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Effects Of User Participation In Enterprise System Improvement On The Service Value Perceived By Users

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EFFECTS OF USER PARTICIPATION IN ENTERPRISE SYSTEM IMPROVEMENT ON SERVICE VALUE PERCEIVED BY USERS

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Abstract

Based on the customer value theory, this paper studies the relationship between user participation in enterprise system improvement and perceived service value of enterprise systems in organizations. Survey results from 220 employees in a large-scale industrial enterprise reveal that user participation in system improvement has direct positive impacts on perceived service value. Furthermore, user participation in system improvement also contributes to the enhancement of information service quality and the reduction of non-monetary sacrifice, which both impact on users' perceived service value even after controlling for individual variables such as users' age, education, and IT-related education. This paper contributes to the theory on whether user participation matters in the process of enterprise system improvement. Our findings can also encourage managerial practitioners to explore user participation in organizations.

Keywords: enterprise system improvement, service value, user participation, information service quality, non-monetary sacrifice

1   INTRODUCTION

Enterprise systems (ES) are large-scale, integrated application-software packages that use modern information technology including computation, data storage, and data transmission to support enterprise processes, information flows, and business analytics within complex organizations (Seddon et al. 2010). The lifecycle of enterprise systems can be identified as a four-step process: assessment, planning, implementation, and renewal (Carr et al. 1996). The assessment stage actually examines motivation of setting up the systems, and planning stage makes a detailed plan regarding all aspects of the resources of the organization, while implementation stage develops the system and puts them into operation. The stage of renewal denotes the continual system improvement in the process of ES use and our study only focuses on the user participation in renewal stage. Because enterprise systems impound deep knowledge of new ways of designing and executing organizational processes, these complex software packages can cause considerable assimilation difficulties in the process of ES use (Robey et al. 2002). As ES becomes increasingly pervasive and commoditized in organizations, some researchers are now openly questioning its value provided to users (Carr 2003). However, the deciding factor of ES value is how ES is being used as the information service platform in the organization and its service value is relative to user participation in the continual improvement of ES usage (Lawrence et al. 2002). How to drive the service value from the process of continual improvement in ES use has attracted more and more attention (Doll & Torkzadeh 1989), especially in some companies where IS maturity is high and enterprise systems provide the business units with continuous service platform. On the other hand, continual improvement should be a competitive strategy for organizations. Because enterprise systems have been viewed as an enabler of strategic change and a source of strategic advantage for organizations in the past few decades (Vlosky 1999), enterprise system improvement in the process of usage has been one of the most important activities in many organizations. Furthermore, Siow (2004) presents the cumulative effects of user participation in ongoing initiatives to improve ES usage continuously will enhance the service value. Hence, an important issue in today's organizations is to understand how to improve service value through user participation in enterprise system improvement.

The term enterprise systems (ES) in our paper refers to all large organization-wide packaged applications including any application components of the software platforms to support processes, information flows, and business analytics within complex organizations. The pioneering use of ES in modern organizations includes new activities and behaviours (Burton-Jones 2005), with the aims toward continual developing/improving products and services, enhancing intra-organizational efficiency and effectiveness, and strengthening inter-organizational relationships with customers, suppliers, and partners (Li et al. 2006). The extant literature about user participation discuss the impact of user participation on the ES development activities (e.g., Doll & Torkzadeh 1989; Barki & Hartwick 1989), and little attention is paid to the user participation in ES improvement. We seek to address this gap by adopting the customer value theory (Heskett et al. 1997; 2010) to examine effects of user participation on service value perceived by ES users. Thus, our research questions include: (1) identify the relationship between service value perceived by ES users and user participation; (2) identify the mediating effects of non-monetary sacrifice between service value and user participation in the process of system improvement; (3) identify the mediating effects of information service quality between service value and user participation in the process of system improvement.

2   THEORETICAL BACKGROUND AND HYPOTHESES

ES users would expect to perceive high level of information system service, such as high information availability, processing ability, timely availability, and would like to participate in the process of ES use (Doll & Torkzadeh 1989). The user participation literature posits that as the level of user

participation increases, customers are more motivated and committed to co-creation (Zeithaml & Bitner 2003) and thus perceive higher service quality. In our paper, we define IT staff as the service provider and enterprise systems as the service facilities. The service process denotes the procedure which employees in the organization use ES as the service platform to finish their jobs.

Barki and Hartwick (1989) define user participation as "a set of behaviours or activities performed by users in the information system development process". They argue for a separation of the constructs of user participation and user involvement which denotes a subjective psychological state reflecting the importance and personal relevance of a system to the users. User participation has also been defined as "users taking actions to get better service in a general service provision manner" (Dabholkar 1990). Specifically, by integrating prior work on user participation in service improvement, we attempt to develop a new construct: user participation in enterprise system improvement. Drawing on this definition and the definition of enterprise system improvement (Grönroos 1988), we define user participation in enterprise system improvement as "a set of behaviours or activities performed by ES users in the process of enterprise system improvement to get better information service". Cavaya (1995) describes the user participation from the perspectives of participation type, participation degree, participation content, participation formality, and influence of participation. In our paper, we define the user participation in the perspective of participation contents, such as defining the improvement objects, modifying the user interface, and taking part in all the meetings to discuss the improvement activities (Davidson 1999).

Many marketing researchers have devoted themselves to conceptualizing and measuring "perceived service quality" (Parasuraman et al. 1994; Zeithaml et al. 1996; Parasuraman et al. 1985). From the customers' perspective, service quality may include perceptions of technical care, but also such seemingly peripheral concerns as physical facilities and interactions with providers. Reflecting this understanding, Parasuraman et al. (1985) develops a conceptual model of service quality that includes the following determinants: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding, and tangibles. This conceptual model of service quality views it as a construct that is similar to an attitude that results from a comparison between a consumer's service expectations and perceptions of the performance they have received on these dimensions. Based on the above conceptual model, we define information service quality as ES user's judgment about the overall excellence or superiority of the information system service which includes five dimensions, i.e., tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman et al. 1988; Jiang et al. 2002).This perspective is similar to the user-based approach of Garvin (1983) and differs from product-based and manufacturing-based approaches. Furthermore, all service quality is perceived by someone, information service quality in our research denotes the perceived quality, which is also different from object quality that may not exist.

In the review of the IS literature, Ives and Olson (1984) treat user participation as a special case of participative decision making. They provide a descriptive framework that defines success in terms of quality, and identifies user information satisfaction as the most common outcome variable of user participation. User information satisfaction is defined as the extent to which users believe that the information system meets their requirements (Ives et al. 1983). It is usually treated as a perceived measure of information quality but may also be interpreted as an indicator of system acceptance (Ives & Olson 1984). Thus, a basic contention of the user participation literature is that user participation in the determination of information requirements and the improvement of a logical design will enhance information service quality. Thus, we present the following hypothesis:

H1: User participation in enterprise system improvement is positively associated with information service quality.

A popular concept of service value perceived by ES users is "ES doing things right the first time". However, no one in the organization can entirely escape information service failure. When "working" with ES, users are inclined to enhance the degree of taking actions to information improvement, and all of these activities will save themselves more time and effort to waiting the information service only

from IT function (Walster et al.1973). In the stage of enterprise system development, only the key users participate in the design activities, so many activities of designing the operational details, which is important to general ES users, may be neglected by the key users. Furthermore, enterprise systems integrates complex processes and data, so ES users may spend much time and effort to get the correct information from the complex systems and the non-monetary sacrifice will be high. If users participate in system improvement, they will take actions to escape the future information service failure. On the other hand, as the level of their participation increases, users will become more competent and "experienced" through participation, the non-monetary sacrifice of acquire information service reduces as well. Some companies maintain a policy of allowing ES users to do whatever they feel comfortable doing in order to reduce the non-monetary sacrifice. Then, we propose the following hypothesis:

H2: User participation in enterprise system improvement is negatively associated with non-monetary sacrifice of ES users.

Many researchers in IS area stress service value of ES usage (e.g., Feeny & Willcocks 1998; Robey et al. 2002). In marketing literature, service value has been defined as: (1) overall assessment of the utility of a product or service based on what is given and what is received in the perspective of customer (Zeithaml 1988); (2) a perceived trade-off between the positive and negative consequences of product use (Woodruff & Sarah 1996); (3) a customer's perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations (Woodruff & Robert 1997).

Zeithaml (1988) concluded that service value emerges when users weigh their perceptions of service quality against the necessary sacrifices made to acquire the service. Heskettet et al. (1997; 2010) reveal how the service-profit chain functions as a whole, and this function indicates that the service value is positively related to service quality and negatively related to sacrifice. He concludes perceived service quality includes both final service results and the quality in the process through which those results were obtained. He argues difference between service quality not only results from general dimensions such as the reliability and timeliness of service, but also from the users' participation activities in which the service was delivered, improved, and recovered. However, as a core concept in marketing area, surprisingly little is known about what service value is in IS area. In our research, we define perceived service value of ES as "ES users' overall assessment of ES procedural performances and consequences arising from ES usage, which is based on what is given and what is received." (Zeithaml 1988; Woodruff & Robert 1997; Heskett et. al. 1997)

As is reflected above, there has been a convergence of opinion that favourable service quality perceptions lead to improved service value (Bagozzi 1992; Rust and Oliver 1994). Adapting the customer value framework to the ES service context suggests that the more cognitively-oriented service quality precede higher level of service value (e.g., Woodruff & Robert 1997; Monroe 1990). In the process of enterprise system improvement, users who are provided with excellent quality of information service will be effective and efficient in their jobs, thereby perceive higher level of service value. We then present the following hypothesis:

H3: Information service quality is positively associated with the perceived service value in the process of enterprise system improvement.

Research in economics, home economics, and marketing supports the proposition that costs-time, effort, search, psychic are salient to consumers (Zeithaml and Berry 1988). Heskett et al. (1997) and Zeithaml (1988) define sacrifice as what is given up or sacrificed to acquire a service. The sacrifice components include both money and non-monetary resources (e.g., time, energy, effort) to obtain products and services (Zeithaml 1988). Time costs, search costs, and psychic costs all enter either explicitly or implicitly into the users' perception of sacrifice. In our paper, we define non-monetary sacrifice as the time and effort necessary to getting the information service. To some users, the monetary sacrifice is pivotal, but less price-conscious consumers, such as ES users, will find the value of reducing non-monetary sacrifice involved in the ES usage. Working in the complex ES platform, users often find it is difficult to get the accurate information service. If ES users must expend much

time and effort to acquire the information service, and if the time and effort does not provide satisfaction to the user, a sacrifice has been made. Recent research reveals that reducing non-monetary sacrifice has become a pivotal concern of users. Monroe (1990) suggests that sacrifice has a negative effect on service value. We then present the following hypothesis:

H4: Non-monetary sacrifice is negatively associated with the service value perceived by ES users in the process of enterprise system improvement.

Locke and Schweiger (1979) maintain that user participation increases the likelihood that they will get what they want (i.e. that it will help attain their values--value attainment). Hunton and Price (1997) conducted a laboratory study of 144 professional data entry clerks in which participation is manipulated. Level of participation was manipulated via a mute (where no opportunity is given for comment), voice (where there are opportunities for users to comment) or choice (where users can make comments and exercise choice to change aspects of the system) condition regarding the screen design. They found that users with higher participation will demonstrate greater satisfaction with the DSS than users with low participation. Kelley et al. (1990) argue that users' activities in service providing contribute to users' perceived value. How to get the ES service reliably and timely depends on the users' participation in information service improvement (Dong et. al. 2008).

The literature reviews also indicate that user participation is related to job satisfaction and productivity; however, this relationship is complex, i.e., Locke and Schweiger's (1979) discussion of the psychological mechanisms linking participation to satisfaction or productivity; and Alutto and Belasco's (1972) discrepancy concept of participation. Participation also improves users' satisfaction because it enhances understanding, ownership and commitment to the system (Doll & Torkzadeh 1989). Increased understanding, ownership and commitment are likely to lead to greater service value in the process of service improvement. However, the user participation literature is largely silent on the issues of outcomes of user participation in the enterprise system improvement process. Users, through participation in enterprise system improvement, may be able to shape better decisions in ways that deal with their concerns or make their work easier. In both traditional IS context and end-user computing environments, service value attainment might be viewed as the primary outcome for user participation. Thus, we expect that service value is higher when participation is higher. Then, we present the following hypothesis:

H5: User participation in enterprise system improvement is positively associated with the service value perceived by ES users.
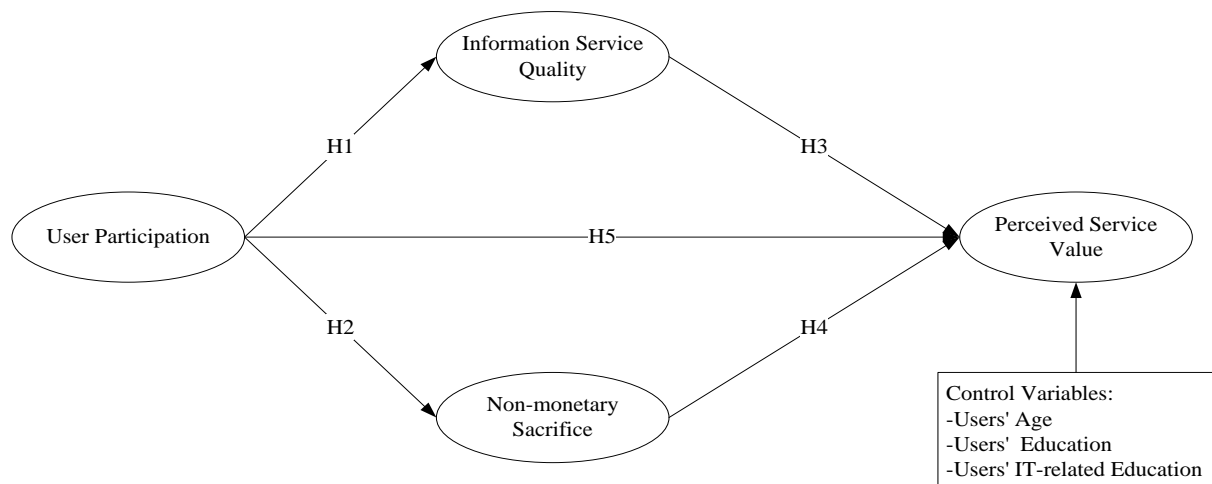

Figure 1.   Research Model

To test the proposition that service value perceived by ES users may be systematically associated with the user participation, we need to control for users' variables, such as users' age, users' education, and IT-related education (Li et al. 2006; Bruque et al. 2008).

Based on hypothesis from 1 to 5, we propose the research model in Figure 1.

3   RESEARCH METHODOLOGY

We used survey methodology to test our model because it provides a basis for establishing generalizability, allows replicability, and has statistical power (Li et al. 2006). Moreover, the approach was adopted because our research questions were about identifying relationships between two variables (Pinsonneault & Kraemer 1993).

3.1   Questionnaire Development

As there were many validated measures in prior studies, we adapted all measures from those validated and used in prior studies.

1) *User Participation:* We adapted the variable "user participation" mainly from Doll and Torkzadeh (1989). They examined user participation in the process of system development. However, we focused on the topic of user participation in the process of information system improvement. Hence, we made some changes. After eliminating three items closely related to the process of information system development, the scale of user participation contained seven items representing seven kinds of activities in enterprise system improvement. These activities mainly included modifying system requirements, modifying users' information needs, identifying information source, and modifying input and output forms or screens. Every item was anchored on a 1-to-7 Likert scale (1=very few, 7=very often).

2) *Information Service Quality:* We adapted the variable "information service quality" mainly from Parasuraman et al. (1991). Based on the definition of service quality, we measured this variable with eight items from the viewpoint of five dimensions including tangibles, reliability, responsiveness, assurance, and empathy. All the items used a Likert scale of 1 (strongly disagree) to 7 (strongly agree) .

3) *Non-monetary Sacrifice:* We adapted the variable "non-monetary sacrifice" mainly from Cronin et al. (2000). We measured the construct by asking users about their overall assessment on non-monetary sacrifice including time and effort to acquire the information service. The three items were anchored on a 1-to-7 Likert scale (1=very low, 7=very high).

4) *Perceived Service Value:* We adapted the variable "perceived service value" mainly from Cronin et al. (2000). We modified the measurement. This construct denoted users' overall assessment on the information service including ES capability of satisfying their requirements, improving their efficiency, and enhancing job satisfaction. We anchored all the three questions on a 1-to-7 Likert scale (1=very low, 7=very high).

5) *Control Variables:* We adapted the control variables mainly from Li et al. (2006). We measured ES users' age by asking respondents to indicate the age range to which they belong. We measured users' education by asking respondents to provide the highest degree they had obtained. And users' IT-related education was measured by asking respondents to provide the experience of IT-related training.

Before implementing the field survey, a pretest was conducted to improve validity and reliability of our measurements. The pretest contains three parts: open-ended general discussion, semi-structured discussion, and highly structured item-by-item examination of the draft instrument (Straub 1989). During the interview with 10 ES users in the library of a university and 31 IT staff, we gave respondents the option to provide open-ended comments on the questions. Based on their suggestions, we made some modifications in the wording and framing of the questions, while adding one indicator

measuring the overall cost of acquiring the service provided by IT staff. Other suggestions were also incorporated to improve consistency in the phrasing of the sentences.

In the second semi-structured segment, questions from the interviewers directed attention to key matters on the scales of dependent variable. We incorporated their suggestions that two items of "the capability of enhancing perceived job satisfaction of ES users" and "the capability of enhancing job's efficiency" should be added to measure perceived service value. Measurements of construct "IT-related education" were also substituted by two newly designed items. To further improve validity, participants in the third segment of the interview ware asked to evaluate a version of the questionnaire item-by-item. Content validity was strengthened by encouraging participants to point out obscure questions. Furthermore, we asked two statistical teachers to evaluate the layout and presentation of the questionnaire in highly structured format. We incorporated their suggestions on shorting some pages to avoid information overloading.

To further validate the scale, a pilot test was carried out within 31 IT staff. The revised questionnaire was sent to them and we collected 31 valid responses with 100 per-cent response rate. Then we analyzed the data collected from the survey with exploratory factor analysis in combination with qualitative data from the interview. Moreover, because exploratory factor analysis can result in dimensions which are not interpretable, the data were screened prior to the factor analysis. The elimination of undesirable items is a recommended approach (Lederer & Sethi 1991; Ives et al. 1983; Churchill 1979). The results indicated that six items of information service quality and user participation should be deleted to attain high convergent and discriminant validity. The modified scale was then assessed by IT managers and statistical teachers to form the final version of questionnaire.

3.2   Field Survey

The participating organization, a corporation with more than 10,000 staff, was headquartered in Beijing, China with branches covering over 30 provinces including Hong Kong and Macao. The firm's enterprise system was comprised by ERP, CRM, SCM, etc., which were quite mature and have been put in use for a few years. Questionnaire was sent to employees in each branch by managers with anonymity announcement. The firm actively solicited and encouraged staff and managers to participate, and it provided us with its staff list.

Question	Frequency (N=220)	Percentage	Cumulative Percentage
Age			
26 below	12	5.5	5.5
26-30	36	16.4	21.9
31-35	57	25.9	47.8
36-40	52	23.6	71.4
41-45	30	13.6	85.0
46-50	16	7.3	92.3
50 above	17	7.7	100.0
Education Level			
Lower than Diploma	17	7.7	7.7
Diploma	66	30.0	37.7
Bachelor	95	43.2	80.9
Graduate	29	13.2	94.1
Doctor	8	3.6	97.7
Others	5	2.3	100.0

Table 1.   Demographic Information of Respondents

The response rate was 46.2%. Among 500 randomly preselected members, 231 responded. Our respondents had diverse characteristics in terms of age and education, which could be seen in Table 1. Responses from 11 respondents, however, were incomplete to such an extent that we could not recover

the missing data and did not satisfy our requirements. We thus omitted these 11 samples, with 220 cases remained in our valid sample.

4 DATA ANALYSIS AND RESULTS

Structured Equation Model (SEM) was used to test hypotheses and we conducted all statistical tests at 5% level of significance, as implemented in Amos Graph 7.0.

4.1 Assessing Measurement Model

Before testing the hypotheses, we assessed the validity and reliability of our measurement model. We demonstrated the strength of measurement model through convergent and discriminant validity (Hair et al. 1998). To determine item-construct loadings, we conducted an exploratory factor analysis in SPSS 18.0.We also conducted a reliability analysis in this software to compute Cronbach's alpha, a widely used indicator of reliability.

The Cronbach's alpha, indicator loadings, and average variance extracted were shown in Table 2. There was adequate reliability because the Cronbach's alpha of all the constructs exceeded the recommended score of 0.7 (Nunnally 1978). For item reliability, all indicators had loadings greater than 0.707, suggesting that more than 50% of the variance in the construct was explained. All the constructs demonstrated strong convergent validity, as indicated by higher loadings of inter-factors than intra-factor.

Items	Cronbach's α	Loadings	F1	F2	F3	F4
Perceived Service Value	.954					
ESSV1		.894	.357	.318	**.737**	.325
ESSV2		.895	.304	.366	**.769**	.284
ESSV3		.924	.390	.366	**.673**	.353
ESSV4		.940	.351	.388	**.692**	.366
Non-monetary Sacrifice	.935					
NMSAC1		0.987	-.334	-.340	-.397	**-.765**
NMSAC 2		0.971	-.380	-.332	-.399	**-.728**
NMSAC 3		0.922	-.410	-.332	-.387	**-.693**
Information Service Quality	.956					
SQ1		0.892	.332	**.774**	.311	.219
SQ2		0.899	.373	**.774**	.282	.212
SQ3		0.889	.323	**.743**	.287	.318
SQ4		0.904	.391	**.719**	.303	.270
OSQ1		0.931	.378	**.739**	.336	.272
User Participation	.946					
UP1		0.863	**.671**	.349	.281	.355
UP 2		0.876	**.726**	.394	.255	.257
UP 3		0.906	**.667**	.432	.354	.280
UP 4		0.886	**.842**	.288	.265	.227
Variance (%)			74.388	4.872	4.413	2.501
Cumulative Variance (%)			74.388	79.260	83.673	86.174

Table 2.   Results of Convergent and Discriminant Validity

The correlation matrix of three dependent variables and the independent variable were shown in Table 3 with the average variances extracted along the diagonals included. The square root of average variance extracted for a construct was larger than its correlations with other constructs, suggesting

adequate discriminant validity (Fornell & Larcker 1981). Diagonals versus non diagonals in Table 3 suggested that all the constructs in our model fulfilled this criterion. Furthermore, the results of factor analyses showed that the loadings of items on their corresponding factors were much higher than cross loadings on other factors (see Table 3). Consequently, all the constructs demonstrated adequate discriminant validity.

Variables	1	2	3	4
1 Perceived Service Value	(.871)			
2 User Participation	.883	(.875)		
3 Information Service Quality	.841	.896	(.854)	
4 Non-monetary Sacrifice	-.900	-.898	-.805	(.820)

Table 3.   Correlations among Dependent and Independent Variables

4.2   Assessing Structural Model

We examined structural model to assess explanatory power of the constructs and significance of the paths with Amos Graph 7.0. Hypothesis testing was performed by examining the size and the significance of path coefficients in the structural model. Information service quality, non-monetary sacrifice and perceived service value were endogenous variables. User participation was an exogenous variable. We first ran the model with control variables and they were not significant ($p>0.05$) so that they were excluded from further analysis.
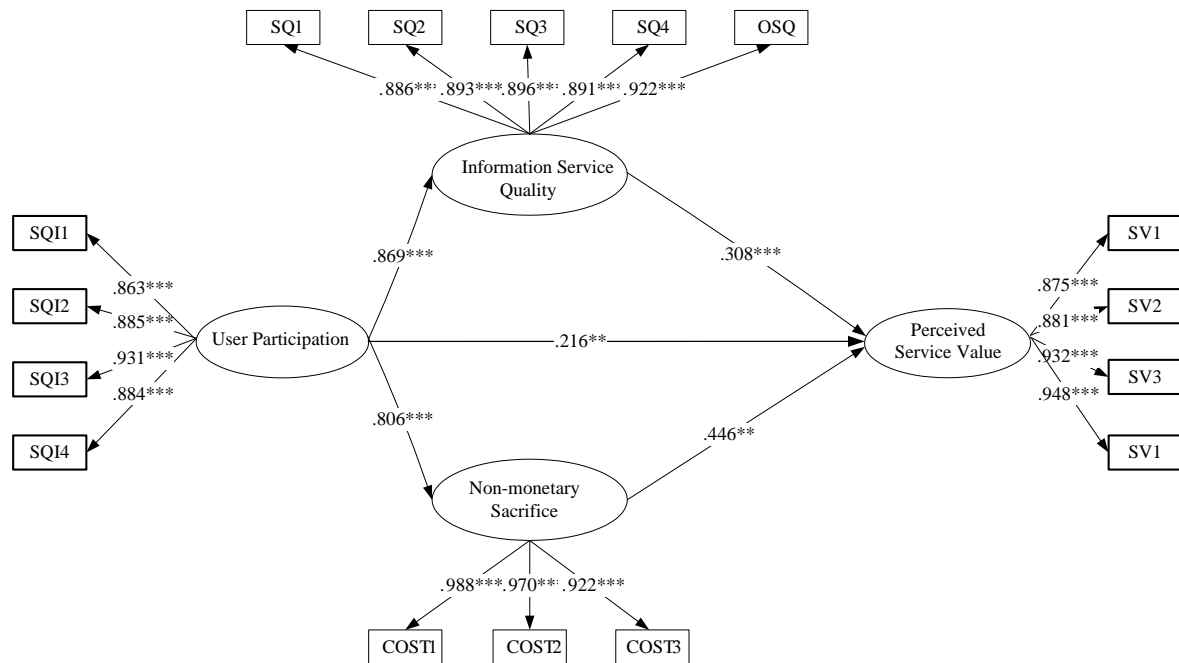
Note. *$p<0.05$, **$p<0.01$, ***$p<0.001$

Figure 2.   Final Research Model

Figure 2 showed the final structural model without control variables. The fit statistics for the model confirmed that it fit the data quite well (IFI=0.990, CFI=0.990, NFI=0.971, TLI=0.987, RMESA=0.048). As to the effect of user participation, our hypothesis of the influence of user participation on perceived service value, information service quality and non-monetary sacrifice were supported by the evidence ($p<0.01$). H3 was supported seeing that higher level of information service quality will demonstrate higher level of perceived service value in the process of ES use. Likewise, we

also found that higher level of non-monetary sacrifice would demonstrate lower level of perceived service value in the process of ES use, hence H4 was supported.

5 DISCUSSION AND CONCLUSION

5.1 Discussion of Findings

The results of this study throw light on effects of user participation on perceived service value of ES users empirically. Specifically, ES users with higher participation will exhibit higher service value with a regression weight of 0.216, while reducing non-monetary sacrifice with a regression weight of 0.806 and exhibiting higher information service quality with a regression weight of 0.869 in the process of enterprise system improvement. H3 and H4 are supported, in consistence with the customer value theory (Heskett et al. 2007), which demonstrates that this theory can also be applied in the context of enterprise system.

In light of user participations' influence on information service quality, we find the result consists with what we know from IT managers and staff. Users with high participation in ES improvement are more likely to get the right information service they want, because the participating behaviour is intended to sheer the result of information service process towards participators' anticipation. Zeithaml and Bitner (2003) reveal that as the level of user participation increases, users are more motivated and committed to co-creation. In light the influence of user participation on non-monetary sacrifice to get the information service, our findings indicate that by taking actions to improve information service, users' time and effort will be saved, especially in the case of information failure.

The direct effect of user participation on perceived service value is unexpected. Some studies in marketing research have proved this relationship. Dong et al. (2008) reveal that increased understanding, ownership and commitment are likely to lead to greater service value. How to get the ES information service reliably and timely depends on the users' participation in enterprise system improvement. Our study contributes to this stream by providing empirical evidence in the context of enterprise system improvement.

5.2 Limitations and Future Research

There are a number of limitations in this paper. First, given the data collection in a Chinese company and small sample size of our study, we must be careful when we generalize the findings to other contexts. In the sample company of our study, IS maturity is high, which not only explains why the user participation has a direct impact on perceived service value of ES users, but also gives the reasons why perceived service value is influenced by the information service quality and non-monetary sacrifice. This paper does not investigate cases in which IS maturity is low. It would, therefore, be useful to replicate this research in other companies in which IS maturity is high.

Second, given the fact that data is collected on both independent and dependent measures through self-reporting at a single point in time, this approach might have given rise to common method bias. Especially, our dependent variable perceived service value of ES users is measured through ES users' self-reporting response, and there could be an inherent bias in the ES users' perceptions of the phenomenon. One way to address this issue is to adopt some objective measurements of how ES is used in an organization; another way is to ask IT staff and ES managers to comment on the service value in an organization in addition to seeking similar comments from the ES users.

Finally, the mediating effects of many organizational variables have been not been examined in our study. In the future research, we can conduct a longitudinal study to track the behaviour and activities of ES users over the years while considering for some organizational characteristics. We have focused only on the individual variables that explain perceived service value. One possible extension is to examine the relationships between perceived service value and organizational outcomes to establish a

linkage between the individual user participation and an organization's performance through the usage of ES.

5.3 Theoretical Contributions

Besides addressing the limitations of this paper, there are also several theoretical contributions. This paper extends the customer service theory by providing the evidence that user participation plays an important role in determining perceived service value. Especially, this paper stress on the importance of service quality variables or non-monetary sacrifice variables in influencing perceived service value by demonstrating that non-monetary sacrifice variable matters more than service quality variable in explaining perceived service value. This finding implies that observable service quality may be less alterable after ES development and implement. However, non-monetary sacrifice which denotes the perceived easiness of use can be improved through user participation. The results will significantly enrich this theory by revealing the inside mechanism of how user participation affects the service quality and non-monetary sacrifice, then enhances the perceived service value.

In previous IS studies, user participation has been identified as critical factors to effective IT adoption, development, and implementation. This paper also contributes to the extant literature by showing the importance of an additional set of contexts in ES use, namely user participation in ES improvement, in influencing an ES user's perceived service value.

5.4 Practical Implications

Our paper has important implications for user participation in organizational activities, especially in the stage of improving enterprise systems. For organizations keen on continual improvement to gain strategic advantage, it is important that IS leaders encourage employees to participate in ES improvement. Our findings may also have some implications for enterprise systems users. For the user who wants to become a key user and get better information service, he should participate in more activities of enterprise system improvement. Such activities include defining the improvement objects, modifying the user interface, and taking part in all the meetings about improvement activities. Our findings can encourage practitioners to explore user participation effects in the process of enterprise system improvement.

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