

Examination of E-market Participants' Satisfaction[♦]

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Abstract

This work addresses the underlying structure of satisfaction of e-market participants. Based on the review of the instrument, it identifies eight types of user's satisfaction. Four types are empirically examined in two studies. The results indicate that these four types are highly correlated although theoretically different.

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1. Introduction

E-markets are information systems widely accepted and used to facilitate and conduct transactions. A variety of e-market systems (EMSs) have been developed, including those using posted price mechanisms, auctions and negotiations. EMS research has focused on user's acceptance of system and the system's impact on their behaviour and transaction efficiency (e.g., Bailey and Pearson 1983; Vetschera, Kersten et al. 2006).

Earlier studies on user's satisfaction with an information system (IS) have been extended to the EMS assessment (Oörni 2003; Thomas and Robin 2004). Although EMS is an example of IS, it has a set of unique capabilities allowing for uni- and multi-directional communication and facilitating economic, socio-economic and social exchange (e.g., Amazon.com, eBay Motor, and Priceline.com). Such a system often provides different exchange mechanisms that can be used for price-only transactions among anonymous users, business exchanges involving products and services described by multiple attributes, and social exchanges between friends and acquaintances. Therefore, EMS assessment may require consideration of different satisfaction constructs than those used in systems designed for individual use (e.g., office productivity application). For instance, satisfaction with exchange process, satisfaction with outcome and satisfaction with counter-party relationship discussed in the context of negotiation support systems (Kersten and Lai 2007) may have significant impact on the EMS use and its effectiveness.

This paper examines different types of user's satisfaction and their role in EMS assessment. The definition of satisfaction is firstly clarified by addressing its relationship with other cognitive concepts. A literature review focusing on the instrument of satisfaction is then conducted and eight types of user's satisfaction are identified.

In order to empirically test the validity of these types of satisfaction we conducted two experiments. The first experiment is exploratory and done in a controlled lab environment. Its purpose was to verify an instrument measuring user's satisfaction in different types of e-markets. In this study three types were considered, i.e., satisfaction with: outcome, self-performance, and process. The instrument was used to assess two types of EMSs. One was a market built on a multi-bilateral negotiation mechanism. The other market had a multi-attribute English auction mechanism. In the second study a web experiment was conducted in which another EMS with a bilateral negotiation mechanism was used. Three types of satisfaction were also examined, but satisfaction with process was replaced with satisfaction with relationship.

The rest of the paper is organized as follows. Section 2 discusses a theoretical background of the current work. The two empirical studies then follow. The paper concludes by discussing the findings from the two studies and their implications.

2. Satisfaction and Its Decomposition

Following Yi (1990), we consider satisfaction being an attitude which involves an integrative

evaluation of an user's attitudes. It is the sum of one's negative and positive attitudes toward the factors that affect the situation (Bailey and Pearson 1983; Woodruff, Cadotte et al. 1983; Yi 1990; Spreng, MacKenzie et al. 1996). Satisfaction is a high-level evaluation that integrates other cognitive constructs, which include cognitive belief, attitude, behavioural intention, and affect. While there are no universally accepted definitions of these constructs, researchers clarified differences among them (e.g., Goodhue 1988; Goodhue 1992).

Studying satisfaction provides an overview of user's psychological responses to the market exchange, because it is an integrative evaluation of such factors as belief, affect and attitude. The importance of satisfaction led to a number of studies undertaken in different contexts and domains, including, marketing (e.g., Woodruff, Cadotte et al. 1983; Novemsky and Schweitzer 2004) and negotiation (e.g., Gillespie, Brett et al. 2000; Novemsky and Schweitzer 2004). In IS research, Goodhue (1988) presents a model to link user's attitude (i.e. satisfaction) and performance, and DeLone (1992) identifies satisfaction as one of the six major categories of IS success. Satisfaction was also studied in reference to different types of information system, including, group decision support and decision support systems (Fjermestad and Hiltz 1998).

In order to choose appropriate subjective variables and measures, a literature review concerning the construct "satisfaction" was conducted. The focus was on user's satisfaction with group decision support system (GDSS), negotiation/negotiation support system (NSS) and computer-mediated communication (CMC), as well as with user's information satisfaction (UIS) and their evaluation of the information system.

The analysis of the IS instruments provided by the Association for Information Systems and also instruments discussed in 34 empirical studies provided concrete suggestions for decomposition of the general concept of satisfaction into different types and also composition of the satisfaction types. Most of the selected papers come from several meta-analyses and surveys, including Fjermestad and Hiltz (1998), Dennis et al. (1996), Baltes et al. (2002), and Shaw (1998). We also reviewed previous studies which investigated satisfaction in negotiations or auctions, such as Oliver et al. (1994), Novemsky and Schweitzer (2004), and Ocker and Yaverbaum (1999). In total, 224 items related to satisfaction used in these studies were analyzed. The items were coded using keywords that reflected different targets or aspects when asking user's satisfaction.

The literature review and analysis of the research instruments used in earlier experiments led us to distinguish the following eight types of satisfaction:

- 1) *Satisfaction with outcome.* The outcomes of the exchange are predictable to a certain degree, based on the environment and selected institution in a market context (Smith 2003). Economic outcomes (which are often presented as the allocation and utility gained by each party) will impact the users, affect how they perceive and respond to the outcomes if they try to maximize their own utility, and then lead to the user's satisfaction with the outcome.
- 2) *Satisfaction with process.* The exchange process involves multiple parties and requires coordinated actions among parties. These actions can be sequenced and their dependencies can be managed in order to improve group performance in coordination.

Institutional theory (e.g. Scott 2005) indicates that a market institution (i.e. a set of rules governing the exchange process) has significant impacts on the market exchange.

- 3) *Satisfaction with performance/decision quality.* If the users adhere to the goal of own utility maximization to a certain degree (if not perfectly), the series of decisions made during the exchange can impact their perception of their own performance in the process. This leads to psychological impacts (e.g. satisfaction with self performance) according to achievement goal theory (Pintrich 2000; Hinkley 2001).
- 4) *Satisfaction with relationship.* According to socio-exchange theory, the exchange is not a simple re-allocation of resources/goods. Before, during, and after the exchange, users may evolve or establish certain relationships based on dependency and power (Emerson 1976; Zafirovski 2003). Thus, the health of the relationships could impact the users and then lead to their satisfaction with the relationship.
- 5) *Satisfaction with information.* The exchange is a process of group decision making, which requires relevant information to support the user's own decision making. According to end-user computing studies (e.g., Doll and Torkzadeh 1988; Rivard and Huff 1988; Mahmood, Burn et al. 2000), users need accurate, fast, sufficient (but not overloaded) information, and rapid feedbacks, in order to achieve high-quality decision making. Moreover, according to cognitive fit theory (Vessey 1991), the information needs to be presented in a format that people can understand.
- 6) *Satisfaction with communication media.* The information needs to be conveyed through certain media to each party involved in the exchange. The richness of communication media can affect user's satisfaction with it. New media (e.g., telephone, telecom, video, audio, and the Internet) are continuously applied to information exchange. According to computer-mediated communication studies (e.g., Suh 1999; Kahai and Cooper 2003), media have different abilities to convey information, which affect the process and the results (Bazerman, Curhan et al. 2000).
- 7) *Satisfaction with technology.* Many computer systems, such as auction, negotiation support, or group decision support systems, are designed to facilitate exchange or decision making. The related system features and tools, such as technology, can affect transactions. According to the technology acceptance model, the perceived ease of use and usefulness can lead to user's acceptance of technology (Davis 1989), which can then contribute to user's satisfaction with the tech-system. Moreover, the task-technology fit model indicates that the fit between tech-system/tool and the given task can lead to performance improvement (Goodhue and Thompson 1995).
- 8) *Overall satisfaction.* A group of instruments is used to measure the overall satisfaction, which aims to get one's overall attitude in evaluation (e.g. Alavi 1994). This is often the case when researcher has no specific purpose in asking the users about their satisfaction.

The identified types of satisfaction indicate that an e-market may be examined from seven different perspectives and one aggregate perspective. These perspectives will likely be correlated, but they have a different basis and at the conceptual level they pertain to different

concepts. They allow for the subjective assessment of EMS.

3. The Laboratory Experiment

3.1 Objectives

The first experiment was conducted in laboratory in a controlled environment. One purpose of the experiment was to compare two different e-market mechanisms with the user's satisfaction being the dependent variable. Three types of satisfaction were selected: satisfaction with outcome (SO), satisfaction with process (SP), and satisfaction with self-performance (SSP). One reason for this selection is based on the review of satisfaction instrument (e.g., Nunamaker, Dennis et al. 1991; Carey and Kacmar 1997; Novemsky and Schweitzer 2004). However, these three types have not been distinguished from each other in terms of their categorization; instead, they were used to describe overall satisfaction.

In this experiment we intended to test if the three types are distinguishable. Earlier studies have either considered satisfaction as one single variable (e.g., Oliver, Balakrishnan et al. 1994; Gillespie, Brett et al. 2000; Novemsky and Schweitzer 2004) or used other cognitive variables as indicators of satisfaction (e.g., Chin, Diehl et al. 1988; Benbasat and Lim 1993; Rangaswamy and Shell 1997). While the former reflects user's satisfaction at a general level, the latter focuses on various specific but narrow aspects of satisfaction. The identified types may provide an appropriate lens for measuring user's satisfaction in various contexts.

3.2 Research Design

Experiment. The exploratory study was carried out in the laboratory. There were two treatments; each involved an EMS (multi-bilateral negotiation or multiple issue limited-information multi-attribute English auctions). In similar experiments, the number of participants engaged in a single transaction varies from 2 to 5 (Thomas and Wilson 2005; Gattiker, Huang et al. 2007). We selected three participants representing one side, i.e., buyers and—in the case of multi-bilateral negotiation—one participant representing the seller.

Each of the two treatments was done in a few sessions, depending on the number of participants who came. Each session included three to four transaction instances (i.e., groups of participants engaged in the same transaction). The number of participants required in each transaction instance was different for the two treatments, four in the negotiation and three in the auction. The participants were allowed to engage in the market transactions only once. In the experiment, each session took two hours. Both pre- and post-interaction questionnaires were administered. The participants were undergraduate students, and the experiment was treated as part of their class activities to learn about e-business. The transactions were conducted anonymously. The procedure was pre-tested in a pilot study that involved 33 subjects.

Case. The case involves an agent of an artist who tries to get a contract from one of three entertainment companies. In the case public information was made available to all parties and different private information was given to each party. The public information was a description of the participants and the context, e.g., the sellers and their needs, and the buyers and their number, and the issues (or attributes) on which the participants needed to agree on. The

private information depicted the preferences structure for each party.

Systems. Two systems were used in the experiments; both were implemented on the same software platform, Invite.¹ The platform allows for the implementation of various EMSs with different system features and market mechanisms in a single integrated environment. The two EMSs that we used are: Imbins supporting multi-bilateral negotiations (i.e. one vs. many), and InAuction supporting a limited-information multi-attribute English auction. These two systems were built with similar user interfaces, functions, and system architecture. This enabled us to focus on the effects of the two EMSs in terms of the market exchange.

3.3 Instrument

Three types of user's satisfaction were examined in this study. The instrument was developed according to suggested guidelines (Straub, Boudreau et al. 2004). An initial item pool was generated from the literature review, followed by four rounds of expert panel discussions which involved three professors, one post-doc, and four graduate students. The questionnaires were also tested through the pilot study, and the instrument was then identified as follows.

Satisfaction with outcome (SO). Existing studies (e.g., Oliver, Balakrishnan et al. 1994; Gillespie, Brett et al. 2000) suggest that users' satisfaction is affected by several factors, including their own utility of the outcome, expectancy disconfirmation, and social comparison. Marketing research suggests that cognitive congruence mediates users' perceptions and their satisfaction regarding an object or stimulus (e.g., Yi 1990; Fournier and Mick 1999). Two components of cognitive congruence, expectation and desire, may also affect user's satisfaction with outcome. The four items that address these factors were used to measure SO.

Satisfaction with process (SP). Market exchange takes place among multiple parties requiring coordination of their interactions. Several factors have been found to affect user satisfaction with the process. The main ones are: *perceived ease of process* (Chin, Diehl et al. 1988), *perceived usefulness of process* (Rangaswamy and Shell 1997; Davey and Olson 1998), *confidence in the process* (Benbasat and Lim 1993; Davis and Kottemann 1994), and *experience gained through the process* (Woodruff, Cadotte et al. 1983). Based on these studies, four items were selected to measure SP.

Satisfaction with self-performance (SSP). Users in the exchange context are not only utility-driven, but also goal-achievement motivated. Their satisfaction with self-performance can be affected by their task-goal and outcome-goal orientations (Pintrich 2000). People who have the task-goal orientation incline to focus on improving performance (compared to their past performance); in contrast, people with the outcome-goal orientation prefer to compare themselves with others (Nicholls 1989; Duda 1996). We included questions about subjective evaluation of self-performance in conducting the task and achieving the results, which led to four items for measuring SSP.

The items used to measure these three types of user's satisfaction are in the form of seven-point Likert scale. The questionnaire can be found in Appendix 1.

¹ <http://invite.concordia.ca/>

3.4 Data analysis and results

Descriptive statistics. The data analysis was based on responses obtained from 141 participants. Most of the participants were between 20 and 30 years old. The descriptive analysis of the participants is given in Table 1. In the data set, there are 20 instances in Imbins and 27 instances in InAuction (i.e. 47 instances in total). In multi-bilateral negotiations, in which Imbins was used, there were four participants in each instance: the artist's agent and the representatives of the three entertainment agencies. In English auction, in which InAuction was used, there were only representatives of the three entertainment agencies. In both treatments, the ratio of female to male participants was similar: 71.4% in Imbins and 72.3% in InAuction.

Table 1

Descriptive Statistics of Samples

Treatment	Negotiation	Auction	Overall
No. of instances	20	27	47
Female	35	47	82
Male	25	34	59
No. of participants	60	81	141

Exploratory factor analysis (EFA). Initially, twelve items were used to measure the user's satisfaction with outcome, self-performance, and process (i.e., four items for each construct). In order to test the reliability and validity of the instrument, an exploratory factor analysis (EFA) was conducted. In the EFA, we used Maximum Likelihood as the extraction method. Promax (with $kappa=4$) was used as the rotation method, because it is effective when there are possible correlations among factors. The EFA gave very good results. Only one item loaded relatively low at 0.527. Although items with loading greater than 0.5 can be accepted in an EFA, we decided to drop this item (i.e. the item of SSP2 in Appendix 1) because all remaining items have loadings above 0.75.

After dropping the lowest loading item, another EFA was conducted. Table 2 shows the results; they indicate that the measurement has both internal and discriminate validity. Cronbach's Alpha, as the index of internal reliability, is also shown in the table.

Table 2

Validity and Reliability of Satisfaction Measures

Items	Factor			Cronbach's Alpha
	1	2	3	
SO1	.881	.013	.045	0.938
SO2	.878	.091	-.020	
SO3	.920	-.031	-.022	
SO4	.882	-.065	-.005	
SSP1	.038	.062	.785	0.863
SSP3	.081	.012	.822	
SSP4	-.093	.046	.766	
SP1	.032	.873	-.007	0.933
SP2	.072	.904	-.030	
SP3	-.114	.884	.047	
SP4	.020	.792	.085	

Multivariate analysis of variance (MANOVA). In order to examine the differences between the three types of user's satisfaction a MANOVA was conducted. The participants' satisfaction was analyzed separately for 1) all participants, 2) the winners, and 3) the non-winners only. Market mechanisms were found to have no significant effect on user's satisfaction in the first and second group (i.e. the overall participants and the winners). However, the test of between-subjects effect indicates that mechanisms have significant effect on non-winners' satisfaction with outcome. Non-winners in auction significantly get more satisfaction with outcome compared to those in negotiation. At a 0.1 level, mechanisms have significant effect on non-winners satisfaction with self-performance. Non-winners in auction reach a higher level satisfaction with self-performance compared to those in negotiation. The effect between mechanisms and satisfaction with process is not significant.

The result from the first study suggests that the level of user's satisfaction with the outcome and self-performance is different in each EMS. There is no difference with regard to the satisfaction with the process.

4. The Second Study

4.1 Objectives

The follow up study was motivated mainly by the result from the first study though the initial purpose of the experiment was to assess a bilateral negotiation system implemented on Invite. In this study, the instrument for the two constructs SO and SSP were refined and SP was replaced with satisfaction with relationship (SR). We replaced SP with SR because it was deemed more appropriate for the EMS used in this study and the setting. The system employed bilateral negotiations and it was used on the web rather than in a lab. In addition, the results of the first study showed that EMS users did not make difference in terms of their satisfaction

with the process.

Satisfaction with relationship (SR) may be an important type in market transactions, in particular when negotiations are used (Chidambaram 1996; Zafirovski 2003; Subramanian and Zeckhauser 2004). The question is whether this is also the case in negotiation between anonymous business partners. The second study intends thus to examine if SR plays an important role in assessing e-markets, particularly the negotiation-based EMSs.

4.2 Research design

Experiment. This study was conducted through a web-based experiment. Bilateral negotiations were implemented. Each negotiation was given three weeks. People from all over the world could participate in the experiment, while most of them were university students from business programmes. The participants first registered online and they were then randomly matched into pairs. Similar to the previous study, the participants filled out the online pre- and post-interaction questionnaires respectively before and after the negotiation. Also in this experiment the transactions were conducted anonymously.

Case. The same case as the exploratory study was used, but only two parties were involved. This depicts a scenario of bilateral negotiation between an artist's agent and an entertainment company.

System. Inspire, which is implemented on Invite and embeds a bilateral negotiation mechanism, was used to conduct the experiment. Inspire as an EMS enables two parties exchanging contract proposals with structured offers and/or free-text messages.

4.3 Instrument

The results of the first study led us to make minor modification of the wording of a few questions. Also, because the initial item SSP2 was not highly loaded, it was replaced with questions that addressed the user's self-confidence in performing the negotiation. The remaining items for SO and SSP were same as in the first study.

Satisfaction with relationship (SR). E-market participants' attitude towards the relationship with other participants has been investigated (e.g., Nunamaker, Dennis et al. 1991a; Chidambaram 1996). The four items for measuring satisfaction with relationship were also developed following the same procedure as in the first study. The instrument was pre-tested using the Inspire system in a lab experiment and the four items were kept. As in the first experiment, each type was measured by four items with a seven-point Likert scale. The revised questionnaires are given in Appendix 2.

4.4 Data analysis and result

Descriptive analysis. Total 362 university students registered and participated in the experiment, and the effective data finally was obtained from 283 respondents. From the

analysis of their response in the pre-negotiation questionnaire, 44% was female and 56% was male. Also, the age of most of the participants was from 20 to 40 while around 7% from other age groups. The participants were originally from various countries over the world, most of them from North America, Europe, and Asia.

Confirmatory factor analysis (CFA). With this data sample, a CFA was used to test and refine the measures for the three types of user’s satisfaction. Because the data showed some degree of non-normality and it was a relatively large sample, the CFA model was tested with the Robust Maximum Likelihood (ML) method available in EQS 6.1. In order to catch the sources of the model misspecifications, the Lagrange Multiplier (LM) test was also used. The results, given in Table 3, showed a reasonable overall goodness of fit (CFI=.951 and RMSEA=.064).

Table 3

Model Specification and Goodness of Fit

Model Specification	χ^2 (d.f., p value)	CFI	RMSEA (90% confidence interval)
SO: SO1, SO2, SO3, SO4 SSP: SSP1, SSP2, SSP3, SSP4 SR: SR1, SR2, SR3, SR4	109.4322 (51, .000)	.951	.064 (.047, .080)
SO: SO1, SO2, SO3, SO4, SSP1, SSP3 SSP: SSP1, SSP2, SSP3, SSP4 SR: SR1, SR2, SR3, SR4	86.1139 (49, .001)	.969	.052 (.033, .069)
SO: SO1, SO2, SO3, SO4, SSP1, SSP3 SSP: SSP1, SSP2, SSP3, SSP4 SR: SR1, SR2, SR3	49.5576 (39, .120)	.990	.031 (.000, .055)

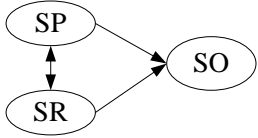
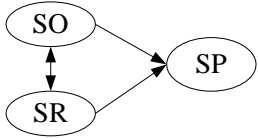
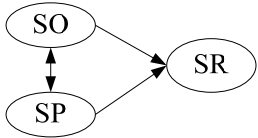
However, in the largest standard residuals, more than five parameters were related with indicator SSP3. Also, the LM test univariate incremental χ^2 statistic revealed strong evidence of misspecification with respect to the cross-loading of SSP1 and SSP3 on SO. These two items were then further reviewed in the questionnaire, and it indicates that there might be some ambiguity between user’s satisfaction with negotiation outcome and negotiation performance. Although the ambiguity can be eliminated by dropping one or both of these two items, it may be interesting to keep them as they reflect both SO and SSP, and to test how sound they can be used to measure these two types of user’s satisfaction and how they relate with each other. Since existing literature has not even very clearly distinguished SO and SSP, this examination may gain some evidence to show their similarities and differences in assessing different EMSs.

Moreover, the error co-variance (E12, E11) also indicated a significant difference in χ^2 statistic. After checking the two items (SR3 and SR4), it indicates that the items may have an overlap in their meanings (i.e. the counterpart “acted in good faith” and “was honest”). Thus, instead of adding this parameter, it may be more appropriate to remove one item (see Table 3). Relatively, the word “honest” may be too general to catch user’s satisfaction with the relationship in EMSs. With double checking other largest residuals and the LM test result, the item SR4 was finally dropped from the model.

The CFA model for user’s satisfaction was re-specified to include or eliminate these parameters. The revised model showed a much improved fitting (CFI=.990 and RMSEA=.031) and the LM test also showed no significant improvement needed. Table 3 summarizes the model specification with the fit indices. After obtained a well fitting overall model, the individual parameter estimates were assessed and the result showed a good model fit.

Structural equation modeling (SEM). In order to further test the relationships among the three types of user satisfaction, the SEM technique was used to test the proposed models. The results are given in Table 4.

Table 4
The Relationships among SO, SSP, and SR

Model	ML Solution	R ²
	$F1 = .274 \times F2 + .702 \times F3 + D1$ $F3 = .940 \times F2 + D3$.610 .201
	$F1 = .274 \times F2 + .702 \times F3 + D1$ $F2 = .213 \times F3 + D2$.610 .201
	$F2 = .127 \times F1 + .117 \times F3 + D2$ $F1 = .760 \times F3 + D1$.596 .228
	$F2 = .127 \times F1 + .117 \times F3 + D2$ $F3 = .784 \times F1 + D1$.596 .228
	$F3 = .726 \times F1 + .262 \times F2 + D3$ $F1 = .934 \times F2 + D1$.204 .608
	$F3 = .262 \times F2 + .726 \times F1 + D3$ $F2 = .218 \times F1 + D2$.204 .608

Because the six models specified different directions between the three factors (i.e. types of user’s satisfaction), the Akaike’s Information Criterion (AIC) and Consistent Akaike’s Information Criterion (CAIC) fit indices were used to compare these non-nested models. The outputs for the six proposed models showed equal values to each other on AIC (-29.40) and CAIC (-210.30). Moreover, other fit indices were also good but very close for the six models (CFI=.991 and RMSEA=.030). The LM test showed only two possible misspecifications (V₄, F₂; V₃, F₃), while they were considered tenable after reviewing the items and the test results. Furthermore, in terms of the effects of the individual paths, the output showed that all the relationships specified in the model were significant at a 5% level. The results thus indicate that users reported all the three types of satisfaction in this study.

The R² shows no difference between the two models in the same column in Table 4 (i.e. the two possible directions between the independent variables); however, the effects of the directions and strength of the paths in the models vary. Relatively, the result shows a stronger relationship between SR and SO. In addition, SSP also more strongly affects SO and SR while it is not affected by those two. The results indicate that, again, the types are highly correlated but

they are theoretically different.

Group analysis. A further descriptive analysis shows that 126 dyads reached an agreement and 11 did not. In order to compare with the first study in which the entertainment companies were bidders, in the second study a participant who presented the entertainment company and reached an agreement with the artist's agent was considered as a winner. Since there were more than eleven variables in the models, the group comparison between winners and non-winners cannot be done with the small non-winner sample. Nevertheless, a group analysis was conducted to examine whether the EMS led difference in terms of user's satisfaction between the winners and the overall group (i.e. all the participants who presented the entertainment company). Winners showed significant improvement of their satisfaction with self-performance ($p < 0.01$), which demonstrated as a strong mediator in the model set 1 and 3 (i.e. the first figure and the third figure in Table 4). Comparing to the overall group, SSP showed stronger relationships with SO and SR while the correlation between the latter two were weaken or even became non-significant.

5. Discussion

5.1 Findings

The measurement scales for four types of user's satisfaction (i.e. SO, SP, SSP, SR) were developed, refined and tested in two experimental studies. In these experiments we used three different EMSs with different market mechanisms (multi-bilateral negotiation, limited-information multi-attribute English auction, and bilateral negotiation).

In the first study, the three types (SO, SSP and SP) were used to assess and compare two similar EMSs. The results show that the EMSs led to different level of user's satisfaction (SO and SSP) in the non-winners group, while no significant difference of SP in all groups.

In the second study SO, SSP and SR were used to assess another EMS. The CFA results show a misspecification of the similar items for SO and SSP. The SEM demonstrates three possible relationships among SO, SSP and SR. The correlation between satisfaction with outcome and relationship is stronger than that between the other two combinations. Satisfaction with self-performance affects satisfaction with outcomes and relationship but it is not affected by them. When comparing the winners group with the overall group, however, the relationships changed. In this group, the EMS had stronger influence on the SSP value than in the group where there was no a winner. SSP was also found to have a strong mediating effect between SO and SR in the winners group, while SO was not directly correlated with SR in this group.

The results from these two studies indicate that the identified types of user's satisfaction are highly correlated but theoretically different.

5.2 Implications

The consideration of the overall user satisfaction in EMS assessment does not allow distinguishing the different purposes of the system and the impact that such a system may have on the economic, organizational and social outcomes. The purpose of many market

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