

Full Length Research Paper

Empirical research of the relationship between customer participation, customer satisfaction and service innovation performance in China

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Accepted 20 October, 2011

Customer participation has received considerable attention in service organizations. To examine the relationship between customer participation, customer satisfaction and service innovation performance, this paper logically discriminated the relevant concepts of them, put forward four assumptions. Through 278 valid questionnaires, confirmatory factor analyses, correlation analyses, structural equation modeling analyses were carried out to select the model and test the hypotheses. The results of the study indicate that customer participation has significantly positive impact on customer satisfaction and service innovation performance. And customer satisfaction has significantly positive impact on service innovation performance. Implications for practicing managers and for future research are discussed. The results of these studies not only support the practice of service innovation activities, but also provide a good research perspective and bases for follow-up research.

Key words: Customer participation, service innovation performance, customer satisfaction.

INTRODUCTION

Service industry plays a more and more important role in modern economy and service innovation is an important way in which the organization can obtain competitive advantage. Service innovation is different to technology innovation. Service product and service process have the characteristics that are simple to imitate and less protected by patent. This make service innovation easy to imitate and difficult to protect. So it is difficult to obtain and maintain long-term competitive advantage even when the organization introduces new product or new service. At the same time, service innovation can meet customers' specific needs better and then create social value. So innovation will be more important for service industry. Only by constant innovation and continuous introducing new service, can service organization maintain long-term profits and keep sustainable competitive advantage. Service innovation activities will bring about many good effects. Such as open up new

market, improve the corporate image, etc. So it is not only challenges for service organization, but also hot issues for scholars to improve service innovation performance, overcome innovation obstacles and establish harmonious service innovation culture.

The simultaneity of production and demand in service process means that the buyer of the service participates in the specification and delivery of the service as it is being performed (Zeithaml, 1981). For most service provider, customer participation is an essential part in service process. Through self-serve and collaborate with service staff, customers can create new service. Some researchers have gone so far as to suggest that customers be conceptualized as "partial" employees of the organization owing to their co-production role (Lovelock and Young, 1979; Mills, 1986). In high customer participation service process, the output of service is finished by the cooperation of customer and employee. And the service quality depends part on customer and employee's interactive degree. In this context, as a new customer management method, customer participation is more and more popular among managers of service organization.

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And scholars expressed a keen interest to customer participate, too.

So it is important to investigate the relationship between customer participation and service innovation process. Theory and empirical studies of customer participation increases gradually. Much research shows that customer participation can improve production (Fitzsimmons, 1985; Song and Carl, 1993). In recent years, the relationship between customer participation and customer satisfaction are studied, too. But some found they have positive relationship (Bendapudi and Leone, 2003) while others found they are not associated (Claycomb et al., 2001). So, investigation into the link between customer participation and customer satisfaction should be continued. Our research focuses specifically on the relationships between customer participation, service innovation performance and customer satisfaction in the circumstance of Chinese service industry. Each of these concepts has been researched separately and extensively; however, to date these concepts have not been integrated into a comprehensive research framework. The purpose of this paper is to find the relationships and show managers how increased customer participation in service delivery and service innovation process can improve customer satisfaction and service innovation performance. The results suggest specific managerial actions that can contribute to increase service innovation performance.

Conceptual model

Customer participation

Customer participation in service is a behavioral concept that refers to the actions and resources supplied by customers for service production and/or delivery and it includes both physical and mental inputs (Rishe-Rodie and Kleine, 2000; Cermak et al., 1994; Kelly et al., 1990). Customer participation is a kind of value creating process. In this process, customer participates in the activity or process which is considered dominating by service provider. And sometimes customer even co-product with service provider. In different service organization and in different circumstances, the level of customer participation - low, moderate, or high - varies across service settings and across individuals (Claycomb et al., 2001).

According to Claycomb et al. (2001), this paper recognized three dimensions of participation: customer contacting, information providing and co-production. Customer contacting refers to the frequency of interaction between customer and service process.

Information providing refers to the idea or method that customer provides in service innovation process. Co-production is a high level of customer participation which is necessary to assist some organizations in creating the

service. When customers are actually involved in co-producing the service, the customer behaves as a partial employee who contributes effort, time, or other resources to either design the service or perform some of the service delivery functions (Bettencourt, 1997; Lengnick-Hall, 1996).

Customer participation and service innovation performance

Service organization often improves competitive advantage through customer participation in service providing process. And service provider can obtain innovation ideas or other help from normal communication with customer or from customer's complaint. In the initial stage of service innovation, customer can provide innovative ideas; in service development and production stage, as a co-producer or reviewer, customer can influence service quality; in service delivery stage, customer's participation will influence the perception of new service quality. Mills et al. (1983) put forward that, high level of customer participation can increase productivity. Therefore, customers can act as both consumer and producer role, customers can not only enhance the organization's productivity, but also improve service efficiency (Jones, 1990).

H₁: Customer participation is positively related to service innovation performance. Service innovation performance increase as the level of customer participation increases.

Customer participation and customer satisfaction

Customer satisfaction is an important issue in service marketing. Howard and Jagdish (1969) firstly introduced customer satisfaction in consumer theory, and pointed out customer satisfaction is a cognitive theory that whether the compensation fulfills the customer's losses after purchasing a product. Westbrook (1981) noted that satisfaction is a kind of emotional state and it often happens in customer's evaluation after interaction between customer and employee. Customer satisfaction can be measured from three dimensions of overall service satisfaction, perception of service quality and repeat purchase rate (Xu, 2009).

Generally, customer participation is considered to increase customer satisfaction, bring a series of benefits to service providers, improve the economic benefits of service providers and increase the information feedback (Cermak et al., 1994). Ulrich (1989) argued that, customer participation is a powerful way to increase customer loyalty and commitment. Likewise, Bowen (1986) explained that as customers increase their level of involvement with a firm, the firm gains the opportunity to

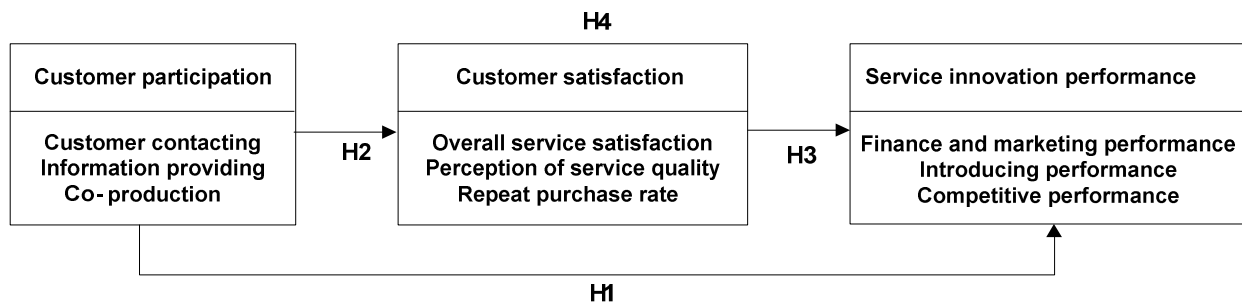


Figure 1. The conceptual model.

shape customer perceptions by making more direct evidence both about the service concept and the service delivery system, available for customers to draw upon in making judgments about the firm. Webber (2000) proved that, co-production increases client trust and loyalty. Ennew and Binks (1995) argued that customer participation has positive impact on service quality and customer satisfaction. It is a logical corollary, then, the level of customer participation in service innovation process will influence customers' total service experiences and customer satisfaction. It is hypothesized that:

H₂: Customer participation is positively related to customer satisfaction. Customer satisfaction levels increase as the level of customer participation increases.

Customer satisfaction and service innovation performance

High customer satisfaction will not only lead to customers' constant buying new service of the organization, but also attract new customer, retain old customer. In practice, Xerox researchers found that the customer with high satisfaction will buy 6 times of those with low satisfaction (Heskett et al., 1997). Bernhardt pointed out that customer satisfaction is positive related to organization's financial performance. And in the short term, the relationship between the two variables could be affected by many factors, but in the long term, this relationship is significant (Bernhardt et al., 2000).

H₃: Customer satisfaction is positively related to service innovation performance. Service innovation performance levels increase as the level of customer satisfaction increases.

When customers are typically present in the service innovation process, interacting with employees and with other customers will make them understand more about the content of the new service. So the customer's service quality expectation will be more practical, this will shorten

the gap of customer's service quality expectation and cognition (Kelly et al., 1990), and then increase customer satisfaction (Ennew and Binks, 1999), decrease complaining behavior. Satisfactory customer will have higher loyalty and commitment, which can improve the customer's repeat purchase desire and reputation recommend behavior and increase performance of the new service.

H₄: The more extensive the customer participation, the higher the customer satisfaction, the better the service innovation performance

Based on the research achievements and the literature review, Figure 1 shows the conceptual model of this study.

RESEARCH METHODOLOGY

Sample and data

The target respondents were professionals employed in service firms including bank, retailing services, communication services, software services, consulting services, research and development services, catering services, etc. In total, 400 employees were selected to comprise a research population. Questionnaires were sent out to obtain the data. After removing unqualified research subjects and invalid questionnaires, for example, those that were incomplete or that displayed excessive internal similarity in responses. Of the 400 surveys sent, 278 valid questionnaires were returned thus achieving a return response rate of 69.5%. Regarding gender, "male" comprised the majority of the sample (63.0%). Regarding age range, majority of the respondents were aged between 26 to 30 (29.5%) and 31 to 40 (44.6%). Most of them had a bachelor degree (56.8%) or master degree (12.9%). In summary, the responses were considered to be a good representation of the survey population.

Measures

In the questionnaire, there were three sections: customer participation, customer satisfaction and service innovation performance. Based on the research of Claycomb et al. (2001), the scale of customer participation contains three aspects: customer contacting, information providing and co-production. The original

Table 1. Factor loadings and composite reliability of the items.

Constructs	Items	Composite reliability	Standardized factor loadings
Customer participation	CP1	0.849	0.680
	CP2		0.656
	CP3		0.715
	CP4		0.658
	CP5		0.533
	CP6		0.600
	CP7		0.521
	CP8		0.614
Customer satisfaction	CS1	0.848	0.739
	CS2		0.812
	CS3		0.784
Service innovation performance	SIP1	0.843	0.638
	SIP2		0.811
	SIP3		0.794

Table 2. Mean-standard deviation values and correlation coefficients.

Constructs	M	S.D.	1	2	3
Customer participation	3.65	0.70	1		
Customer satisfaction	3.94	0.71	0.608**	1	
Service innovation performance	3.68	0.77	0.584**	0.628**	1

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

scale has 9 questions. After modification, there were 8 questions left. Wang (2007) used the scale. And the reliability of the items was 0.85. Service innovation performance was measured by using 3 items scale developed by Cemal et al. (2008). They provided evidence of the reliability of 0.74. Customer satisfaction was measured by using 3 items scale based on the study of Xu (2009) and had reported reliability of the items to be 0.701. Overall, 14 items measuring customer participation, customer satisfaction and service innovation performance of the firm were scored on five-point Likert-type scale with anchors of 1 (strongly disagree) and 5 (strongly agree).

RESULTS

Validity and reliability

Construct validity is the degree of ideality that a measurement can measure a supposing theory. Construct validity can be analyzed through principal factor analysis. Table 1 shows SPSS's running outcome. Besides the validity, the composite reliability is also verified. Table 1 shows the variables and the items with factor loadings and composite reliability. The total explained variance is approximately 0.90. Overall, the results for construct validity and composite reliability suggest that the measurement model meets the standard of having good explanatory power.

Correlation analysis

In order to test the hypothesis analysis, the relationship between customer participation, customer satisfaction and service innovation performance, this paper uses correlation analysis initially. Correlation analysis is a common statistical method that studies the correlate degree of the variables. And it is the preliminary test of the hypothesis. Table 2 shows the correlation for each construct. The correlation coefficients at Table 2 indicate that customer participation is strongly related to service innovation performance and customer satisfaction. And the relationships between them are significant at the $p < 0.01$ level. So H1, H2 and H3 are preliminary supported.

Structural equation modelling

Correlation analysis discussed the correlation between the variables. And there are mutual effects among variables. But correlation analysis cannot show the size of the effects. So, on the basis of correlation analysis, structural equation modeling is used to test the conceptual model. And the data was analyzed on analysis tool of AMOS 7.0.

At the first step, the relationships between customer

Table 3. Fit indices of the relationship of variables.

Relationship	χ^2/df	RMSEA	GFI	AGFI	NFI	IFI	TLI	CFI
H1:CP→SIP	1.764	0.053	0.957	0.927	0.946	0.976	0.966	0.976
H2:CP→CS	1.956	0.059	0.951	0.921	0.940	0.970	0.959	0.969
H3:CS→SIP	1.769	0.053	0.985	0.955	0.986	0.994	0.986	0.994
Required value	<3	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9

Table 4. Fit indices of conceptual model.

Fit index	χ^2/df	RMSEA	GFI	AGFI	NFI	IFI	TLI	CFI
Fit data	1.533	0.044	0.950	0.922	0.946	0.981	0.973	0.980
Required value	<3	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9

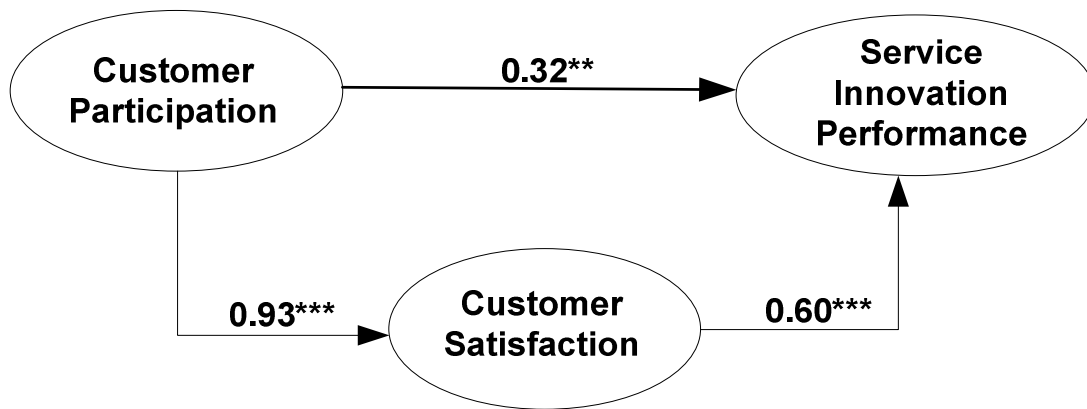


Figure 2. Final structural model with standardized path coefficients. *P<0.05, **P<0.01, ***P<0.001.

participation and service innovation performance, customer participation and customer satisfaction, customer satisfaction and service innovation performance are analyzed. Table 3 shows the data of these relationships is good. Among these relationships, the path coefficient of customer participation to service innovation performance is 0.84. The path coefficient of customer participation to customer satisfaction is 0.84, too. And the path coefficient of customer satisfaction to service innovation performance is 0.75. The relationships between them are significant at the $p < 0.001$ level. The data shows that hypothesis of H_1 , H_2 and H_3 are supported. Next, the study tests the conceptual model. The findings indicate the statistic data supported the conceptual model. Table 4 shows the fit indices are perfect. Path coefficients of the model are showed in Figure 2.

The standard error (SE) and critical ratio of C.R. data are: customer participation→service innovation performance SE = 0.118, C.R=2.711, customer participation → customer satisfaction SE = 1.116, C.R

= 8.010, customer satisfaction→service innovation performance SE = 0.100 C.R=5.969. Figure 2 showed the data supported H_4 .

DISCUSSION

This study explores the relationship between customer participation, customer satisfaction and service innovation performance. The results of the study show: 1) Customer participation has significant positive influence on service innovation performance. 2) Customer participation has significant positive influence on customer satisfaction. This result is different with the study of Claycomb et al. (2001), but it is consistent with the research of Ennew and Binks (1995). And this tested and verified the relationship of customer participation and customer satisfaction in the environment of China. 3) Customer satisfaction has significant positive influence on service innovation performance. 4) The more extensive the participation, the higher the customer

satisfaction, the better the innovation performance.

The study found that when customer satisfaction enters into the relationship between customer participation and service innovation performance, although the influence still exists, the significance of customer participation's direct impact on service innovation performance decreases from $P < 0.001$ to $P < 0.01$. And the path coefficient decreased from 0.84 to 0.32, but still significant. Moreover, the indirect affection of customer participation to service innovation performance through customer satisfaction reaches to 0.558 ($0.93 * 0.60$), which is greater than the direct influence. The results make up for the lack of empirical test of the framework between the relationship of customer participation, customer satisfaction and service innovation performance.

Conclusions

The results show the importance of customer satisfaction when customers participate in service innovation process. Managers must find inner mechanism of relationship between customer participation and service innovation performance. Customers are ultimate users of new service and whether customers are satisfied is the key factor of the relationship between customer participation and service innovation performance. So, when customer participates in service innovation process, the organization must try to satisfy the customers. By this the organization can improve its service innovation ability and efficiency, so as to improve service innovation performance.

Limitations and future research

This study provides a theoretical basis for service organization to improve service innovation performance. But there are several aspects beyond the scope of this study which reveal considerable scope for further research studies. This study did not consider the factor of time, which is one important element in the theory of innovation diffusion process. This requires a longitudinal research design where the study is conducted at different time points. Also, the quasi-experimental method can be employed in this study to explore the model better. Furthermore, the use of self-reported measures, means that the responses have an element of subjectivity. Lastly, the use of questionnaire survey does not necessarily explain how relationships have manifested themselves in service organizations. Thus to track and study a series of case is beneficial to complement the empirical findings. And then the results will be more meaningful.

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