Advances in Economics, Business and Management Research (AEBMR), volume 37
International Conference on Transformations and Innovations in Management (ICTIM-17)

MULTILEVEL STUDY ON PSYCHOLOGICAL EMPOWERMENT AND PERCEPTION OFBARRIERS TO INNOVATION: THE MODERATING INFLUENCE OF COLLECTIVISM ORIENTATION AND JOB FORMALIZATION

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Abstract

This research builds and tests a conceptual model on the process how psychological empowerment affects perception of barriers to innovation after synthesizing concerned theories. Based on statistical analysis to the survey data collected from south China, we find that, as anticipated, personal level psychological empowerment and team level psychological empowerment positively affects each other, and the interaction between the two levels psychological empowerment has a combined negative effect on perception of barriers to innovation. Besides, collectivism orientation moderates the connection between personal and team psychological empowerment, also job formalization plays a moderating role in the relationship between team psychological empowerment and perception of barriers to innovation.

Keywords: psychological empowerment, perception of barriers to innovation, collectivism orientation, job formalization, China

JEL code: M120, M540, O03

1. Introduction

Empowerment has become a widely used concept in organizational science (see Warren and Burt, 1985; Burke, 1986; Block, 1987; Thomas and Velthouse, 1990; Zhang and Bartol,

2010).It is defined as a process of authority sharing and granting authority to subordinates (see Daft, 1995; Thomas and Velthouse, 1990). In this article, empowerment means psychological experience of subordinates (see Conger and Kanungo, 1988).

Managers and researchers realized the significant influence of empowerment on organization, but only a few of them concentrated on whether their employees have been aware of the psychological empowerment experience. And although some of concerned literatures revealed that psychological empowerment affects performance, especially innovation (see Conger and Kanungo, 1988; Zhang and Bartol, 2010; Amabile *et al*., 1986), but it is not clear about the influencing process or its mechanism. Thus, it is extremely meaningful to explore the issue how employees' perceived psychological empowerment effects on organizational innovation.

Innovation means changes in an organization, even in a stable environment, it is considered as responses to changes happened in its internal or external environment or as an action to change the environment (see Hage, 1980). Also, innovation is defined as a new method, idea, product, etc. Under the present background, it is acknowledged that innovation is necessary for every organization. But innovative activities are difficult to be carried out.

When an enterprise is short of materials and technology that is needed for organizational innovation, it literally implies innovation barriers. According to the survey held by OECD, innovation barriers are not only a reason for an enterprise to innovate at the beginning, but also a cause for failing to achieve innovation as anticipated (see A joint publication of OECD and Eurostat, 2005; Hadjimanolis, 2003). From the view of categories, innovation barriers can be divided into internal innovation barriers and external innovation barriers based on its resource. External innovation barriers usually include supply barriers (difficulty to obtain technical information, deficiency of external capital and material), demand barriers (consumers' demand, national and international market constraint), and environment barriers (government regulation, government policy, market condition). And internal innovation barriers usually refer to the innovative resource barriers (shortage of internal capital, technical staff and innovation period), and cultural barriers (staffs' conservative attitude toward innovation cost, internal resistance) (see Piatier, 1984). In this article, the perception of barriers to innovation refers to the internal innovation barriers.

Many researches about psychological empowerment zeroed in on its concepts, measurements, influence factors, and so on, but minority of them concentrated on its effect on innovation, especially perception of barriers to innovation. Therefore, it is necessary to investigate the relationship between the two concepts.

Employees in a team have to cooperate to accomplish a task, they depend on each other, it's rarely to be finished effectively if a team leader only authorizes a certain member, so we speculate that when individual is tend to be authorized psychologically, they would feel more team psychological empowerment, it implies that personal psychological empowerment has positive relationship with team psychological empowerment (see Chen *et al*., 2007). On the contrary, team psychological empowerment always emphasizes on the cognitive level of the

collective (see Hempel *et al*., 2012), when team's members are authorized, the level of personal psychological empowerment would be weakened (see Hempel *et al*., 2012). Furthermore, it is confirmed that personal psychological empowerment has positive impact on creativeness and innovative performance (see Conger and Kanungo, 1988). According to componential model of creativity pointed out by Amabile (1983, 1988, 1996), level of employees' creativeness mostly depends on attitude toward the task and intrinsic motivation in accepting the task, and psychological empowerment is considered as the source of intrinsic motivation that will affect the employee's creativity and innovation behavior. So the higher the degree of psychological empowerment becomes, the stronger the intrinsic motivation will be. However, research related to empirically on the correlation between psychological empowerment and perception of barriers to innovation hasn't yet been found. Therefore, the aim of this article is, from a perspective of psychological empowerment experience, to explore the correlativity between personal and team levels psychological empowerment as well as their impact on perception of barriers to innovation.

As an important component of oriental culture value system, collectivism builds a harmonious environment within organization to promote team members getting along and working together (see Hempel *et al*., 2012). As we know, team psychological empowerment can strengthen collective cognition of being authorized for team members, so the more collectivism the members are, the more cognition of being authorized the team will owe.

For the other moderator, it is proved that job formalization negatively affects team psychological empowerment (see Hempel *et al*., 2012). When the task is restrained, sense of freedom and control will be weakened, which causes members unable to perceive the importance of their team to the organization. That indicates, when job formalization is excessive, the negative correlation between team psychological empowerment and perception of barriers to innovation will be strengthened. Besides, China is considered as a centralized country with high power distance culture, leaders usually would like to control the organization, keep a high power distance to their subordinates and regulate staff, work contents and obvious completion criteria. Therefore, job formalization is widespread in enterprises and is reasonable and valuable to be taken into consideration as a moderator.

At this point, a conceptual model that introduces two potentially important moderators variables, collectivism orientation and job formalization, takes shape among the two perceived psychological empowerment and perception of barriers to innovation.

2. Theory and Hypotheses

2.1 Personal Psychological Empowerment and Team Psychological Empowerment

The earliest psychological empowerment model proposed by Conger and Kanungo (1988) regards empowerment as a way that can enhance employees' self-efficiency. From the view of expectancy theory, employees will not feel to be empowered until managers use management skills, such as feedback, reward and job enrichment to improve employees' self-efficacy

experience, which lead the staff become fully aware of that they could achieve their own expectations of performance by hard work, so psychological empowerment brings about initiative and durable impacts on behavior (see Warren and Burt, 1985). While Thomas and Velthouse (1990) viewed empowerment as an intrinsic task motivation, mainly derive from assessment to task, later empowering cognitive model was pointed out, which contains impact, competence, meaningfulness and choice. In the study, we test personal psychological empowerment with Spreitzer scale (1995).

Some researches assume that team psychological empowerment is a two dimensional concept (see Hyatt and Ruddy, 1997; Mathieu *et al*., 2006; Mills and Ungson, 2003).They pointed out that superiors transfer work task to the team that have right to manage themselves, while members take responsibility for their collective decision, accept the decision and solve the problem. This construction mainly focuses on decentralization and team responsibility taking. Nevertheless, it is widely recognized that team psychological empowerment includes four dimensions: potency, meaningfulness, autonomy and impact, which contributes to enhancing intrinsic task motivation (see Kirkman and Rosen, 1997), and this four dimensional concept of team psychological empowerment has been widely accepted to measure team psychological empowerment (see Chen *et al*., 2007; Hempel *et al*., 2012; Seibert *et al*., 2011) .

Personal psychological empowerment can stimulate employees' self-efficacy based on intrinsic motivation generated by staff role and tasks (see Spreitzer, 1995), while team psychological empowerment is defined as common awareness to the environment of members. However, team psychological empowerment is not only aggregated by personal psychological empowerment, but also may strengthen the team psychological empowerment and weakens the personal psychological empowerment by putting decision-making authority on the team (see Kirkman and Rosen, 1997 ; Kirkman, 1999).

Though team level of psychological empowerment has impact on personal level, there is no consensus on the relationship between team and personal psychological empowerment (see Chen and Kanfer, 2006). Team psychological empowerment may have a negative impact on its personal level (see Hempel *et al*., 2012).On the contrary, it is also verified that they two may positively interact on each other (see Chen *et al*., 2007), team psychological empowerment not only has an influence on the relationship between leadership style and team performance, but also has impacts on the connection between personal psychological empowerment and personal performance (see Piatier, 1984). So, multilevel variables research of team psychological empowerment and personal psychological empowerment should be raised attention to (see Chen *et al*., 2007). Accordingly, we propose,

H1: Personal psychological empowerment is positively related to team psychological empowerment

H2: Team psychological empowerment is positively related to personal psychological empowerment

2.2 Collectivism Orientation.

Individualism-collectivism, which focuses on the relationship between the personal and larger social groups, has been pointed out by Hofstede (1980) as one of the natural cultural dimensions. Individualism is defined as a loose social structure in which people only focus on the benefit of themselves and their relatives. In contrast, collectivism is an intensive social structure, in which people are divided into internal groups and external groups, and members are loyal to their groups or teams for hoping that people will give a hand to others in need (see Hofstede and Geert, 2005). Besides, individualist who emphasizes on self-value, including personal comfortable life, competition and social cognition is primarily influenced by their own thoughts, emotions, and behaviors. Individualist is inclined to develop their potential by achieving self-value through effort. While collectivism is a culture in which personal needs, desires and achievements must obey on team or organizational needs, desires and achievements. Collectivist thinks highly of team-working, loyalty and equality, they meet their own needs from the collective (see Triandis *et al*., 1985). Individualism and collectivism have been widely used as a cultural variable in researches. Therefore, we infer that if members are collectivism, they think highly of team goals and performance made by organization but not personal rights they possess, thus members are likely to feel more team psychological empowerment than personal level.

As we known, study on the influences of cross-level psychological empowerment mechanism made by collectivism orientation can help us to figure out which empowerment mode is the key point to strengthen both personal and team psychological empowerment, and to interpret the differences of personal and team psychological empowerment in an organization.

We find that collectivism orientation is always the moderator of employees' attitude and behavior. Employees can not perceive personal psychological empowerment owing to autonomy and sense of freedom deprived by the team, when they have high level of individualism tendency, but low level of collectivism tendency. At the same time, the decline of autonomy affects the perception of team psychological empowerment, which weakens the positive impact of team psychological empowerment on personal psychological empowerment (see Sigler and Pearson, 2000). Considering that China is a collective country, it can be predicted that,

H3: Collectivism orientation strengthens the relationship between team psychological empowerment and personal psychological empowerment

2.3 Psychological Empowerment and Perception of Barriers to Innovation

As mentioned above, the perception of barriers to innovation refers to internal innovation barriers in this study. Segarra-Balsco *et al*. (2008) analyzed cost barriers, knowledge barriers and market barriers of innovation, then, it is empirically verified in 2954 enterprises in Catalania that barriers of enterprises are generally perceived as the cost and knowledge barriers, and innovative enterprises emerges more cognition of innovation barriers than

non-innovative enterprises. Otherwise, innovation barriers mainly have relationship with senior employees, innovation partners and technical knowledge reservation, and this relationship would affect the technological frontier distance (see Werner and Klaus, 2010). Amabile (1983, 1988, 1996) have concluded that creativeness of employee mostly depends on employee's attitude toward task and intrinsic motivation to undertake the task (see Amabile, 1983, 1988, 1996). And psychological empowerment is view as the source of intrinsic motivation, which affects creativeness and innovation ability of employees (see Conger and Kanungo, 1988). Recently, no evidence is found that there is direct correlation between psychological empowerment and perception of barriers to innovation. But related researches have inferred that psychological empowerment has negative impacts on perception of barriers to innovation. First of all, innovation barriers hinder organizational innovation, breaking innovation barriers requires employees to have a strong intrinsic motivation. Team psychological empowerment is based on the perception of the team efficiency, and the support and co-operation of members can efficiently reduce the resistance to occur in the process of innovation. Secondly, empowering team may reduce internal innovation barriers that mainly consist of innovative resource barriers and cultural barriers (see Piatier, 1984). Therefore, it is meaningful to test the following hypothesis

H4: Team psychological empowerment is negatively related to perception of barriers to innovation

It is empirically tested that personal psychological empowerment has positive relation with personal creativeness and innovation performance (see Zhang and Bartol, 2010), that is to say, when individuals sense more psychological empowerment, they will be more creative and feel less team barriers. Furthermore, personal psychological empowerment does not directly affect perception of barriers to innovation, unless through an intermediate: team psychological empowerment. Thus, we further infer two hypotheses:

H5: Personal psychological empowerment is negatively related to perception of barriers to innovation

H6: Team psychological empowerment plays an intermediary role in the relationship between personal psychological empowerment and perception of barriers to innovation

2.4 Job Formalization

Standardization refers to the degree of which the organization rules, policies and procedures were clearly defined (see Khandwalla, 1974). Although standardization is often seen as a restriction to personal ability and performance, it is sometimes necessary to standardize the organization to provide clear direction and objectives. At different levels of formalization, the impact on the organization is also much different (see Hempel *et al*., 2012). According to related researches, standardization mainly includes two levels: Organizational standardizing (organizational formalization) and job standardizing (job formalization) (see Delery and Doty, 1996; Lin and Germain, 2003; Griffin *et al*., 2007). The former refers to the behaviors used to

regulate employees, rules and regulations for decision-making and members' communicating. While, the latter refers to requiring employees strictly comply with their working roles and procedures, and teammates must be led and restricted by the leaders (see Hempel *et al*., 2012; Griffin *et al*., 2007). This article concentrates on the latter only. Because job formalization is concerned about the norm of job duty and job description, which has negative effects on organization.

Moreover, Hempel *et al*. (2012) has found that organizational formalization and external standardization helps to define the boundary of team work and the relationship between the team and other parts of the organization, to reduce the inadaptability caused by the ambiguity, to clear responsibilities. Therefore, organizational formalization has good effect on improving the cognition of team psychological empowerment. While job formalization restricts employees with specific rules and procedures, so when employees face with uncertain environment, it is hard for them to solve emergencies, to meet consumers' complaints, which leads employees to become non-innovative and reduce innovative behaviors. At the same time, job formalization is negatively related to team psychological empowerment that has been empirically verified (see Hempel *et al*., 2012). Employees who worked in an over-strained organization will lose perception of autonomy, and it reduces employees' perception of team empowerment (see Hempel *et al*., 2012; Griffin *et al*., 2007). Therefore, we hereby posit the last hypothesis,

H7: Job formalization weakens the relationship between team psychological empowerment and perception of barriers to innovation

According, the hypothesized model is depicted as follow (see Figure 1).

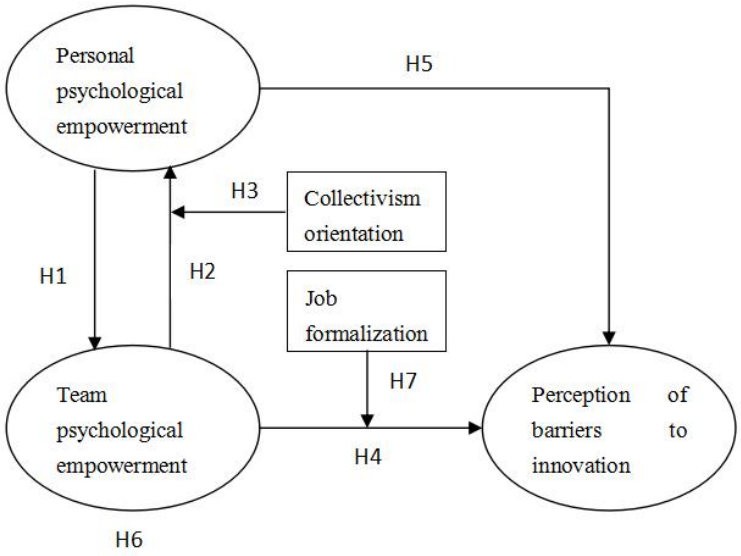

Figure1.Hypothesized model

3. Methods

3.1Survey Research Setting and Participants

The questionnaire survey was conducted in Guangdong province. Web-based and face to face survey methods are used to collect the related data. Participants were professional-level employees and teams from finance, government-affiliated institutions, electronics and human resource service industries. 400 questionnaires were sent, and 344 replies were received, which constituted an 86% response rate. Upon receipt of employee responses, we received 325 useful questionnaires, for a 94.48% effective rate. Participants comprising the final sample worked in three types of enterprises: state-owned (45.1%), private (38.1%) and foreign enterprise (16.8%), which indicates that the object of this investigation is mainly based on domestic enterprises, can effectively survey the situation of Chinese enterprises. Besides, 89 teams' data are collected which consist of the following fields: marketing (26.7%), administrative department (19.2%), production operation (14.2%), technical research and development (11.9%), manufacturing management (8.4%). In term of team size, 11-20 members in a team take the highest proportion (27.6%), and more than 30 members take the lowest proportion (14.5%), there is no huge difference in team members. Considering that we investigated the relationship between psychological empowerment and perception of barriers to innovation in China, we translated all the scales we used in this research into Chinese, so that we can receive accurate survey results.

3.2 Measures

3.2.1 Personal Psychological Empowerment

For variable of personal psychological empowerment, Spreitzer (1995) measure is adopted . The 12 items measure has multi-item subscales corresponding to four dimensions: (1)impact, (2)competence, (3)meaningfulness, and (4)choice (α's=0.864, 0.847, 0.827, and 0.850 respectively). The Cronbach's α for our sample is acceptable (α's=0.914), thus we measured personal psychological empowerment using Spretizer (1995) scale. The fit indexes for personal psychological empowerment fell within an acceptable range (X^2=159.46，$p \leq .001$; RMSEA=0.075, GFI=0.924, IFI=0.952, CFI=0.952, NFI=0.933, TLI=0.933, PNFI=0.678).

3.2.2 Team Psychological Empowerment

To test variable of team psychological empowerment, Kirkman *et al*. (2004) measure scale is used. The 12 items measure has multi-item subscales corresponding to four dimensions: (1)potency, (2)meaningfulness, (3)autonomy, and (4)impact (α's=0.742, 0.756, 0.754,and 0.748 respectively).The Cronbach's α for our sample is acceptable (α's=0.859), thus we measured personal psychological empowerment using Kirkman *et al*. (2004) scale. The fit indexes for team psychological empowerment fell within an acceptable range (X^2= 113.442，$p \leq 0.001$; RMSEA=0.085, GFI=0.933, IFI=0.943, CFI=0.942, NFI=0.925, TLI=0.910, PNFI=0.596).

3.2.3 Perception of Barriers to Innovation

In order to measure the concept of perception of barriers to innovation, Madrid-Guijarro *et al*. (2009) scale is used. The 9 items measure has multi-item subscales corresponding to three dimensions: (1)innovation cost, (2)innovation talent, and (3)innovation resource (α's=0.865, 0.795,and 0.821 respectively).The Cronbach's α for our sample is acceptable (α's=0.823), thus we measured personal psychological empowerment using Madrid-Guijarro (2009) scale. The fit indexes for perception of barriers to innovation fell within an acceptable range (X^2=138.07， p≤0.001; RMSEA=0.121, GFI=0.916, IFI=0.928, CFI=0.928, NFI=0.914, TLI=0.892, PNFI=0.610).

3.2.4 Collectivistic Orientation

For testing variable of collectivistic orientation, Maznevski and Distefano (1995) measure is adopted. This 6 items measure has multi-item subscales corresponding to three dimensions: (1)doing orientation, (2)collectivism, and (3)power distance. But the Cronbach's α for our sample is not acceptable (α's=0.506). In order to enhance reliability, we removed 2 items (corrected item-total correlation=0.198, and .065) from the scale, after removing two items from Maznevski and Distefano (1995) scale, we get a higher reliability scale (α's=0.651) with 4 items that is acceptable.

3.2.5 Job formalization

Delery and Doty (1996) scale is used to measure the variable of job formalization. This scale is consist of 4 items, the Cronbach's α for our sample is acceptable (α's=0.781), but it is found that after we delete one of items, the Cronbach's α increased to α=0.866, which is more acceptable and reliable.

3.2.6 Control Variables

We control a number of demographic and organizational variables that might unduly affect our estimates of interest. Demographic variables include age, gender and level of education. Considering that gender may affect employee cognitive style (see Sim and Wright, 2002), and owing to older individuals may receive lower performance ratings than their younger peers (see Ferris *et al*., 1985), we take age into control variables. Last but not least, education has theoretical relationship with innovative behavior (see Scott and Bruce, 1994).

3.3 Aggregation Analysis

Regulated intermediaries, moderated mediation and mediated mediating effects were mentioned (see Baron and Kenny, 1986). However, Muller *et al*. (2005) defined these two effects more accurately. This study model is an example of mediator effect that should follow the analysis process proposed by Muller *et al*. (2005). As the variables involving individual and the team levels, the data is processed using a multi-layer linear model (HLM).

Because we estimated the relationship between personal level and team level in our model, we have to run extra model, thus we used a consensus model to measure personal level variable with team level variable, we ought to test its consistency by within-group agreement and intra-class correlation first. As is shown on Table 1, values of Rwg are over 0.7, which means consistency within the group is sufficient. And values of ICC1 are above of 0.12 (see James, 1982), but values of ICC2 are not satisfying, Chen and Bliese (2002), Kozzlowski and Hattrup (2000) had pointed that value of ICC2 is low, but if polymerization is theoretically supported, data shows high Rwg and significant group-variance, polymerization is workable. Thus, we can use data in HLM software to do multilevel analysis.

Table 1. Consistency and correlation coefficient in each variable group

Variable	Rwg	ICC1	ICC2
Personal psychological empowerment	0.933	0.230	0.629
Team psychological empowerment	0.9371	0.124	0.524
Perception of barriers to innovation	0.9235	0.304	0.719
Job formalization	0.765	0.194	0.672

Standard: Rwg>0.7, ICC1>0.12, ICC2>0.7

4. Empirical Analysis and Results

4.1 Correlation Analysis

Table 1 provides the descriptive statistics, correlations and reliabilities for the variables in this study. We notice that Table 2 provide prima facie evidence for hypothesis 1, indicating that personal psychological empowerment is positively related to team psychological empowerment ($r=.631, p<0.01$). As Table 2 shown, job formalization is positively related to personal and team psychological empowerment, collectivistic orientation is positively related to personal and team psychological empowerment, beside, we also find that perception of barriers to innovation is negatively related to personal and team psychological empowerment, but correlation coefficient is not significant, which means that we need to further test its relationship with regression model.

Table 2. Descriptive statistics, correlations and reliabilities

Variable	N	M	SD	1	2	3	4	5
1.Personal psychological empowerment	326	3.81	0.487	1				
2.Team psychological empowerment	326	3.85	0.392	0.631**	1			
3.Perception of barriers to innovation	326	3.02	0.606	-0.100	-0.075	1		
4.Job formalization	326	3.68	0.806	0.386**	0.386**	-0.027	1	
5.Collectivistic orientation	326	3.99	0.547	0.442**	0.424**	-0.082	0.495**	1

N=326, **p≤0.01

4.2 Multilevel Tests between Personal and Team Psychological Empowerment

After aggregation analysis, for testing how team psychological empowerment affects personal psychological empowerment cross level, we run an intercept result model additionally by HLM software, we find that team psychological empowerment is positively related to personal psychological empowerment (r=0.788, p<0.001), which supported hypothesis 2. Behind this, as values of Chi-square analysis shown that τ00=0.195，X2=104.66，p<0.05, which indicates team psychological empowerment is different in each group.

4.3 Mediating Effect of Team Psychological Empowerment

According to Table 3, we predict that personal psychological empowerment is positively related to perception of barriers to innovation(c=-0.119, p<0.05). Which support hypothesis 5. And in model 3, we discover that personal psychological empowerment has positive impact on team psychological (a=0.605, p≤0.001), value of a is significant, but in model 4, we calculate that b=-0.033, p=0.161＞0.1, value of b is not significant. Thus we need to test data Sobel value (=0.4645), which is significant, accordingly, hypothesis 6 is supported (p=0.032<0.05): Team psychological empowerment plays an intermediary role in the relationship between personal psychological empowerment and perception of barriers to innovation.

Table 3. The mediating effect of team psychological empowerment

Mediating effect	Model 1	Model 2	Model 3	Model4
	B	B	B	B
Team size	-0.060	-0.063	0.025**	-0.155**
Team type	-0.157**	-0.155**	-0.080	-0.065
Personal psychological empowerment		-0.119**	0.605***	-0.099
Team psychological empowerment				-0.033
R2	0.019	0.030	0.371***	0.027
□R2	0.025	0.014	0.366	0.015
F	3.978**	4.53**	181.77***	2.366**

***p<0.001, **p<0.1

4.4 Moderating Effect of Collectivism Orientation

As is shown on Table 4, date analyzed by HLM software, we see that in model 1, τ00=0.107, which means group variance is significant, σ2=0.353, so we can calculateICC1=0.232. In model 2, we verify hypothesis 2 that team psychological empowerment is related with personal psychological empowerment (r=0.345, p≤0.001). In model 3, a model discusses the relationship between collectivism orientation and personal psychological empowerment after controlling team psychological empowerment on level-1, we propose that collectivism orientation directly affect personal psychological empowerment (τ01=0.783, p≤ .001). In the model 4, we conclude that hypothesis 3 is supported (interaction of collectivism orientation

and team psychological empowerment: γ11=0.024, p≤0.05), which states that collectivism orientation strengthens the relationship between team psychological empowerment and personal psychological empowerment.

Table 4. Cross-level moderator of collectivistic orientation

Variable	Null model（M1） regression coefficient	Stochastic model（M2） regression coefficient	Intercept model（M3） regression coefficient	Slope model（M4） regression coefficient
Intercept term	3.833***	3.833***	0.806	0.805**
		Level-1 Predictive factor		
		0.345***	0.343***	0.254
		Level-2 Predictive factor		
Team psychological empowerment			0.783***	0.783***
		Cross level interaction		
CO*TPE				0.024**
Random effect	Variance proportion	Variance proportion	Variance proportion	Variance proportion
2nd τ00	0.107	0.12	0.049	0.049
2nd τ11		0.064	0.084	0.07
1st σ^2	0.353	0.288	0.28	0.28
R^2 level1		0.1841		
R^2 level2 interception			0.5917	
R^2 level2interation				0.175
Dissociation （2LL）	626.577	594.97	555.76	525.53

***p<0.001，**p<0.05，*p<0.1; CO*TPE represents Collectivism orientation* Team psychological empowerment

4.5 Moderating Effect of Job Formalization

Support evidence is found from model 2 on Table 5 for hypothesis 4. Team psychological empowerment is negatively related to perception of barriers to innovation (a=-.093, p=.098<0.1) .

In model 3 we read that value of b=-0.096, p=0.897＞0.1, and c=0.008, p=0.111＞0.1), thus, value of regression coefficient is not significant. Besides, no significance was found from model 4 on Table 5 (a'=0.062, p=0.310>0.1), hypothesis 7 is not supported. Job formalization weakens the relationship between team psychological empowerment and perception of barriers to innovation.

Table 5 Moderating effect of job formalization

	Moderating effect			
	Model 1	Model 2	Model3	Model4
Team size	-0.157**	-0.154**	-0.155	-0.142**
Team type	-0.06	-0.069	-0.069**	-0.068
Team psychological empowerment		-0.093**	-0.096	-0.117**
Job formalization			0.008	-0.010
Team psychological empowerment*Job formalization				-0.062
R^2	0.019	0.024	0.021	0.021
Adj. R^2		0.034**	0.009	0.003
F		3.583**	1.378	1.034

**p<0.1

5. Discussion

Accordingly, the research makes some distinct contributions based on past literatures. Firstly, the overall contribution is that a conceptual model on the process of how psychological empowerment effects perception of barriers to innovation has been built and tested. Secondly, we collected data from developed cities in China, which are very representative. Thirdly, this study creatively viewed collectivism as moderator of the relationship between personal and team psychological empowerment. That is able to make up the blank field in Sigler and Pearson (2000) and Chen *et al*. (2007)'s study, which did not take collectivism culture as a moderating variable to do research.

Besides, It is discovered that the power of psychological empowerment of teams is more effective than that of individual employees, team psychological empowerment has a great influence on individual psychological empowerment, but personal empowerment only has a slight effect on team psychological empowerment, and also Chinese employees are inclined to be collectivism, which means that it will be more effective if managers authorize to a team directly than to an individual, so that enterprise culture plays an important role on psychological empowerment.

Last but not least, we investigated how employees' perception of barrier to innovation is affected by psychological empowerment. We posited that team psychological empowerment has negative effect on perception of barriers to innovation. Otherwise, personal psychological empowerment affects perception of barriers to innovation as a mediator variable.

5.1 Applied Implications

In reality, our theoretical model has a certain reference value for managers. First of all, managers should pay close attention to the condition of personal and team psychological empowerment. We should strengthen the degree of perception of being authorized of

employees through allocating task depends on employees' capacity, offering more challenging tasks for core-team of organization, carrying out a more flexible management system on high-performed or exploitative teams, delivering the vision and mission on organization and encouraging creative, flexible operation mode.

Secondly, empowering to team is much more efficient than delegating to a single subordinate. And for organization, executives should consider how to design an organizational structure to strengthen team building rather than strengthen the incentive for a few elites.

Thirdly, managers are better to do their utmost to eliminate innovation barriers existed in organizations, to enhance ability to innovation and performance. For example, conducts free innovation training and innovation communicating meeting regularly, retains acknowledge employees with higher compensation and bonus, recruits creative leaders to create and lead passionate team for organization, improves systems that arouse innovative behaviors, also managers can raise fund for innovation, R & D department and invest in some innovative projects

Last but not least, individuals with higher collectivism tendency show stronger perceived team psychological empowerment, so managers are supposed to strengthen the construction of team culture and team spirit and to build culture to foster collectivism in organizations. For example, managers should grant bonus in a team way which can help employees to perceive their contributions to their team, treat every employee equitably, which is able to cultivate team spirit in the enterprise, hold some outdoor activities that enable members to find out the delight of staying a team and enhance their membership.

5.2 Limitation and Future Research Directions

At the same time, there are some deficiencies in our research still.

Firstly, we used Kirkman *et al*.(2004) scale to test the concept of team psychological empowerment, which consists of four dimensions: (1)potency, (2)meaningfulness, (3)autonomy and (4)impact (α's=0.742, 0.756, 0.754,and 0.748 respectively) [35]. Actually, we need to enhance the fitness of our dimensional concept of psychological empowerment. In further study, we could test psychological empowerment with two dimensions. For testing perception of barrier to innovation and job formalization, in this study we cited Madrid-Guijarro (2009) scale and Delery and Doty (1996) scale, Because these two concepts and its measurements are still at the initial stage in China and abroad, there is no mature and universally accepted scale that can be cited, in future study, we ought to cite more mature scale to test perception of barriers to innovation and job formalization, and develop more suitable scale for testing Chinese enterprises.

Secondly, the correlation between team psychological empowerment and perception of barriers to innovation is not significant, though our research tests that team psychological empowerment is negatively related to perception of barriers to innovation. Therefore, we infer

that there are other factors that influence the perception of barriers to innovation. Meanwhile, in order to study more deeply on enterprise innovation barriers, we need to specify the concept and measurement of perception of barriers to innovation.

Thirdly, 344 employees and 89 teams are collected from various industries, and each team contains 3.86 employees on average, we didn't collect all members of each team, which leads to the deficiency of sample, and weakened the theoretical robustness of multi-layer linear models of this study. In the future, we could select a more accurate team sample and team environment, and expand the sample size, as much as possible to collect all the data in a team to improve the accuracy of data analysis.

Lastly, the relation between psychological empowerment and perceived barriers of innovation is tested to be insignificant, so we assume that some other factors may have a more remarkable effect on perception of barriers to innovation. For further study, we can investigate other antecedent variables that affect perception of barriers to innovation, such as organizational citizenship behavior, team psychological capital, team trust and so on. Moreover, we test how job formalization moderate the relation between team psychological empowerment and perception of barriers to innovation, in further research, we could probably explore how other moderators or mediators affect perception of barriers to innovation, such as leadership style, team atmosphere and so forth.

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