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Antecedents of E-Service Continuance an Empirical Study on Chinese Online Travel Services Users

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ANTECEDENTS OF E-SERVICE CONTINUANCE: AN EMPIRICAL STUDY ON CHINESE ONLINE TRAVEL SERVICES USERS

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Abstract

Electronic services (e-services) have become widely accepted by the customers. At the same time, customer retention remains to be a key managerial challenge. This calls for further research identifying the determinants of continuous e-service use. However, research examining service quality as a determinant of continuous e-service use is scant. This study proposes a model for examining the e-service continuance intention by incorporating perceived ease of use and perceived service quality in the IS continuance model of Bhattacherjee (2001). The model is empirically tested with a data collected from 543 Chinese online travel service users and analyzed using PLS. The model was found to explain 38.9 percent of the continuance intention. Perceived service quality was found to be a significant antecedent of continuance intention together with satisfaction and perceived usefulness. Furthermore, the results suggest that users' affect (satisfaction) is becoming a salient predictor of the continuance intention in the e-services setting, and the construct of perceived e-service quality should be considered in IT continuance research. The paper concludes that perceived e-services quality, as an important construct, should be considered in future IT continuance research.

Introduction

Information technology (IT) and information system (IS) adoption has traditionally been one of key research streams of the Information Systems discipline. In the last two decades most research on IT adoption has focused primarily on the initial user acceptance of IT, largely by, employing intention-based models such as Technology Acceptance Model (TAM) [1], Theory of Planned

Behaviour (TPB) [2], and Unified Theory of Acceptance and Use of Technology (UTAUT) [3]. Though the initial user acceptance of IT is important, it is just the first step toward overall IT success. Positive economic returns and enhanced productivity are what organizations expect from their investments in IT [4][5]. As Kim and Malhotra [6] and Venkatesh et al. [3] argued, productivity benefits typically accrue in the sustained use stage of IT. Moreover, Bhattacherjee [7] and Limayem et al. [8] have highlighted the importance of IS continuance to assure a successful IT implementation. According to Bhattacherjee [7], the long term viability of an IT and its eventual success depend on users' continuance of IT rather than the initial acceptance. Thus, recently IT continuance has achieved attention in the technology adoption and acceptance field of research. A number of studies have been conducted to explore the determinants of IT continuance at individual level [7][8][9][10][11]. Though in the prior IS literature, service quality was assumed to have influence on continuance intention to use IT, research examining e-service quality as a determinant of continuous e-service use is scant. Particularly little research has been attempted to integrate e-service quality into IT continuance models to explore its influence on e-service continuance intention.

Different models have been employed in explaining users' intention to continue using IT. One main school of thought implicitly views IT continuance as an extension of acceptance behavior. A vast body of research has examined the IT continuance and post-adoption behavior by extending the acceptance model in a longitudinal setting and employed the same set of variables as in IT acceptance [9][10][11][12][13]. The first school assumes that IT users' beliefs about technology and the outcomes of using it can explain both acceptance and continuance decisions. Another school views determinants of user's initial acceptance of IT at least to a certain extent different from continuous usage of IT [14][15]. As an example, Expectation-Confirmation Theory (ECT) [16][17] has been recently introduced into individual-level IT adoption research. With regard

to IT continuance, ECT has been employed to explain how and why user reactions change over time. Compared to the first school of thought focusing almost exclusively on beliefs about the technology and the outcomes of using it, the second school of thought assumed that IT users' beliefs about technology and affective responses to the behavior can explain their continuance decisions across a variety of information technologies [7]. Furthermore, this school views certain beliefs influencing users' subsequent continuance decisions, but not necessary the initial acceptance of technology.

This study extends and empirically tests a research model based on the IS continuance model by Bhattacherjee [7] in the e-service context. The paper makes two main contributions in the post-adoption behavior and IT continuance research: i) it incorporates service quality in the IT continuance model; ii) it pays specific attention to the features on the e-service by integrating perceived ease of use in the research model.

Theoretical Background

Expectation-Confirmation Theory

Expectation-Confirmation Theory (ECT) is widely used as a theoretical framework in the consumer behavior literature to investigate both consumer satisfaction and re-purchase decisions [16]. A vast body of empirical research have confirmed the predictive power of ECT in explaining product repurchasing and service continuance in different contexts [17][18][19].

ECT posits that consumers' satisfaction with their prior use of a product or a service determines their intention to repurchase [20][21]. In turn, consumer satisfaction is determined by their pre-purchase expectations and the dissonance between their pre-purchase expectations and perceived performance. The possible dissonance between pre-purchase expectations and perceived performance is captured in the construct of confirmation. Consumers' expectations will be positively confirmed when the perceived performance of the product/service is better than what they have expected, and negatively confirmed when the perceived performance is worse than what they have expected. Confirmation, in turn, determines the level of satisfaction. Satisfied consumers are likely to form a repurchase intention, while dissatisfied consumers will not continue purchasing the product/service any more.

IS Continuance Model

ECT was first introduced to IS context and adapted by Bhattacherjee [7]. He applied ECT in the IT usage setting and developed the IS continuance model (See Figure 1). According to Bhattacherjee [7], individual's continued IT usage decisions are similar to consumer's repeated purchase decisions. Both individual's continued IT usage decisions and consumer's repeated purchase decisions are based on their initial decision of IT acceptance or product/purchase, and influenced by their initial use of IT or their initial use of product/service. Bhattacherjee [7] distinguished the differences between IT acceptance and IT continuance behavior, and proposed the IS continuance model based on ECT with some modification to adapt ECT into the IT use setting.

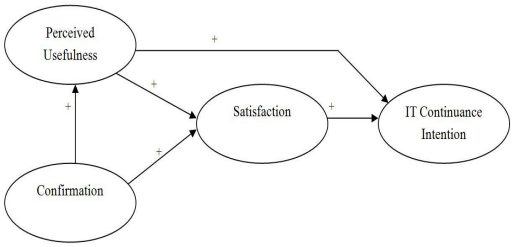


Figure 1 IS continuance model

In the IS continuance model, perceived usefulness was integrated into the ECT framework together with confirmation of expectation and user satisfaction to explain users' continuance intention to use IT. Bhattacherjee [7] highlighted the importance of post-adoption expectations in post-adoption stage and developed the original ECT from the mixed both pre- and post-adoption assertion into a pure post-adoption model [7]. Prior technology acceptance research asserted that perceived usefulness was an adequate expectation in the context of IT continuance. Perceived usefulness was assumed to be a belief that is demonstrated to have consistent impact on users' intention to use IT across temporal stages of IT use, such as IT acceptance stage and IT post-adoption stage [1][14]. In the IS continuance model, perceived usefulness represents IT users' post-adoption expectations after their initial use of IT. The original ECT focuses on the pre-adoption expectations but not explicitly discuss the post-adoption expectations. The IS continuance model [7], on the other hand, focuses solely on the post-adoption expectations. In fact, post-adoption expectations are especially important in predicting IT continuance since users' expectations on IT may change over time.

In the IS continuance model, users' satisfaction with their prior usage of IT and their perceived usefulness of IT usage both have positive influence on their continuance intentions to use IT. User satisfaction with IT is determined by their perceived usefulness of IT (post-adoption expectations) and their confirmation of

expectations from their prior IT usage. In addition, IT users' confirmation of expectations has positive influence on their perceived usefulness of IT.

Recently, the IS continuance model [7] has been rather widely applied in different IT contexts. It has been used to investigate user's intention to continue using IT in different research contexts, such as e-learning [11][12], e-commerce [22], mobile internet usage [23], virtual communities [24], and web site usage [25].

The Research Model and Hypotheses

The IS continuance model by Bhattacherjee [7] provides an solid starting point for further exploration of IT continuance since it has explained IT continuance with a growing empirical base in the IS literature. In this research, the IS continuance model was expanded by incorporating the perceived ease of use and the perceived service quality (See Figure 2). Thus, drawing on both ECT and the IS continuance model [7], the following set of hypotheses are suggested:

H1: Satisfaction with the e-service is positively related to the continuance intention.
H2: Perceived usefulness of the e-service is positively related to the continuance intention.
H3: Perceived usefulness of the e-services is positively related to the satisfaction with the e-service.
H4: Confirmation of expectations is positively related to the satisfaction with the e-service.
H5: Confirmation of expectations is positively related to the perception of usefulness of the e-service.

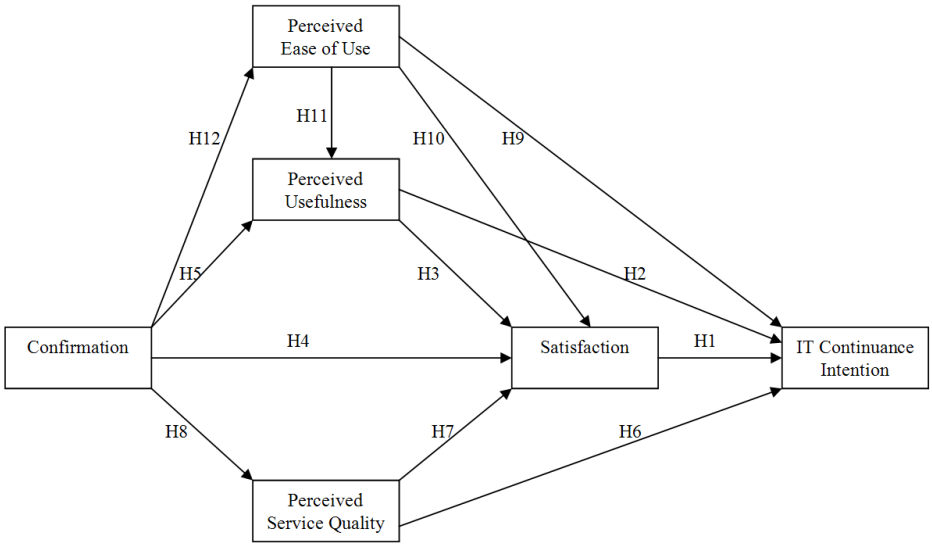


Figure 2 The research model

Incorporating perceived service quality in the ECT based IS continuance model

Prior research on IS success and user satisfaction with IT provide theoretical support for incorporating perceived service quality in the original ECT based IS continuance model [7]. User satisfaction has been suggested to be a salient antecedent of IT users' continuance intention [7][22][28][29], and perceived service quality is a key driver to user satisfaction [26][27]. Wixom and Todd [13] suggested that when investigating the post-adoption behavior of IT users, the two constructs of perceived service quality and user satisfaction should be considered. This study includes perceived service quality into the research model in order to explore its role in explaining e-service continuance intention. In the current research perceived service quality is expected to have effects on both IT users' continuance intention directly and indirectly via user satisfaction. Respectively, it is hypothesized:

H6: Perceived service quality of the e-service is positively related to the continuance intention.
H7: Perceived service quality of the e-service is positively related to the satisfaction with the e-service.

IT users' confirmation of expectations was assumed to have effect on their post-adoption beliefs since actual experience of IT usage will confirm or disconfirm the IT users' initial expectations prior to their actual usage of IT. Perceived service quality is also an object-based belief about IT [30]. Thus, it is hypothesized:

H8: Confirmation of expectations is positively related to the perception of e-service quality.

Incorporating perceived ease of use in the ECT based IS continuance model

Prior research on IT adoption and IT continuance based on TAM have indicated that perceived ease of use is a consistent predictor of IT users' intentions to use and continue using IT [1][31][32]. It has both direct and indirect influence on IT users' intention to use or continue using IT via perceived usefulness. As Thong et al. [23] argued that features of IT also have an effect on users' continuance intention to use IT. In the IT continuance model, only perceived usefulness was assumed to have impact on the continuance intention. In prior research on IT adoption, perceived ease of use was assumed to be closely related with the complexity of IT usage [33]. Thus, perceived ease of use is incorporated in our research model. In this study, perceived ease of use is expected to have direct impact on the satisfaction of IT users and both direct and indirect effects on IT users' continuance intention to use IT via perceived usefulness in the e-service context. Thus, it is suggested:

H9: Perceived ease of use of the e-service is positively related to the continuance intention.
H10: Perceived ease of use of the e-service is positively related to the satisfaction with the e-service.
H11: Perceived ease of use of the e-service is positively related to perceived usefulness.

Similar to the reasoning applied to the association between confirmation and perceived usefulness, IT users' confirmation of expectations is also expected to positively affect their perception of ease of use. When IT users gain confirmation experience, their perception on ease of use will be adjusted and become more concrete. Thus, it is hypothesized:

H12: Confirmation of expectations is positively related to the perception of ease of use of the e-service.

Research Methodology

Data collection

The data was collected among Chinese online travel service customers. The customers were asked to indicate their motivating factors for continued usage of online travel services based on their previous experience of online travel service. The scale used in the current study was developed mainly based on previous researches in IT continuance research with some modifications and rewordings to meet the requirement of the specific research context. A five-point Likert-scale ranging from strongly disagree (1) to strongly agree (5) was used to measure each item.

Demographic profile	Category	Frequency	Percentage (%)
Gender	Male	336	61.9
	Female	207	38.1
	Total	543	100.0
Age	18-25	172	31.6
	26-35	165	30.4
	36-45	152	28.0
	46-55	34	6.3
	56-65	20	3.7
	Total	543	100.0
Education	College student	104	19.2
	Bachelor's level	287	52.9
	Master's level	114	21.0
	Ph.D level	38	7.0
	Total	543	100.0
Duration of using Internet	More than 2 years	82	15.1
	More than 3 years	461	84.9
	Total	543	100.0
Frequency of using Internet (hours per week)	Less than 5 hours	64	11.8
	5 to 10 hours	119	21.9
	More than 10 hours	360	66.3
	Total	543	100.0
Online travel service booking experience	1-5 times	232	42.7
	More than 5 times	311	57.3
	Total	543	100.0

Table 1 Demographic profile of respondents

The questionnaire was delivered to the randomly selected customers by mail. Totally 1500

questionnaires were mailed to potential respondents, and 553 of them response to the survey completely. Among the 553 respondents, only 503 of them are used as the sample base of the current study and 50 of them have been deleted because they indicated that they have no usage experience of online travel services. The response rate of 33.5% can be considered acceptable. In general, in information systems research the response rate for questionnaires ranges from 8% to 15%. The majority (90%) of the respondents are among the age groups between 18 to 45 years old and 61.9% of them are male. The sample in the current research is considered to represent the Internet users in China based on the Internet usage report released by the China Internet Network Information Centre [34]. All of them have already had the usage experience of online travel service (See Table 1).

Reliability and Validity

Partial Least Squares (PLS) was employed in the current study to test the measurement model and the structural parameters in the proposed research model.

The test results showed that almost all of the factor loadings are satisfactory with the cut-off value above 0.7, except one of them is acceptable with the cut-off value between 0.5 and 0.7 [35]. The Cronbach's alpha values ranges from 0.702 and 0.819, and all of them are over the 0.7 level. The values of composite reliability (CR) and the average extracted variance (AVE) satisfy the cut-off value 0.7 and 0.5 respectively, which indicates good internal consistency and reliability [36][37][38] (See Table 2), supporting the convergent validity of the data.

Constructs and items	Loading	St. Error	t-value
Perceived Ease of use (PEOU) α=0.775 CR=0.870 AVE=0.691			
Item1 It is easy to look for travel information.	0.864	0.017	49.754
Item2 It is easy to move around the website.	0.868	0.016	55.533
Item4 It is easy to do what I want to do, for example searching information, making an order.	0.757	0.050	15.139
E-service quality (ESQ) α=0.807 CR=0.912 AVE=0.838			
Item1 Based on my previous online booking experience, I feel the online travel service quality is good.	0.915	0.010	89.578
Item2 The online service quality is better than I expected.	0.915	0.013	67.847
Perceived Usefulness (PU) α=0.702 CR=0.823 AVE=0.609			
Item1 It is possible to get cheaper prices using online travel service.	0.828	0.178	46.536
Item2 Online travel service is convenient.	0.788	0.027	28.369
Item3 Using online travel service can save time for me.	0.722	0.028	25.464
Item4 For me online travel service is useful.			
Confirmation(CON) α=0.729 CR=0.836 AVE=0.632			
Item1 The service encounter is better than I expected.	0.672	0.062	10.699
Item2 Most of my expectations from using online travel service were confirmed.	0.888	0.024	36.772
Item3 As a whole, my last online travel service encounter experience was positive.	0.811	0.042	19.171
Satisfaction(SAT) α=0.705 CR=0.826 AVE=0.613			
Item1 I am satisfied with my last experience on online travel service booking.	0.773	0.027	27.669
Item2 I am very pleased with online travel service in my last experience.	0.796	0.023	36.634
Item3 I think I made a right decision when using online travel service I selected.	0.780	0.023	33.985
Continuance Intention(CI) α=0.819 CR=0.893 AVE=0.735			
Item1 I intent to use the service also in the future.	0.864	0.012	68.495
Item2 I intend to use the service more in the future.	0.862	0.017	49.419
Item3 I intend to use similar competing online travel service than any other alternatives.	0.844	0.016	50.183

Table 2 The Measurement Model

As shown in Table 3, the square roots of AVE of all constructs are greater than the correlation estimate with the other constructs, which indicates that each construct in the research model is more closely related to its own measures than to those of

other constructs. Thus, the criteria for discriminant validity were met [39]

	PEOU	ESQ	PU	CON	SAT	CI
PEOU	**0.831**					
ESQ	0.448	**0.915**				
PU	0.467	0.386	**0.780**			
CON	0.145	0.095	0.117	**0.795**		
SAT	0.435	0.342	0.427	0.325	**0.782**	
CI	0.320	0.476	0.434	0.102	0.509	**0.837**

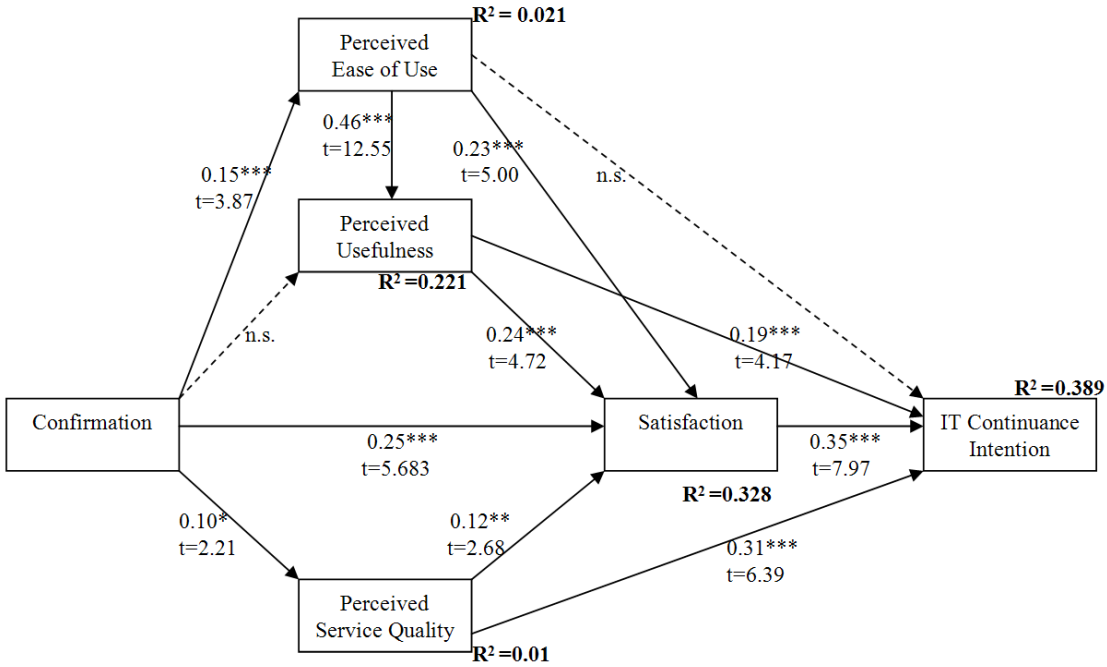
Note. The bold items on the diagonal represent the square roots of the AVE; the off-diagonal elements are the correlation estimates.

Table 3 Correlation Matrix and Discriminant Assessment

Results

A bootstrapping procedure was employed to test the effects and the statistical significance of the parameters in the structural model.

The test results provide significant support for all the hypotheses, except for H5 (CON to PU) and H9 (PEOU to CI). Perceived usefulness, satisfaction and perceived service quality were found to be the significant predictors of users' continuance intention to use online travel services, and satisfaction was ranked as the most salient factor motivating users' continuance intention to use online travel services, followed by service quality and perceived usefulness. Perceived ease of use, perceived usefulness, confirmation, and perceived service quality have significant influences on user satisfaction. Confirmation has also significant effects on perceived ease of use and perceived service quality. As expected, perceived ease of use is a strong predictor of perceived usefulness. The proposed intention model explains 38.9% of IT continuance intention. Perceived ease of use, perceived usefulness, confirmation and perceived service quality account for 32.8% of satisfaction, and perceived ease of use for 22.1% of perceived usefulness. In addition, confirmation accounts for 2% and 1% of perceived ease of use and perceived service quality respectively (See Figure 3).



*Note: ***: p-value<0.001, **: p-value<0.01, and *: p-value<0.05, n.s. = not significant*

Figure 3 Structural analysis of the research model

Discussion and Conclusions

The results demonstrate that satisfaction and perceived service quality are the primary drivers of the continuous use intention in the context of online travel services. The results support the assertion that the determinants of initial and continuous use are to some extent different. Furthermore, perceived ease of use had no impact on the continuance intention, potentially suggesting that using online travel services is not a particular challenge for experienced users. This finding is consistent with the prior finding of Chea and Luo [40] who found IT users' affect and cognition both have impact on the post-adoption behaviour, and that they interplay.

Second, the results show that perceived service quality has a stronger influence on IT continuance intention than perceived usefulness, suggesting that the use of e-services is driven by total service quality of e-service rather than just by the usability of e-services, such as perceived usefulness. In sum, this finding underscores the importance of

empirical examination of the perceived service quality and its determinants to better understand the rationale behind sustained e-service use.

Third, the results confirm that perceived ease of use, perceived usefulness, confirmation and perceived service quality are all relevant determinants of user satisfaction. Thus, to increase user satisfaction, e-service providers should attempt to improve their service quality, their system functions and enable positive experience to the users.

Fourth, confirmation was found to have no significant effect on perceived usefulness, yet it is positively related to both perceived ease of use and perceived service quality. This finding is in contrast with the previous research results in ECT viewing confirmation as a predictor of perceived usefulness [7][23]. It can be assumed that online travel service users have rather clear and concrete expectations of the perceived usefulness of online travel services before their adoption, and therefore confirmation does not have an influence on perceived usefulness. Furthermore, confirmation has only a marginal effect on perceived ease of use and perceived service quality. Thus, the findings from the current study would indicate that confirmation is not necessarily the major predictor of all post-adoption beliefs.

Limitations and Future Research

As with all research, a number of limitations still need to be acknowledged. First, the empirical study was conducted only in China. Future research is needed to validate the research model with different populations of users in different types of e-services. Second, the study tested users' IT continuance intention in the context of online travel services. Hence generalizing the results should be done cautiously. Thus, there is scope for future research to test the research model in different contexts in order to further test the model. Finally, the current study investigated the continuance intention as the dependent variable. Thus, future studies could explicitly examine also the actual continuous adoption behaviour of e-services.

References

[1] Davis, F.D. Perceived usefulness, perceived ease of use and user acceptance of information technology, *MIS Quarterly*, 13(3), 1989, pp. 319-340.

[2] Ajzen, I. The theory of planned behaviour, *Organizational Behaviour and Human Decision Process*, 50(2), 1991, pp. 179-211.

[3] Venkatesh, V., Michael, M.G., Davis, G.B. and Davis, F. D. User acceptance of information technology: Toward a unified view, *MIS Quarterly*, 27(3), 2003, pp. 425-478.

[4] Brynjolfsson, E. and Hitt, L. Paradox lost? Firm-level evidence on the returns to information systems spending, *Management Science*, 42(4), 1991, pp. 541-558.

[5] Santhanam, R. and Hartono, E. Issues in linking information technology capabilities to firm performance, *MIS Quarterly*, 27(1), 2003, pp. 125-153.

[6] Kim, S. S. and Malhotra, N. K. A longitudinal model of continued IS use: An integrative view of four mechanisms underlying post-adoption phenomena. *Management Science*, 51(5), 2005, pp. 741-755.

[7] Bhattacherjee, A. Understanding information systems continuance: An expectation confirmation Model, *MIS Quarterly*, 25(3), 2001, pp. 351-370.

[8] Limayem, M. and Hirt, S.G. Force of habit and information systems usage: theory and initial validation, *Journal of the Association for Information Systems*, 4, 2003, pp. 65-79.

[9] Gefen, D., Karahanna, E. and Straub, D.W. Trust and TAM in online shopping: An integrated model, *MIS Quarterly*, 27(1), 2003, pp. 319-340.

[10] Hu, P.J-H, Brown, S.A., Thong, J., Chan. F. and Tam, K.Y. Determinants of service quality and continuance intention of online services: the case of eTax, *Journal of the American Society for Information Science and Technology*, 60(2), 2009, pp. 292-306.

[11] Liao, C.C., Palvia, P. and Chen, J.L. Information technology adoption behaviour life cycle: Towards a technology continuance theory (TCT). *International Journal of Information Management*, 29(4), 2009, pp. 309-320.

[12] Roca, J.C. and Gagne, M. Understanding e-learning continuance intention in the workplace: A self-determination theory perspective, *Computers in Human Behavior* 24, 2008, pp. 1585-1604.

[13] Wixom, B.H. and Todd, P.A. A theoretical integration of user satisfaction and technology acceptance, *Information Systems Research*, 16(1), 2005, pp. 85-102.

[14] Karahanna, E., Straub, D.W. and Chervany, N.L. Information technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS Quarterly*, 23(2), 1999, pp. 183-213.

[15] Venkatesh, V. and Morris, M.G. Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior, *MIS Quarterly*, 24(1), 2000, pp. 115-139.

[16] Oliver, R.L. A cognitive model for the

antecedents and consequences of satisfaction, *Journal of Marketing Research*, 17, 1980, pp. 460-469.

[17] Oliver, R.L. Cognitive, affective, and attribute bases of the satisfaction response, *Journal of Consumer Research*, 20, 1993, pp. 418-430.

[18] Swan, J.E. and Trawick, I.F. Disconfirmation of expectations and satisfaction with a retail service, *Journal of Retailing*, 57, 1981, pp. 40-67.

[19] Tse, D.K. and Wilton, P.C. Models of consumer satisfaction: An extension, *Journal of Marketing Research*, 25, 1998, pp. 204-212.

[20] Anderson, E.W. and Sullivan, M.W. The antecedents and consequences of customer satisfaction for firms, *Marketing Science* 12(2), 1993, pp. 125-143.

[21] Oliver, T. A. and Shapiro, F. Self-efficacy and computers, *Journal of Computer-Based Interactions*, 20, 1993, pp. 81-85.

[22] Bhattacherjee, A. An empirical analysis of the antecedents of electronic commerce service continuance, *Decision Support Systems*, 32, 2001, pp. 201-214.

[23] Thong, J. Hong, S.J. and Tam, K.Y. The effects of post adoption beliefs on the expectation-confirmation Model for information technology continuance, *International Journal of Human-Computer Studies*, 64(9), 2006, pp. 799-810.

[24] Chen, Y. L. The factors influencing members' continuance intentions in professional virtual communities - a longitudinal study, *Journal of Information Science*, 33(4), 2007, pp. 451-467.

[25] Limayem, M., Hirt, S.G. and Cheung, C.M.K. How habit limits the predictive power of intention: the case of information systems continuance, *MIS Quarterly*, 31(4), 2007, pp. 319-340.

[26] Cronin, J.J. and Taylor, S.A. Measuring service quality - A reexamination and extension, *Journal of Marketing*, 56(3), 1992, pp. 55-68.

[27] Cenfetelli, R.T., Benbasat, I. and Al-Natour, S. Addressing the What and How of online services: Positioning supporting-services functionality and service quality for business-to-customer success, *Information Systems Research*, 19(2), 2008, pp. 161-181.

[28] Patterson, P.G., Johnson, L.W. and Spreng, R.A. Modelling the determinants of customer satisfaction for business-to-business services, *Academy of Marketing Science*, 25(1), 1997, pp. 4-17.

[29] Bhattacherjee, A., Perols, J. and Sanford, C. Information technology continuance: A theoretic extension and empirical test. *Journal of Computer Information Systems*, 2008, pp. 17-26.

[30] Hong, S., Kim, J. and Lee, H. Antecedents of use-continuance in information systems: Towards an integrative view, *Journal of Computer Information Systems*, 48(3), 2008, pp. 61- 73.

[31] Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 1989, pp. 982-1002.

[32] Venkatesh, V. and Davis, F. D. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 2000, pp. 186-204.

[33] Moore, G.C. and Benbasat, I. Development of an instrument to measure the perceptions of adopting an information technology innovation, *Information Systems Research*, 2(3), 1991, pp.192-222.

[34] China Internet Network Information Center (CNNIC), The 25th Statistical Report on Internet Development in China, 2009, available from: http://www.cnnic.cn/upload files/pdf/2010/3/15/142705.pdf, and access on June 12, 2010.

[35] Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., and Tatham, R. L. *Multivariate data analysis* (6th ed.), New Jersey: Prentice Hall, 2006.

[36] Chin, W.W. The partial least squares approach to structural equation modelling, in Marcoulides, G.A. (Ed.), *Modern Business Research Methods*, Lawrence Erlbaum Associates, Mahwah, NJ, 1998, pp. 295-336.

[37] Hulland, J. Use of partial least squares (PLS) in strategic management research: a review of four recent studies, *Strategic Management Journal*, 20, 1999, pp. 195-204.

[38] Tenenhaus, M., Vinzi, V.E., Chatelin, Y.M. and Lauro, C. PLS path modeling, *Computational Statistics & Data Analysis*, 48(1), 2005, pp. 159-205.

[39] Fornell, C. and Larcker, D. F. Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, 18, 1981, pp. 39-50.

[40] Chea, S. and Luo, M.M. Post-adoption behaviors of e-service customers: The interplay of cognition and emotion, International *Journal of Electronic Commerce*, 12(3), 2008, pp. 29-56.