenglong Peng, Luning Yu. Research on the influence mechanism of empowered leaders on employees' voice behavior [J]. Industrial Engineering and Management, 2017, 22(03): 159-165.

[6] Yi Zheng, Jie Gao. Research on the influence of managers' autonomy on the choice of enterprise's technological innovation mode-from the perspective of gradual innovation behavior and mutation innovation behavior[J]. World Science and Technology Research and Development, 2018, 40(02): 202-215.

[7] Jing Du, Yiyi Qiu, Jing Yin. Does the Doctrine of the Mean inhibit innovation?——A multi-level empirical study[J]. Science Research, 2018, 36(02): 378-384.

[8] Garcia R. A critical look at technological innovation typology and innovativeness terminology: a literature review[J]. Journal of Product Innovation

Management, 2002, 19(02): 110-132.

[9] Madjar N, Greenberg E, Chen Z. Factors for radical creativity, incremental creativity, and routine noncreative performance[J]. Journal of Applied Psychology, 2011, 96(04): 730-743.

[10] Dorfman P W, Howell J P. Dimensions of national culture and effective leadership patterns: Hofstede revisited[J]. Advances in International Comparative Management, 1988, 03(01): 127-150.

[11] Jiantao Zhou. Research on the mechanism of power distance orientation on employee silence[D]. Hubei: Huazhong University of Science and Technology, 2013.

[12] Meyer J P, Allen N J, Smith C A. Commitment to Organizations and Occupations: Extension and Test of A3-Component Conceptualization[J]. Journal of Applied Psychology, 1993, 78(04): 538-553.

[13] Xia Yang, Wen Li. Research on the influence of transformational leadership on employee creativity from the perspective of organizational commitment dimension differentiation[J]. Leadership Science, 2017, 01(32): 50-52.

[14] Swann W B. The trouble with change: self-verification and allegiance to the self [J]. Psychological Science, 1997, 08(03): 177-180.

[15] Hu J, Judge T A. Leader-team complementarity: Exploring the interactive effects of leader personality traits and team power distance values on team processes and performance[J]. Journal of Applied Psychology, 2017, 102(06): 935-955.

[16] Qiaoling Lei, Gengshen Zhao. Study on the relationship between psychological empowerment and organizational commitment of knowledge workers[J]. Scientific and technological progress and countermeasures, 2007(09): 122-125.

[17] Shuwen Li, Jinlian Luo, Fu Liang. From the perspective of gender matching between leaders and subordinates, the influence of power distance consistency and insider identity cognition on employees' suggestions [J]. Journal of Management, 2020, 17(03): 365-373.