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# Exploring the Influence of Customer Participation on Employee Service Innovation Behavior: The Mediating Effect of Customer Psychological Empowerment and the Moderating Effect of Organizational Innovation Climate

Chunmei ZHOU<sup>1</sup>, Hui ZHANG<sup>2</sup>

## Abstract

Previous studies have found out the positive relationship between customer participation and employee service innovation behavior. In the era of the experience economy, moreover, customer participation is an effective method to solve the lag problem of employee service innovation. Using questionnaire data collected between April and July 2016 from 20 service enterprises in Fuzhou, Xiamen, and Quanzhou of China, we carried out an empirical analysis of the mechanism of the influence of customer participation on service innovation behavior from the perspective of customer psychological empowerment and organizational innovation climate, on the basis of cognitive evaluation theory. We found that the higher the degree of customer participation, the better the front-line employee service innovation behavior in service enterprises. The enhancement of the level of front-line employee service innovation mainly relies on the promotion of options, right to know, influence, and other dimensions of customer psychological empowerment. In addition, organizational innovation climate positively moderates the relationship between customer psychological empowerment dimensions and employee service innovation, indicating that the mediating effects of customer psychological empowerment dimensions on employee service innovation behavior are state dependent. The findings of this study provide a significant decision-making reference for service enterprises to prevent the lag of employee service innovation.

*Keywords:* service enterprise, customer participation, customer psychological empowerment, employee service innovation behavior, organizational innovation climate

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## Introduction

In recent years, five-star hotel operations have been stricken by economic problems, highlighted by the first five-star hotel bankruptcy in China - that of the Cixi Landison Plaza Hotel. At the same time, the predictable national leisure and mass tourism market that developed after the release of The Outline for National Tourism and Leisure (2013–2020) has brought new opportunities for the development of five-star hotels. Against this background, some five-star hotels have turned to the lower and middle ranks market, for example, by selling food and business lunch boxes to expand into catering product development. Aside from developing new products, how do five-star hotels balance the standardization and individuation of service in order to better adapt to the rapid development of the mass tourism market? Regarding this point, the Haidilao Hot Pot provides some enlightenment. In recent years, the “Haidilao Hot Pot phenomenon” has sprung up in Chinese catering industry; a “Human beings can’t stop the Haidilao Hot Pot” micro-blog torrent has even appeared, and an advanced booking or 2–3 hours’ wait time has become the label of the Haidilao Hot Pot. For the purpose of deep understanding of the “Haidilao Hot Pot phenomenon,” Huang Tieying, professor at Peking University’s Guanghua School of Management, completed “A Case Study of Haidilao Hot Pot’s Management” by sending people to work undercover at Haidilao Hot Pot. This case became highly influential after its publication in *Harvard Business Review (Chinese Edition)*. How can a hot pot restaurant with expensive prices and no obvious advantage in terms of taste be so successful? The reason lies in the Haidilao Hot Pot’s customer experience innovation based on putting the customer first. In the Haidilao Hot Pot waiting area, the direct driving force of innovative services such as providing manicures, setting cribs in the restaurant’s special crib areas, and supplying kimchi to pregnant women have increased customer demand. Different from the innovation of tangible products and technology in the manufacturing industry, service innovation has a more prominent customer orientation (Mina, Bascavusoglu-Moreau & Hughes, 2014). In the era of the experience economy, the mutual communication between service enterprises and customers is increasing rapidly, which provides the conditions for customers to participate in service innovation as “part-time employees.”

This leads us to wonder, how can a five-star hotel in the era of the experience economy improve employee service innovation with the help of customer participation and realize the transformation from high-end consumption to mass consumption? With respect to this question, existing studies have only identified the main forms of customer participation in the process of employee service production and delivery (i.e., time and energy input, information provision, and co-production) (Le & Thuy, 2016; Abeysekera, Patton & Mullineux, 2016), lacking effective guidance for practical problems. According to the theory of cognitive

evaluation, psychological empowerment is an important variable for predicting the service innovation behavior of employees, as it can stimulate the enthusiasm of employees. However, employee psychological empowerment is not a stable and universal cross-contextual characteristic, and it can be affected by the organizational innovation climate (Liu & Shi, 2009). In the era of the experience economy, customers can be considered “part-time” employees. In the present study, we focus on the two key variables of customer psychological empowerment and organizational innovation climate to explore the role of customer participation in service innovation. On this basis, we propose feasible schemes to solve the problem of employee service innovation lag at five-star hotels.

To sum up, this study focuses on the following two questions: (1) What is the nature of five-star hotel customer participation, and does it have a significant influence on employee service innovation behavior? (2) How do customer psychological empowerment and organizational innovation climate affect the relationship between customer participation and employee service innovation behavior? To address these questions, we construct a moderated mediation model in order to deeply analyze the relationships among customer participation, customer psychological empowerment (i.e., options, right to know, and influence), organizational innovation climate, and employee service innovation behavior. We hope to provide a reference for how to effectively intervene in the lag of employee service innovation from the perspective of customer management. The remainder of this study is arranged as follows: Section 2 reviews the existing literature and puts forward relevant hypotheses about the impact of customer participation on employee service innovation behavior. Section 3 expounds the research methods and data. In Section 4, we construct a model of the relationship between customer participation and employee service innovation behavior and validate the hypothesis. In Section 5, we discuss a specific intervention measure for employee service innovation lag from a customer management perspective according to the empirical test results. Conclusions are summarized in Section 6.

## **Literature Review and Hypotheses**

### ***Customer participation and employee service innovation behavior***

The service quality of service enterprises depends partly on the degree of interaction between customers and employees (Yen, Gwinner & Su, 2013; Amorim, Rosa & Santos, 2014). The purpose of customer participation in the service production process is to reduce uncertainty regarding service quality. However, customer participation often brings instability factors to enterprise service production (Fan & Du, 2012), because enterprises cannot regulate the behavior of customers as effectively as that of formal employees. Customer participation can

reduce service performance by increasing employee role stress (Hsieh & Yen, 2005). Role stress arises while the role undertaker (employee) does not meet the role expectation of the role transfer (customer) (Peiro, Gonzalez-Roma & Tordera, 2001). Through an empirical study based on role stress theory, Chan, Yim & Lam (2010) found a significant positive correlation between the dimensions of employee role stress (i.e., role conflict, role ambiguity, and role overload) and customer participation. Contrary to Chan et al.'s finding, a study based on the perspective of the "part-time employee" found that a wide range of customer participation can transfer the workload of service providers, and the greater the workload the service provider transfers to the customer, the lower the service provider's job pressure (Hsieh & Yen, 2005). Moreover, the implementation of standard management measures (Wetzels, Ruyter & Lemmink, 1999) and the strengthening of employee role positioning (Chung & Schneider, 2002) can reduce or eliminate the negative impact of customer participation on employee role stress to a certain extent. In general, the existing research on the relationship between customer participation and service innovation has shown that customer participation can positively affect employee service innovation behavior. Customer participation in the whole process of service innovation (from raising the idea of service innovation, to the development and production of the new service, to service innovation delivery, service innovation evaluation, and service innovation adjustment) helps improve the fit between employee service innovation behavior and market demand, and can effectively reduce the cost and risk of new product research and development for service enterprises (Dai, Peng, Ma & Zeng, 2014). Additionally, with the rapid development of information technology and social media, the self-service characteristics of the service industry are becoming increasingly evident. Service enterprises should not put customers in the position of passive recipients of services, but should expand the boundaries of enterprises and absorb customers as "part-time" employees. In the transition from consumers to part-time employees, the position of customers becomes more prominent, and their influence on service innovation output becomes greater. Accordingly, we propose the following hypothesis:

*H<sub>1</sub>: Customer participation has a positive effect on employee service innovation behavior.*

***Customer participation, customer psychological empowerment, and employee service innovation behavior***

In a complex service environment, customers are no longer independent consumers outside the organization. Positive and responsible customer participation can help companies create value (Le & Thuy, 2016). Beyond the direct relationship between customer participation and service innovation behavior, customer participation may also play an indirect effect through a mediator.

Since Thomas & Velthouse (1990) put forward the concept of psychological empowerment, the effect of employee psychological empowerment has been widely recognized as a new management method distinct from employee ownership, self-determination, or self-management. Psychological empowerment originates from the cognitive evaluation theory of social psychology and is a construct reflecting internal motivation. According to the theory of cognitive evaluation, individual motivations are divided into two categories: extrinsic motivation and intrinsic motivation. Psychological empowerment involves enhanced intrinsic motivation and can significantly promote service innovation behavior (Paramitha & Indarti, 2014). With the continuous enhancement of the part-time employee status of the customer, the theory of employee psychological empowerment has been applied to the study of customer empowerment. However, the relationship between customers and organizations is different from the relationship between employees and organizations (Hair, Barth, Neubert & Sarstedt, 2016). Employees can only passively accept organization empowerment, while the relationship between customers and organizations is more equal. When there is a gap between service quality and expected value, customer empowerment based on information and communication technology means customers can easily replace suppliers to meet their own needs (Pires, Stanton & Rita, 2006; Smith, Men & Al-Sinan, 2015). Hence, in the process of customer empowerment, in addition to implementing specific empowerment measures (i.e., increasing the available service options, increasing the flexibility of service, and providing effective service information), service enterprises also have to focus on improving options, right to know, and customer influence as well as other customers' sense of control over the service experience (Han & Feng, 2012) to help customers make consumption decisions.

Customer participation, especially offline participation, is the antecedent variable of customer psychological empowerment. In the Internet environment, customers must participate in the service process to change their distrust of the organization, which then generates and strengthens the perception of empowerment (Kucuk, 2013). In general, when customers put more time and effort into offline participation, their perception of psychological empowerment can increase. The enhancement of psychological empowerment can promote the deep involvement of customers in service innovation idea generation, new service

development, service innovation delivery, service innovation evaluation, service innovation adjustment, and other stages of service innovation. Through mutual understanding and mutual trust, employees can provide customers with more targeted and personalized services so as to improve the level of employee service innovation.

From the above analysis, it can be inferred that customer psychological empowerment is the key variable in the “black box” of the customer participation role. Customer participation affects employee service innovation behavior through the mediating effects of options, right to know, and influence, as well as other dimensions of customer psychological empowerment. On this basis, the following hypotheses are proposed:

*H<sub>2a</sub>: The options dimension of customer psychological empowerment plays a mediating role in the relationship between customer participation and employee service innovation behavior.*

*H<sub>2b</sub>: The right to know dimension of customer psychological empowerment plays a mediating role in the relationship between customer participation and employee service innovation behavior.*

*H<sub>2c</sub>: The influence dimension of customer psychological empowerment plays a mediating role in the relationship between customer participation and employee service innovation behavior.*

***Organizational innovation climate, customer psychological empowerment, and employee service innovation behavior***

The study of organizational innovation climate derives from the idea of psychological climate in the field of psychology. Organizational innovation climate mainly consists of perceptual perspective and structural (or objective) perspective. Influenced by the concept of psychological climate, researchers generally view organizational innovation climate in terms of individual subjective perception of organizational innovation environment factors, such as organizational policy, managerial behavior, and organizational processes (Liu & Shi, 2009). Multiple organizational innovation climates can coexist and jointly deliver an organization’s expectations for employee service innovation behavior and potential innovation results (Kang, Matusik, Kim & Phillips, 2016). If employees perceive innovation support from their organization, supervisors, and colleagues, the subjective initiative of employee service innovation is stimulated, increasing service innovation input and ultimately enhancing the overall innovation level of the organization (Amabile, Schatzel, Moneta & Kramer, 2004). However, compared with employee psychological capital, organizational innovation climate has a less positive impact on employee service innovation behavior (Hsu & Chen, 2015). A study conducted with 282 employees from four cities in China found that the

relationship between organizational innovation climate and employee service innovation behavior is unstable, and job stressors can significantly weaken the influence of organizational innovation climate on employee service innovation behavior. In the face of high-intensity job stressors, the positive influence of organizational innovation climate on employee service innovation may disappear completely (Ren & Zhang, 2015).

The above research regarded organizational innovation climate as an antecedent variable of employee service innovation behavior and focused on the influence mechanism of organizational innovation climate on employee service innovation behavior. As a situational factor, organizational innovation climate may also play a moderating role in the relationship between customer psychological empowerment and employee service innovation behavior (Khalili, 2016). The mediating effect of customer psychological empowerment is state dependent. For different organizational innovation climates, there is a corresponding difference in the mediating effect of customer psychological empowerment on employee service innovation behavior. Specifically, the higher the degree of support for service innovation in the work environment perceived by the employee, the stronger the positive relationship between customer psychological empowerment and employee service innovation behavior, and the greater the influence of customer participation on employee service innovation behavior through customer psychological empowerment. On the contrary, the lower the degree of support for service innovation in the work environment perceived by the employee, the weaker the positive relationship between customer psychological empowerment and employee service innovation behavior, and the weaker the influence of customer participation on employee service innovation behavior through customer psychological empowerment. On this basis, the following hypotheses are proposed:

*H<sub>3a</sub>: Organizational innovation climate positively moderates the relationship between the options dimension of customer psychological empowerment and employee service innovation behavior.*

*H<sub>3b</sub>: Organizational innovation climate positively moderates the relationship between the right to know dimension of customer psychological empowerment and employee service innovation behavior.*

*H<sub>3c</sub>: Organizational innovation climate positively moderates the relationship between the influence dimension of customer psychological empowerment and employee service innovation behavior.*

*Based on the above analysis, the relationship model of customer participation, customer psychological empowerment, employee service innovation behavior, and organizational innovation climate is constructed, as shown in Figure 1.*

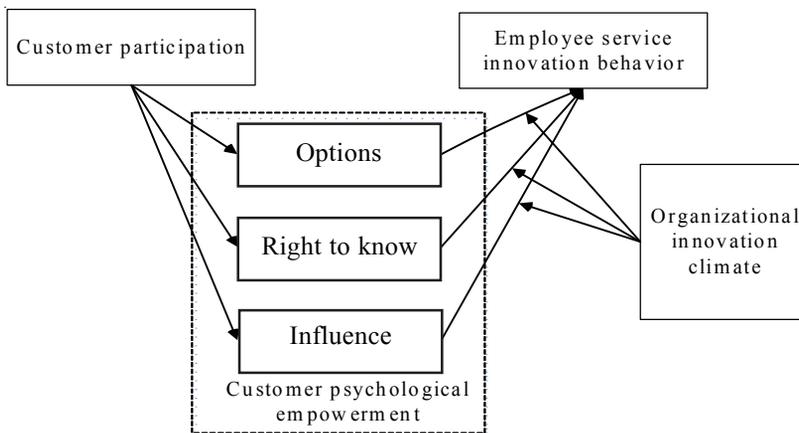


Figure 1. The model of the relationships among customer participation, customer psychological empowerment, organizational innovation climate, and employee service innovation behavior

## Data and Variables

### Source of data

Questionnaire surveys were conducted from April to July 2016 to collect relevant data from the catering departments of 20 five-star hotels in Fuzhou, Xiamen, and Quanzhou. The questionnaires were sent separately to employees and customers. The employee version evaluated employee innovation behavior, customer participation, and organizational innovation climate, while the customer version evaluated customer psychological empowerment. In the above two surveys, we identified the matching relationship between employees and customers at a given hotel through unified coding. A total of 450 questionnaires were sent to employees, and another 450 were sent to customers; 418 employee questionnaires and 411 customer questionnaires were returned, 403 and 398 of which were valid, respectively. After deleting invalid questionnaires, 386 valid employee–customer matched questionnaires were retained (85.78%). The demographic distribution of the final survey sample is presented in *Table 1*.

Table 1. Characteristics of the respondents (N = 386)

Employee demographic characteristics	Gender	Male	Female		Total	
	n	101	285		386	
	%	26.17	73.83		100	
	Age	Below 20 years	20–30 years	30 years and above		
	n	54	310	22	386	
	%	13.99	80.31	5.70	100	
	Education	Secondary and below	College	Bachelor's and above		
	n	159	204	23	386	
	%	41.19	52.85	5.96	100	
Customer demographic characteristics	Gender	Male	Female		Total	
	n	170	216		386	
	%	44.04	55.96		100	
	Age	Below 20 years	20–30 years	30 years and above		
	n	43	127	216	386	
	%	11.14	32.90	55.96	100	
	Education	Secondary and below	College	Bachelor's and above		
	n	67	84	235	386	
	%	17.36	21.76	60.88	100	

As seen in *Table 1*, 73.83% of the surveyed hotel employees were female, 80.31% were between 20 and 30 years of age, and 94.04% had a college degree or below. Among the surveyed customers, the proportions of male and female customers were similar, 55.96% were over 30 years of age, and 60.88% had a bachelor's degree or above.

### ***Operationalizing variables***

The formal questionnaires of this study consisted of three parts: an employee service innovation behavior scale, an employee service innovation behavior influencing factor scale, and personal background information. The employee service innovation behavior influencing factor scale included three subscales: a customer participation scale, a customer psychological empowerment scale, and organizational innovation climate scale. The final scale used in the survey was based on the existing studies at home and abroad, and was revised based on the results of the preliminary survey.

#### ***Dependent variable: Employee service innovation behavior***

Service innovation is a multi-stage activity process. One activity phase model that has been widely recognized and applied to empirical research is the two-stage model developed by Zaltman, Duncan & Holbek in 1973. In this model, the innovation process is divided into two stages: the initial stage and the

implementation stage. This model has been supported by empirical evidence in the Chinese context. For example, Chinese scholars Lu & Zhang (2007) cross-validated the model through exploratory and confirmatory factor analysis, showing that employee innovative behavior consisted of two dimensions and that the two-dimension model had good fit in the Chinese context. The employee service innovation behavior scale we used to assess service innovation performance was similarly divided into two dimensions: service innovation idea generation and service innovation idea implementation. The scale contained 20 questionnaire items, such as “I would like to come up with some creative solutions to the problem in the service process,” “I would like to promote my new ideas to colleagues or leaders in order to get support, and “I would like to provide appropriate plans and programs to implement new ideas, rated on a 5-point Likert scale by front-line employees at hotel catering departments. The higher the score, the better the employee service innovation behavior. Taking the contribution rate of variance as the weight, the weighted factor scores of service innovation idea generation and service innovation idea implementation were used to measure the value of employee service innovation behavior.

*Independent variable: Customer participation*

Customer participation is the extent to which resources are provided by customers in the form of time and effort, information provision, and co-production in the process of service generation and transfer. We used a relatively complete customer participation scale developed by Claycomb, Lengnick-Hall & Inks (2001) to assess the degree of customer participation in service innovation. The scale was divided into three dimensions—attendance, information provision, and co-production—and contained nine items, such as “The same customer often visits the catering department of my hotel,” “The customer would like to provide innovative advice for my service,” and “In the service, and the customer would like to provide me with other customers’ information,” rated on a 5-point Likert scale by front-line employees at hotel catering departments. The higher the score, the higher the degree of customer participation. Taking the contribution rate of variance as the weight, the weighted factor scores of attendance, information provision and co-production were used to measure the value of customer participation.

*Mediator: Customer psychological empowerment*

The influence of empowerment is closely related to the psychological perception of the empowered person. Psychological empowerment is a dynamic process through which individuals improve their self-efficacy (Conger & Kanungo, 1988). Employee psychological empowerment is manifested in the four cognitive dimensions of meaning, self-efficacy, self-determination, and influence (Thomas & Velthouse, 1990). Although customers are considered “part-time employees” in hotels, there are significant differences in the dimensions of

customer psychological empowerment and employee psychological empowerment. This study used the scale developed by Han & Feng in 2012 to assess the degree of customer psychological empowerment. The scale is divided into three dimensions-options, right to know, and influence-and contains a total of 10 questionnaire items, such as "I can choose different service personnel to serve me," "I can always find information about product and service discounts," and "I am satisfied with and trust the products and services of this brand," rated on a 5-point Likert scale by customers at hotel catering departments. The higher the score, the higher the degree of customer psychological empowerment. The factor scores of each dimension were taken as the measurement values of the mediator.

*Moderator: Organizational innovation climate*

Research based on the cognitive schema has suggested that organizational innovation climate consists of employees' subjective cognition regarding the degree of innovation support in the organizational environment. This study used the scale designed by Liu & Shi (2009) to assess the degree of organizational innovation climate. This scale divides the organizational innovation climate into three dimensions - colleague support, supervisor support, and organizational support - and contains a total of 12 items, such as "My colleagues are happy to share their service methods and technologies," "My supervisor would support and assist me in achieving service innovation," and "My department rewards employees for their service innovation ideas," rated on a 5-point Likert scale by front-line employees at hotel catering departments. The higher the score, the higher the degree of organizational innovation climate. Taking the contribution rate of variance as the weight, the weighted factor scores of the three factors were used to measure the value of organizational innovation climate.

## **Result Analysis**

### ***Reliability and validity of variables***

We used Cronbach's  $\alpha$  coefficient to measure the internal consistency reliability of the scales. The analysis results showed that the Cronbach's  $\alpha$  coefficients of the scales ranged from 0.917 to 0.968 and the Cronbach's  $\alpha$  coefficients of the scale dimensions ranged from 0.859 to 0.957 - all over the minimum acceptable level of 0.7, indicating that the scales and their dimensions had high internal consistency reliability.

Table 2. Cronbach's alpha coefficients of Likert scales

Variables	Dimensions	Cronbach's alpha	
Employee service innovation behavior	Service innovation idea generation	0.915	0.934
	Service innovation idea implementation	0.947	
Customer participation	Attendance	0.876	0.917
	Information provision	0.859	
	Co-production	0.903	
Customer psychological empowerment	Options	0.922	0.946
	Right to know	0.938	
	Influence	0.924	
Organizational innovation climate	Colleague support	0.946	0.968
	Supervisor support	0.953	
	Organization support	0.957	

The employee service innovation behavior scale, customer participation scale, customer psychological empower scale, and organizational innovation climate scale used in this study were all based on mature scales developed and used at home and abroad, and the final scales were formed after preliminary investigation and modification. Hence, all of the final scales had high content validity. Through confirmatory factor analysis, we examined the construct validity of employee service innovation behavior, customer participation, customer psychological empower, and organizational innovation climate. As shown in Table 3, the  $\chi^2/df$  values were all close to 2, the AGFI, CFI, and TLI values were all over or close to 0.9, the RMSEA values were all less than 0.08, and the RMR values were all less than 1. All of these fitting indices met the requirements for a high degree of fit, indicating that the four main latent variables had good construct validity.

Table 3. Confirmatory factor analysis of latent variables

	$\chi^2/df$	AGFI	CFI	TLI	RMSEA	RMR
Employee service innovation behavior	2.530	0.901	0.935	0.912	0.063	0.047
Customer participation	1.983	0.847	0.963	0.923	0.049	0.082
Customer psychological empowerment	1.658	0.924	0.977	0.915	0.072	0.056
Organizational innovation climate	2.236	0.899	0.946	0.908	0.053	0.075

*Hypothesis test*

Based on the foregoing theoretical analysis and literature review, the model of the influence of customer participation on employee service innovation behavior may be a moderated mediation model. In this study, we followed the test procedure for the moderated mediating effect proposed by Wen, Chang & Kit-Tai (2006). First, we tested the impact of customer participation on employee service innovation behavior ( $H_1$ ). The model to be tested was as follows:

$$Y = \alpha_0 + \alpha_1 X + \alpha_2 U \tag{1}$$

Where  $Y$ ,  $X$ , and  $U$  represent employee innovation behavior, customer participation, and organizational innovation climate, respectively.

According to the results seen in *Table 4*, the  $F$  value of Model (1) was 65.241, which passed the significance test ( $P < 0.01$ ). The standardized regression coefficient of customer participation was 0.324 ( $P < 0.01$ ), indicating that customer participation had a significant positive influence on employee service innovation behavior. Hence,  $H_1$  was validated.

*Table 4.* Empirical test results of Model (1)

Variables	Coefficients	t value	Adj. $R^2$	F value
Constant	0.492	5.124	0.621	65.241***
Customer participation	0.324***	3.978		
Organizational innovation climate	0.165***	3.785		

*Note:* The regression coefficients of each variable are standardized; \*\*\* $P < 0.01$ .

Next, we tested the mediating roles of the dimensions of customer empowerment in the relationship between customer participation and employee service innovation behavior ( $H_{2a}$ ,  $H_{2b}$ , and  $H_{2c}$ ). In addition to Model (1), the following two models were tested:

$$M = \beta_0 + \beta_1 X + \beta_2 U \tag{2}$$

$$Y = \gamma_0 + \gamma_1 X + \gamma_2 M + \gamma_3 U \tag{3}$$

Where  $M$  represents the customer psychological empowerment dimensions, other variables are the same as model (1).

Table 5. Empirical test results of Model (2)

	Variables	Coefficients	t value	Adj. R <sup>2</sup>	F value
Dependent variable: Options	Constant	0.853	7.032	0.567	31.665***
	Customer participation	0.444**	2.351		
	Organizational innovation climate	0.147***	3.242		
Dependent variable: Right to know	Constant	0.635	5.926	0.448	24.704***
	Customer participation	0.383**	2.218		
	Organizational innovation climate	0.176***	3.371		
Dependent variable: Influence	Constant	1.317	6.580	0.645	39.016***
	Customer participation	0.462***	3.879		
	Organizational innovation climate	0.163***	3.561		

Note: The regression coefficients of each variable are standardized; \*\*P < 0.05; \*\*\*P < 0.01.

The results of Model (2) showed that the standardized regression coefficients of the options dimension, the right to know dimension, and the influence dimension were 0.444 ( $P < 0.05$ ), 0.383 ( $P < 0.05$ ), and 0.462 ( $P < 0.01$ ) respectively, indicating that customer participation could significantly predict options, right to know, and influence, as well as other customer psychological empowerment perceptions.

Table 6. Empirical test results of Model (3)

Variables	Coefficients	t value	Adj. R <sup>2</sup>	F value
Constant	0.571	6.143	0.762	68.237***
Customer participation	0.232***	3.549		
Options	0.207**	2.246		
Organizational innovation climate	0.136***	3.368		
Constant	0.818	7.129	0.673	65.456***
Customer participation	0.258***	4.754		
Right to know	0.172***	3.472		
Organizational innovation climate	0.125**	2.254		
Constant	0.736	5.084	0.798	69.213***
Customer participation	0.196***	3.845		
Influence	0.277***	4.118		
Organizational innovation climate	0.157***	3.562		

Note: The regression coefficients of each variable are standardized; \*\*P < 0.05; \*\*\*P < 0.01.

According to the results of *Table 6*, the standardized regression coefficients of the options, right to know, and influence dimensions were 0.207 ( $P < 0.05$ ), 0.172 ( $P < 0.01$ ), and 0.277 ( $P < 0.01$ ), respectively, indicating that the stronger the customer psychological empowerment perception, the higher the level of employee service innovation. Synthesizing the results to test the joint significance of Model (2) and Model (3), we found that customer participation can indirectly influence employee service innovation behavior through the options, right to know, and influence dimensions. Meanwhile, the path coefficients of the effect of customer participation on employee service innovation behavior were smaller in Model (3) (0.232, 0.258, and 0.196) than in Model (1) (0.324), which indicated that the options, right to know, and influence dimensions played significant partial mediating roles in the relationship between customer participation and employee service innovation behavior. Hence,  $H_{2a}$ ,  $H_{2b}$ , and  $H_{2c}$  were validated.

We further calculated the individual mediating effects of the options, right to know, and influence dimensions in order to compare the impacts of different mediating mechanisms on the relationship between customer participation and employee service innovation behavior. The mediating effect of the options dimension was 0.092 ( $0.444 \times 0.207$ ), the mediating effect of the right to know dimension was 0.066 ( $0.383 \times 0.172$ ), and the mediating effect of the influence dimension was 0.128 ( $0.462 \times 0.277$ ). Hence, there were some differences among the three mediators, with influence having the highest impact and right to know having the lowest impact.

Finally, we tested the moderating effect of organizational innovation climate on the relationship between the dimensions of customer psychological empowerment and employee service innovation behavior ( $H_{3a}$ ,  $H_{3b}$ , and  $H_{3c}$ ). The model to be tested was as follows:

$$Y = \eta_0 + \eta_1 X + \eta_2 M + \eta_3 U + \eta_4 U \times M \tag{4}$$

Where  $U \times M$  represents the product of organizational innovation climate and the customer psychological empowerment dimensions, other variables are the same as model (3).

Table 7. Empirical test results of Model (4)

Variables	Coefficients	t value	Adj. R <sup>2</sup>	F value
Constant	0.612	5.036	0.774	69.342***
Customer participation	0.211***	3.143		
Options	0.193***	3.348		
Organizational innovation climate	0.117***	3.482		
Organizational innovation climate × options	0.146***	3.475		
Constant	0.726	6.135	0.681	66.141***
Customer participation	0.231***	3.897		
Right to know	0.165***	3.368		
Organizational innovation climate	0.116**	2.346		
Organizational innovation climate × right to know	0.128***	3.463		
Constant	0.649	5.621	0.811	70.208***
Customer participation	0.185***	3.722		
Influence	0.257***	3.713		
Organizational innovation climate	0.149***	3.467		
Organizational innovation climate × influence	0.137***	3.578		

Note: The regression coefficients of each variable are standardized; \*\* P < 0.05; \*\*\* P < 0.01.

According to the results shown in Table 7, the regression coefficients of the products of organizational innovation climate and the customer psychological empowerment dimensions were significantly positive. The standardized regression coefficients of the products of organizational innovation climate and options, right to know, and influence were 0.146 ( $P < 0.01$ ), 0.128 ( $P < 0.01$ ), and 0.137 ( $P < 0.01$ ), respectively, indicating that the organizational innovation climate could positively moderate the mediating role of the options dimension, the right to know dimension, and the influence dimension. Hence, H<sub>3a</sub>, H<sub>3b</sub>, and H<sub>3c</sub> were validated.

In order to test whether the moderating effect of organizational innovation climate was consistent with the hypotheses, we intercepted the previous and next standard deviations of the mean values of the options, right to know, and influence dimensions and drew moderating effect diagrams of organizational innovation climate with four data points (Figures 2–4). Regardless of the perception of organizational innovation climate, the impacts of the dimensions of customer psychological empowerment on employee service innovation behavior were significantly positive, as can be seen in Figure 2, 3, and 4. However, as seen from the slope, the higher the perceived level of organizational innovation climate, the greater the impact of the options, right to know, and influence dimensions on employee service innovation behavior.

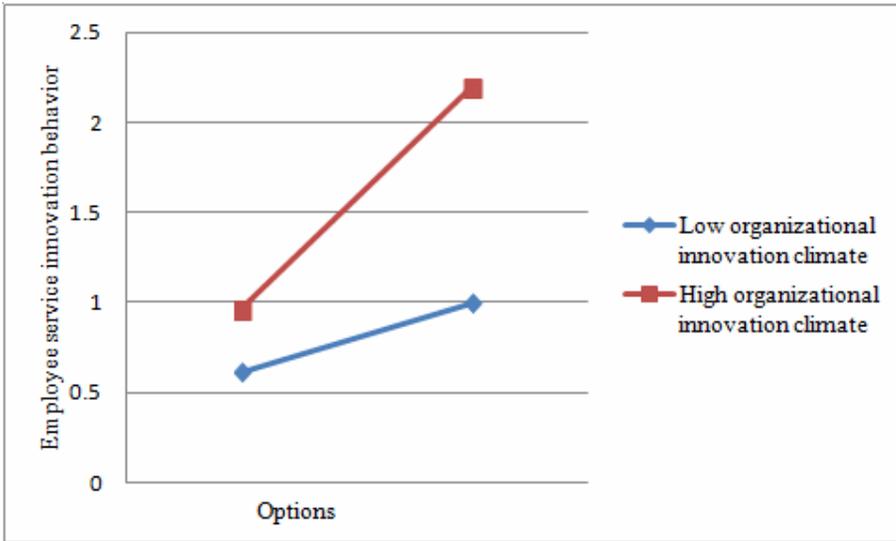


Figure 2. Moderating role of organizational innovation climate in the relationship between options and employee service innovation behavior

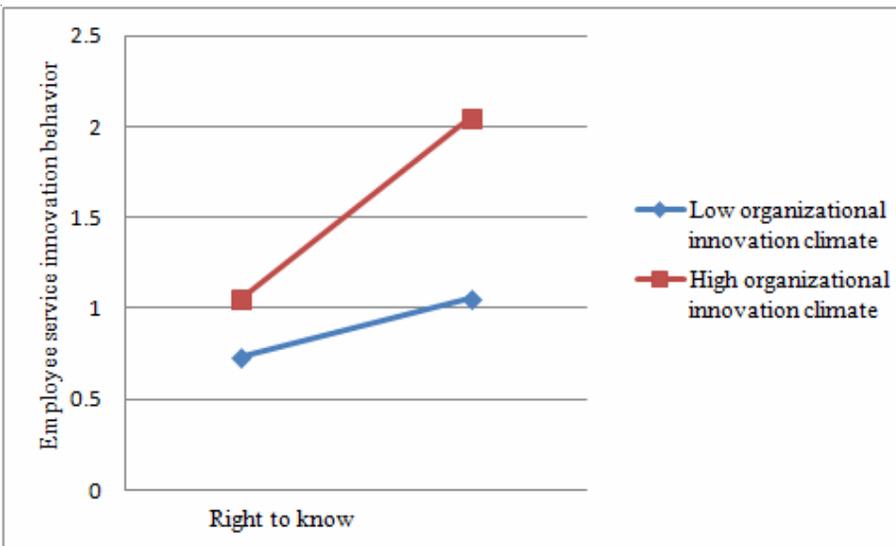


Figure 3. Moderating role of organizational innovation climate in the relationship between right to know and employee service innovation behavior

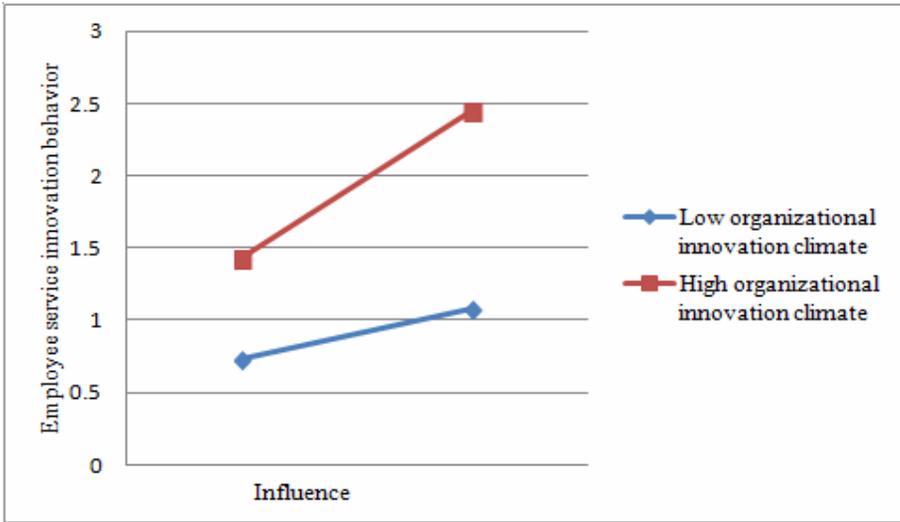


Figure 4. Moderating role of organizational innovation climate in the relationship between influence and employee service innovation behavior

Synthesizing the test results of the four models, we figured out the influence paths and path coefficients of customer participation against employee service innovation behavior, as shown in Figure 5.

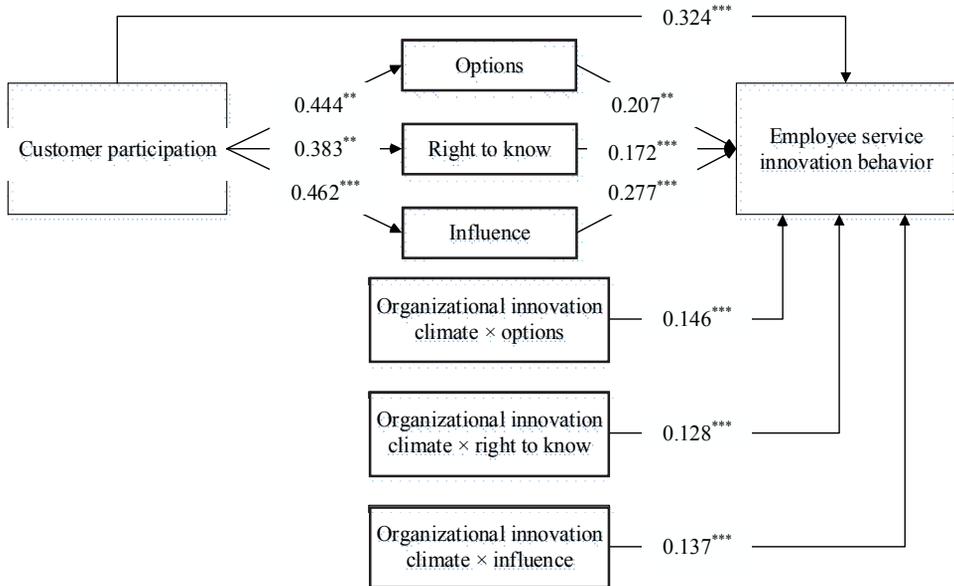


Figure 5. Influence path of customer participation on employee service innovation behavior

## Discussion

Based on the above empirical test results,  $H_1$ ,  $H_{2a}$ ,  $H_{2b}$ ,  $H_{2c}$ ,  $H_{3a}$ ,  $H_{3b}$ , and  $H_{3c}$  were all validated. Accordingly, we used customer participation as an independent variable, employee service innovation behavior as a dependent variable, customer psychological empowerment as a mediator, and organizational innovation climate as a moderator to construct a psychological mechanism model of the influence of customer participation on employee service innovation behavior. Based on the results, we can put forward specific intervention measures for employee service innovation lag from the perspective of customer management.

First, according to the test results of Model 1 (*Table 4*), customer participation has a significant positive influence on employee service innovation behavior. Taking service enterprises as a sample, this study validated the viewpoint of Dai et al. (2014) and other scholars that customer participation can significantly improve the level of employee service innovation in service enterprises. In this study, customer participation in service enterprises consists of the dimensions of attendance, information provision, and co-production, which is similar to Claycomb et al.' (2001) three-dimensional structure of customer participation. Hence, in the process of intervention in employee service innovation lag, enterprises should pay more attention to the willingness and degree of customer participation in service innovation. We suggest that service enterprises regard customers participating in the service as part-time employees and pay close attention to the positive role of customer participation in improving the level of employee service innovation. Enterprises can improve customer activation, organization activation, interaction ability, and learning agility to support customer participation in service innovation (Sharma, Conduit & Hill, 2014), and enable customers to participate in the whole service innovation process through time and energy input, information provision, co-production, and other means.

Second, the results of the test of the mediating effect using the causal steps approach (*Tables 4 and 6*) show that all the dimensions of customer psychological empowerment (options, right to know, and influence) play significant partial mediating roles in the relationship between customer participation and employee service innovation behavior. These results expands upon the findings of Dai et al. (2014) and other scholars, which verified that customer participation had a significant impact on employee service innovation behavior, further revealing the mechanism of the influence of customer participation on employee service innovation behavior and enriching the existing literature and related theories from a customer psychological empowerment perspective. In addition to the direct role of customer participation, service enterprises should also pay attention to the indirect role of customer psychological empowerment during intervention in the problem of employee service innovation lag. In the Internet environment, customer participation, especially offline participation, is conducive to enhancing

customer psychological empowerment and promoting customer involvement in the whole process of service innovation. For service enterprises, using specific empowerment measures to share power with customers is a necessary, but not sufficient, condition of customers' perceived empowerment. The impact of such top-down empowerment is closely related to the psychological perception of empowered customers. The key to solving the problem of inadequate service innovation is to enhance customer' sense of control over the service experience through empowerment measures.

Third, based on the path coefficients shown in *Figure 5*, it can be inferred that the most critical mediating mechanism of customer participation is its indirect influence on employee service innovation behavior through the positive influence of customer psychological empowerment dimensions. Testing the individual mediating effects of customer psychological empowerment dimensions helps determine the relative importance of multiple mediating variables, enabling service enterprises to put forward targeted measures to improve their levels of employee service innovation. These results provide an important extension of the measurement method of individual mediating effects from the behavioral science field (Preacher & Hayes, 2008) to the enterprise management field. Compared with the options and influence dimensions, the right to know dimension had the weakest mediating effect on the relationship between customer participation and employee service innovation behavior in our study. The likely reason is that service enterprises provide sufficient or excessive information about products and services. Customers can collect enterprise information conveniently through many channels, such as offline, on the official website, through mobile applications, and so on, which leads to the diminishing marginal utility of the right to know dimension. Based on the differences in the mediating effects of the customer psychological empowerment dimensions, it appears that the cultivation of customers' reliability and emotional resonance is important to solving the problem of employee service innovation lag. With improvement of the reliability and emotional resonance of enterprise services, customers can better integrate into the whole process of service innovation, and frontline employees can improve service innovation levels through the process of interaction with customers.

Finally, according to the results on the relationship among organizational innovation climate, customer psychological empowerment, and employee service innovation behavior (*Table 7*), organizational innovation climate can positively moderate the mediating role of the dimensions of customer psychological empowerment (i.e., options, right to know, and influence) in the relationship between customer participation and employee service innovation behavior. The higher the degree of organizational innovation climate, the stronger the positive relationship between customer psychological empowerment dimensions and employee service innovation behavior. Hence, to stimulate employees' enthusiasm for service innovation, service enterprises should seek to provide a "soft environment" for service

innovation, which is free, loose, and encouraging of trial and error. Additionally, since employees in the same enterprise may vary significantly in their subjective perception of the service innovation environment, targeted intervention measures for employee service innovation behavior should be implemented.

## Conclusion

In view of the employee service innovation lag of service enterprises in China, this study used the survey data of 20 service enterprises in Fuzhou, Xiamen, and Quanzhou to empirically analyze the relationship between customer participation and employee service innovation behavior. In addition, we tested the mediating effect of customer psychological empowerment and the moderating effect of organizational innovation climate. Our conclusions are as follows: (1) Customer participation has a significant positive influence on employee service innovation behavior; the higher the degree of customer participation, the higher the level of employee service innovation. (2) The three dimensions of customer psychological empowerment - options, right to know, and influence - play significant partial mediating roles in the relationship between customer participation and employee service innovation behavior. (3) Among the three dimensions of customer psychological empowerment, influence has the strongest mediating effect on the relationship between customer participation and employee service innovation behavior, while right to know has the weakest effect. (4) Organizational innovation climate positively mediates the relationships between customer psychological empowerment dimensions (i.e., options, right to know, and influence) and employee service innovation behavior.

Through its exploration of the influence of customer participation on employee service innovation from the perspective of customer management, this study helps fill in the gap in empirical research on this subject. Our findings also have some theoretical and practical significance for intervention in employee service innovation lag and improving employee service innovation behavior. However, there are a few limitations to this study. (1) In addition to the mediating effect examined in this study, the relationship between customer participation and employee service innovation behavior may also be moderated by some contextual factors. These contextual factors can directly moderate the relationship between customer participation and employee service innovation behavior, or they can influence this relationship indirectly, by moderating the mediating effect of customer psychological empowerment. Future research should focus on contextual factors beyond organizational innovation climate in order to further analyze the mechanism of the influence of customer participation on employee service innovation behavior under different circumstances. (2) Our survey samples were limited to service enterprises in Fuzhou, Xiamen, and Quanzhou. Future research should be expanded to multi-region samples in order to enhance the generalizability of our findings.

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