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Will User Involvement Always be the Case? The Effect of Service Procurement on Customer Perceived Value in Servitization

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Abstract: As service is becoming increasingly important, many industrial firms have implemented "servitization" strategy and many marketing and management researchers have discussed the topic of business service. This paper focuses on business service types and its impacts from the buyer's perceptive, especially whether user involvement always takes effects on the process of servitization. Using a large sample survey, this study examines the relationship between two types of business service and customer perceived value in terms of economic value, relational /support value and technical/core value as well as the moderating effect of user involvement on this relationship in China fine chemical industry. The results show that both two service types can bring economic value and technical/core value to the buyers, the difference here is the relational/ support value can only be perceived if the buyer purchases the operant resource based service. The results also suggest that user involvement is a moderator in the relationship between both operand and operant resource based service on customer perceived technical/core value.

Keywords: service procurement; customer perceived value; user involvement

1. INTRODUCTION

In recent years, the global service value-added share of gross domestic product (GDP) is more than 60%, and over 70% in the main developed countries, or even in low-income countries it has reached the average level of 43%①. Meanwhile, there has seen a major change in industrial companies during the last ten years: they have gone from offering products to offering products/services and then to offering solutions to improve their competitive position and to protect their profit margins [1][2]. This journey is known as servitization[3][4]. This "servitization" has evoked a new interest in services and service marketing. Vargo&Lusch[5] proposed a service-dominant (S-D) perspective for theory and knowledge development in marketing. Compare with the traditional G-D (good-dominant), the main difference between them is that how they consider for service, G-D logic takes the service as "operand resources", while in contrast, S-D logic views service as the application of operant resources such as competences[6].Within the field of service management, Jackson and Cooper[7]note that the classification of industrial services has received far less attention than the classification of consumer services. We categorized services into operand resources based service and operant resources based service from service provider's perspective. As co-creation of value is the typical characteristic in S-D market[5], then what is the difference between this two services in the perception of customer value? Besides, we introduce a contingency perspective when hypothesizing that a firm's user involvement positively moderates the relationship between service types and customer perceived value[8]. The purpose of this study is to explore the dimensions and corresponding performance customer perceived value of service procurement as well as the role played by user involvement within these processes.

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① Development report of China's service industry, 2007

2. THEORETICAL BACKGROUND AND HYPOTHESIS

2.1 Service procurement and its dimensions

Services procurement is the process of identifying, evaluating, and obtaining different types of services that are important to the general operation of a business[9][10]. In this study, we categorized services into operand resources based service and operant resources based service from service provider's perspective. As to exemplars of operand and operant resources, while operand resources are typically physical (e.g., raw materials), operant resources are typically human (e.g., the skills and knowledge of individual employees), organizational (e.g., controls, routines, cultures, competences), informational (e.g., knowledge about market segments, competitors, and technology), and relational (e.g., relationships with competitors, suppliers, and customers)[11].

2.2 Customer perceived value and its dimensions

Customer perceived value is often viewed as a customer's overall assessment of what is received and what is given[12]and as a tradeoff between perceived quality and its affordability within a choice setting[13]. Annie H. Liu[14]conducted in-depth interviews with 11 industry managers and business buyers, three types of customer value were identified from the qualitative interviews: the overall economic value of a supplier, value of the relational/support service, and the value of the technical/core service. ***Economic value*** refers to an organizational buyer's overall benefits and costs assessment of a supplier relative to alternative suppliers. ***Value of the relational/support service*** pertains to how customers assess the benefits and effectiveness of the working relationships with one supplier. ***Value of the technical/core service*** refers to the technical and professional performances of a service provider.

2.3 Linking service types to customer perceived value

The shift in the primacy of resources(G-D VS S-D) has implications for how exchange processes, markets, and customers are perceived and approached[5].Gwinner, Gremler, and Bitner[15]suggested that the importance and degree to which perceived value are received depends on the type of service being considered. Services based on operand resource, such as raw materials can benefit customers a lot in terms of high quality and low cost[16]. However, it also implies that, during the procurement process, buyers and sellers have a relatively distant relationship and suppliers may easily be substituted [9]. While, in the S-D logic it implies that value is co- created with the consumer and, by default, this means that a close buyer–supplier relationship is necessary, using so called relational buying [17].Besides, S-D logic argues that value can only be created with and determined by the user in the 'consumption' process and through use or what is referred to as value-in-use. For the above reasons, we propose the following hypotheses: *Hypothesis1a: If the supplier offers operand resources based service, the buyer will perceive economic value. Hypothesis1 (b, c): There is no linear relationship between operand resources based service and relational/support value, as well as technical/core value. Hypothesis2: If the supplier offers operant resources based service,(a)The buyer will perceive economic value,(b)the buyer will perceive relational/support value,(c)the buyer will perceive technical/core value.*

2.4 Moderating effects of user involvement

A moderating hypothesis would suggest that the relationship between service procurement and customer perceived value varies, depending on the value of other variables (i.e. moderators), one of which most referred is service customer involvement (or user involvement). In servitization logic, companies are increasingly rethinking the fundamental ways in which they generate ideas, bring them to service operation and deliver to end customer[6]. Because servitization has long been a costly and complicated process[3], user involvement has been

widely acclaimed in management rhetoric as a means to tighten the feedback loop between the cycles of new service development and of consumption[8]. With regard to customer involvement in firms' value creation, researchers have identified two kinds of roles that customers can play: customers as "co-producers" or "buyers" [18]. Whereas the former is at the input side of value creation process, the latter takes place at the output end of it. In this paper, we focus on the service customer-as-a-resource (input) view, which regards customers as a source of servitization. Customer involvement is not only relevant to service conceptualization but also connected to idea generation, service design, initiative and delivery process, leading to imitative, unimaginative solutions [19]. Here, we define user involvement as an inputs and efforts engaged in service idea generation, design and configuration as well as total process of delivery, which may range from simple consultation on design ideas and quality issues to their active participation in service development projects[20]. Therefore, we hypothesize that: *H3: Greater* user involvement *will affect the extent of customer value perceived (a) between operant resources based service and perceive economic value, (b) operant resources based service and perceive relational/support value,(c) operant resources based service and perceive technical/core value.*

3. EMPIRICAL RESEARCH

According to Bureau of Statistics of China, the service added value was 86.05 billion RMB in 1978 increased to 7.3395 trillion RMB in 2005, from 2006 to 2010, the proportion of tertiary industry rose from 40.5 to 43.0%①. According to objectives of the twelfth "five-year" plan, the ratio of value added services/GDP has to be more than 50% by 2015. In 2009 the annual output value of China's fine chemical industry has reached to $ 17 billion, accounting for about 17% of global fine chemicals business, and raised with 4% to 5% every year. In 2010 the sales of fine chemicals in China are equivalent to the size of the entire European fine chemical industry. Analysts pointed out that although most of the Chinese fine chemical companies have the low production cost advantage, but with the changes of market-orientation, more and more companies they have gone from offering products to offering products/services and then to offering solutions to improve their competitive position.

3.1 Measurement and data

In order to empirically validate this study's model, a survey method was used. All items were developed based on literature review. Before sending out questionnaires, we implemented expert consultation and corrected the items. Simultaneously, we chose some companies to carry on pre-test of the questionnaire, consulted and interviewed the top managers in these firms. Five point Likert scale ranged from 1 = "strongly disagree" to 5 = "strongly agree". The items and its sources of each construct are in table 2. From April to May 2011, the questionnaires were sent to customers who are buying product/service from fine chemical providers. A total of 325 questionnaires were sent and 281 were returned, which represented a response rate of 86.5%. Missing data reduced the sample size to 250 and the final response rate is 77%. The results of Chi-square tests show that there is no significant difference between the two categories, which implies that there is no significant non-response bias in the dataset.

4. ANALYSES AND RESULTS

4.1 Measurement validation

CFA (Confirmatory Factor Analysis) was used to assess the scale with Amos 17.0 software. The fit index of the measurement model show that $X^2(215)=492.683$, RMSEA=0.072, CFI=0.926, IFI=0.927, TLI=0.905. The results indicate that the model provides a good fit with the observed data. On reliability, CR values in Table 1 are

① Development report of China's service industry, 2007

all more than 0.87, all exceed the prescribed 0.7 threshold, so the reliability of scales is good. On convergent validity, standardized factor loadings for all scale items are significant and are above the threshold of 0.6[21]. The AVE of each construct exceeds the variance attributable to its measurement error 0.5. Hence, the results indicate that convergent validity of the constructs is met. On discriminate validity, table 2 shows that the highest correlation between any pair of constructs is 0.54 and the lowest square root of AVE is 0.79, which suggests that discriminate validity is also achieved [21].

Table 1. Reliability and validity of structural variables

Latent Variables and Items	Factor	AVE	CR
Operand resources based service (Constantin ,Lusch,1994; Hunt,2004)			
1.supplier has enough inventory to offer service	0.784	0.76	0.90
2.supplier can offer service with good quality	0.905		
3.supplier can buy appropriate materials according to our needs	0.915		
Operant resources based service (Constantin ,Lusch,1994; Hunt,2004)			
1.supplier has much knowledge to offer service	0.748	0.66	0.88
2.supplier has high level of expertise tailored our specific needs	0.814		
3.supplier has enough industrial knowledge to be used	0.871		
4.supplier has that kind of experience to resolve our problems	0.805		
Economic value (Anderson, Gerbing ,1988; James et al. ,1982;Annie,2006)			
Compared with other suppliers, this supplier ...			
EV1. ... provides the best value	0.755	0.62	0.87
EV2. ... provides better value for the money	0.871		
EV3. ... provides high quality for the price	0.807		
EV4. ... charges a reasonable price for the services provided	0.719		
Relational/support value (Anderson, Gerbing ,1988; James et al. ,1982;Annie,2006)			
Compared with other suppliers, this supplier ...			
RV1. ... has a better working relationships with us	0.873	0.65	0.88
RV2. ... responds to our service needs more promptly	0.839		
RV3. ... visits our location when needed	0.725		
RV4. ... keeps us better informed of new developments	0.773		
Technical/core value (Anderson, Gerbing ,1988; James et al. ,1982;Annie,2006)			
Compared with other suppliers, this supplier ...			
TV1. ... is more competent	0.808	0.69	0.90
TV2. ... is more professional	0.800		
TV3. ... has better overall job performance	0.852		
TV4. ... has better attitudes on the job	0.865		
User Involvement (Alam, 2002; Gales and Mansour-Cole, 1995; Gruner and Homburg, 2000)			
1. The frequency of the meetings with suppliers was high	0.737	0.69	0.90
2. There were extensive consultations with suppliers	0.788		
3. Specific customers were invited to join the project as team members	0.881		
4. Number of customer involvement tools	0.895		

Table 2. Correlation coefficient and AVE between structural variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1)Operand resources based service	0.87					
(2)Operant resources based service	0.43^{***}	0.81				
(3)EV	0.37^{***}	0.37^{***}	0.79			
(4)RV	0.11^{+}	0.21^{***}	0.31^{***}	0.81		
(5)TV	0.23^{***}	0.27^{***}	0.30^{***}	0.54^{***}	0.83	
(6)User Involvement	0.31^{***}	0.36^{***}	0.26^{***}	0.40^{***}	0.48^{***}	0.83

Note: Square root of AVE of each structure variable is in the diagonal, $^{*}p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$

4.2 Hypothesis testing

To test the hypotheses, we use OLS(ordinary least square) regression. To identify and analyze the moderator variables, this study made use of the four steps suggested by Sharma, Durand and Gur-Arie[22].Table 3 presents the regression results, figure 1 shows the interaction plots.

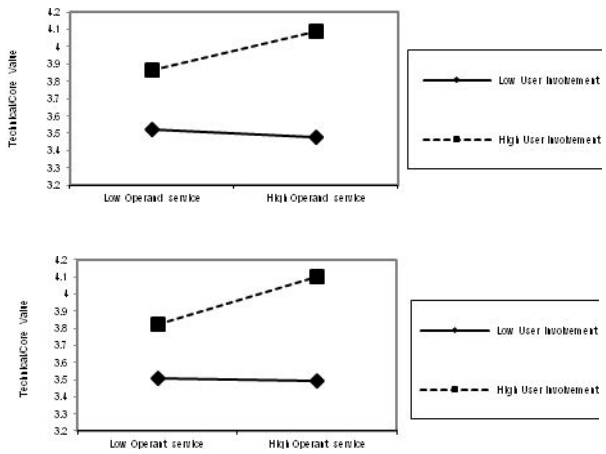

Figure 1. Interaction plots

Table 3. Results of regression

DV	EV				RV				TV			
IV	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Time of cooperation（con.）	-0.042	-0.058	-0.059	-0.056	-0.033	-0.094	-0.098	-0.094	0.089	0.022	0.017	0.013
	0.476	0.325	0.316	0.347	0.605	0.117	0.105	0.120	0.148	0.698	0.764	0.826
No of employee（con.）	0.059	0.062	0.061	0.065	-0.084	-0.054	-0.057	-0.054	-0.082	-0.070	-0.074	-0.083
	0.389	0.364	0.373	0.342	0.252	0.433	0.410	0.439	0.255	0.291	0.262	0.208
Asset（con.）	-0.010	-0.007	-0.005	-0.009	-0.009	-0.004	0.002	-0.004	0.057	0.068	0.077	0.075
	0.881	0.911	0.938	0.893	0.901	0.958	0.971	0.957	0.419	0.293	0.234	0.247
Operand resource based service	0.253***	0.232***	0.235***	0.234***	0.043	-0.034	-0.026	-0.034	0.145*	0.061	0.074	0.054
	0.000	0.001	0.001	0.001	0.547	0.610	0.701	0.613	0.036	0.341	0.254	0.395
Operant resource based service	0.262***	0.233***	0.232***	0.228**	0.180*	0.075	0.071	0.074	0.200**	0.086	0.080	0.109†
	0.000	0.000	0.001	0.001	0.012	0.276	0.302	0.287	0.004	0.192	0.222	0.099
User Involvement		0.106	0.100	0.115†		0.389***	0.373***	0.390***		0.4245***	0.401***	0.386***
		0.101	0.131	0.087		0.000	0.000	0.000		0.000	0.000	0.000
Operand_service ×User Involvement			0.025				0.068				0.102†	
			0.677				0.263				0.081	
Operant_service ×User Involvement				-0.031				-0.003				0.128*
				0.612				0.961				0.031
R^2	0.194	0.203	0.204	0.204	0.050	0.174	0.178	0.174	0.101	0.248	0.258	0.262
ΔR^2	0190***	0.009	0.001	0.001	0.041**	0.124***	0.004	0.000	0.086***	0.147***	0.010†	0.014*
F	11.433***	10.049***	8.608***	8.623***	2.515*	8.327***	7.325***	7.108***	5.357***	13.062***	11.733***	12.044***

The data in first line is coefficient of variables. The data in second line is t value. †p<0.1 *p<0.05 **p<0.01 ***p<0.001

As shown in Table4, the results show that operand resource based service has a significant positive effect on customer perceived economic value (β = 0.253, $p < 0.001$) and customer perceived technical/core value (β = 0.145, $p < 0.05$), but does not affect relational/support value significantly (β = 0.043, ns), which suggests that H1a and H1b are supported. For H1c, the result is not consistent with our hypothesis. The results also show that that H2a, H2b and H2c are supported. Moderated regression analysis (MRA) was used to test the moderating effect of user involvement. The baseline Model 9 explains 10.1% of the variance in customer perceived technical/core value. After entry of user involvement, the total variance explained in Model 10 is 24.8% (ΔR^2 = 14.7%, $p < 0.001$), which increases to 25.8% in Model 11 (ΔR^2= 1%, $p < 0.1$) and 26.2% in Model 12 (ΔR^2= 1.4%, $p < 0.05$) when the interaction term is included. Model 11 also shows the interaction term has a positive effect on customer perceived technical/core value (β = 0.102, $p < 0.1$), indicating that if the buyer has user involvement, the positive effect of operand resource based service on customer perceived technical/core value is stronger than buyer who has low user involvement (See Figure 2). Besides, Model 12 also shows the interaction term has a positive effect on customer perceived technical/core value (β = 0.128, $p < 0.05$)(See Figure 2). Thus

the results support H3c but not H3a and H3b.

5. DISCUSSION AND CONCLUSION

This study examines the distinctive effects of operand and operant resource based service on customer perceived value and also clarifies the relationships between user involvement, service types and customer perceived value. Some conclusions we draw are as follows: ***Firstly,*** based on the literature review, we classified business service into operand resources based service and operant resources based service from service provider's perspective[23]. ***Secondly,*** both two service types can bring economic value and technical/core value to the buyers, the difference here is the relational/ support value can only be perceived if the buyer purchases the operant resource based service. ***Thirdly,*** this study, based on contingency theory, considered user involvement as a moderator. The results show that user involvement is a moderator in the relationship between both operand and operant resource based service on customer perceived technical/core value. This findings is consistent with Rothaermel and Alexandre's[24].

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