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ONLINE RETAILING: RELATIONSHIP AMONG E-TAILING SYSTEM QUALITY, E-SATISFACTION, E-TRUST AND CUSTOMERS COMMITMENT IN CHINA

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Abstract

The purpose of this study is to propose and demonstrate an integrative model of e-tailing system quality, e-satisfaction, e-trust and commitment in China. Customer's commitment is fundamental to the survival and profitability of e-tailing. Perhaps, study variables have considerable importance on e-tailers performance. The data were collected from a sample of 383 students at universities in China during the first quarter of 2014. We used confirmatory factor analysis (CFA) and structural equation modeling (SEM) to evaluate the hypotheses about the relationship among model constructs. Thus all the hypotheses developed in the study were positively confirmed except one, reinforcing the theory and previous research in this field. The result indicates that system quality is positively associated with e-trust and e-satisfaction, similarly e-trust influences positively to both types of commitment. However, e-satisfaction has positive effect on affective commitment, but it has not significant positive connection with continuance commitment in our study. This study reveals interesting implications that are useful to both academicians and practitioners.

Keywords: system quality, e-satisfaction, e-trust, e-tailing, customer commitment

INTRODUCTION

In response of e-commerce market competitiveness commitment has great recognition and importance in the literature of relationship marketing. It is a key precursor to the accomplishment of valuable outcomes for instance, future intentions (Kim et al., 2005), and profitability (Anderson and Weitz, 1992). Customer commitment refers as an attitude that reflects the desire to maintain a valued relationship (Moorman, 1992; Morgan and Hunt, 1994). Moreover, it is also conceptualized as a "pledge of continuity" form one party to another (Dwyer et al., 1987). Consequently, it is argued that the commitment lies potential for scarifies or sacrifice that one party faces in the event that the relationship ends (Anderson and Weitz, 1992), or for the sake of alternative seeking from the market (Gundlach et al., 1995). Sometimes commitment refers as a resistance to change (Pritchard et al., 1999), and a sort of attitude change (Ahluwalia, 2000). Particularly, marketing scholars and researchers used various definitions and perspective to characterize two important components of commitment (Gundlach et al., 1995). The first component of commitment is based on liking and identification and second component is based on dependence and switching cost that are called affective and continuance commitment respectively (Allen, N. J., & Meyer, 1990).

The affective commitment is based on the "affective or emotional attachment to the organization such that the strongly committed individual identifies with, is involved in, and enjoys membership in the organization" (Allen, N. J., & Meyer, 1990). Thus the essence of affective commitment is that customers indulge to acquire an emotional attachment to their partner in a consumption relationship. As customer like to any specific brand or service providers (e-tailers), at that movement they are experiencing the psychological state of affective commitment (Fullerton, 2003). While continuance commitment in exchange relationship is built on the side bets, switching costs and scarcity of alternatives (Allen, N. J., & Meyer, 1990).

The core concept of marketing paradigm has been investigated by researchers in both business to business (Morgan and Hunt, 1994), and consumer's context (Verhoef et al., 2002). In recent years, internet has had a profound impact on the subject of marketing. Recently most of the consumers feel comfortable buying products through online mechanism. Therefore, e-tailers have attempted to design website to attract customers to visit and revisit their sites. Some studies have investigated the factors that could affect customers purchase behavior on the Web (Poddar et al., 2009).

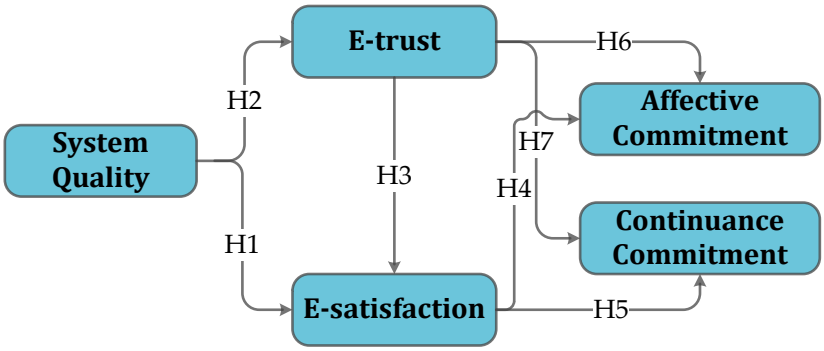
The purpose of this study is to propose and demonstrate a model of the commitment for online retailers, incorporating e-tail system quality, e-satisfaction and e-trust. This research intends to focus on consumer's attitude and behaviors intentions towards e-tailing, not a specific brand or manufacturer. We maintain that e-tailing system quality have different impact on

consumer's e-satisfaction, e-trust which in turn leads to customer's commitment. This study begins with the introduction, proposed model and the hypotheses. We then describe the research methodology, present our research results and discussion, and conclude with managerial implications, limitations and suggestions for future research.

LITERATURE REVIEW AND RESEARCH HYPOTHESES

This study draws from previous theories to develop hypotheses with regard to the impact of e-tailing system quality on e-satisfaction, e-trust and commitment. We derive a structural equation model (Fig.1), which illustrates the hypothesized relationships discussed in the subsequent sections.

Figure 1 Theoretical Framework



Relationship between e-tailing system quality, e-trust and e-satisfaction

Ahn et al. (2005) refers system quality describes the measure of Web sites as information processing system and taps the engineering oriented performance characteristics i.e operational efficiency and apperance. Thus traditional information system (IS) has been used numerous measures in this area such as system flexibility, responsiveness, reliability and system availability (Ives et al., 1983; Chuan-Chuan Lin and Lu, 2000). There have been some other important aspects of system quality such as design (Liu and Arnett, 2000; Ranganathan and Ganapathy, 2002), technical adequacy and appearance (Ahn et al., 2007, Aladwani and Palvia, 2002), security, privacy (Ahn et al., 2007), download delay (Palmer, 2002; Selz and Schubert, 1997), navigation (Palmer, 2002) and hyper media presentation (Selz and Schubert, 1997). It is identified some characteristics that customers have been considered valueable i.e website design, ease of use, reliablity and convenience access (Bharati and Chaudhury, 2004; Delone, 2003). It encapsulates the needs of customers which have been identified during system analysis and developent phase. Sytem quality is the critical factor for customer

satisfaction in context of online shopping. It is recommended that high system quality provide custoemers more convenience, faster response and privacy (Ahn et al., 2007). These sorts of system characteristics and capabilities had more influcence on perciev id ease of use and usefulness of e-tailer website (Lederer et al., 2000; Liao and Cheung, 2001).

System design quality such as security is the most critical concern of online customers (Shankar, 1996), Anderson and Bezuidenhoudt pointed that system reliability is vital role in the success of e commerce. Corritore et al. (2003) introduced the Website as an object of trust and suggest that system quality i.e navigational architecture, functionality and design element have significant effect on customers trust. Kim and Prabhakar (2004) suggested that system trust is important for acceptance of ecommerce. It is found that system quality has been played important role and effects on customer satisfaction with internet shopping (Kim and Lim, 2001; Liu et al., 2000; Bai et al., 2008). Bharati and Chaudhury (2004) argue that system quality is positively and directly correlated with customer's e-satisfaction. As increase in system quality of online retailer has been enhanced customers decision making satisfaction (Bharati and Chaudhury, 2004). Lin (2007) found that system quality is the most determinant of customer satisfaction in internet shopping. Therefore, we propose subsequent hypothesis.

H1: System quality positively influences e-satisfaction

H2: System quality positively influences e-trust

The relationship between e-trust and e-satisfaction

In the context of e-tailing, online customer satisfaction is quite difficult before gain their trust. Therefore, trust also affects e-satisfaction in this regard. According to Berry (2000), trust is very essential for satisfaction. In fact, online consumer who trusts on e-tailers will be satisfied and more willing to commit on it. Yoon (2002) stated that satisfaction is the antecedent of trust. Researchers have been considered trust as critical determinants of developing relationship between buyers and sellers (Sirdeshmukh et al., 2002; Verhoef et al., 2002). It is also investigated that trust has direct influence on the post purchase satisfaction. Specifically in the context of online shopping trust might be the fundamental element for initiating the transaction. Thus customer perceives a higher level of risk in e-tailing than in traditional retailing in the shape of delivery, information disclosure and payment. In this regard online customer prefers to make transaction with those e-tailers they can trust more (Singh and Sirdeshmukh, 2000). It is found that trust is the predictor of e-satisfaction in e-commerce (Harris and Goode, 2004; Jin and Park, 2006). Therefore, we propose subsequent hypothesis.

H3: E-trust positively influences e-satisfaction

The relationship between e-satisfaction and commitment

Satisfaction refers as "an overall evaluation based on the total purchase and consumption experience with a good or service over time" (Anderson et al., 1994). Thus, e-satisfaction is the precursor of customers' commitment; actually it is the result of customer's evaluations regarding the product and the key elements of their decision to repurchase (Kasmer, 2005). Consequently, customer satisfaction is one of values for customers that they expect from firm to deliver in the context of exchange. We would expect that commitment is one of the favorable consequences of satisfaction (Bansal et al., 2004). Similarly online customers over all evaluations of satisfactory consumption experiences make a positive impact on the degree of commitment in the relationship (Brown et al., 2005). Previously, it is observed that satisfaction has positive influence on commitment (Vasudevan et al., 2006; Abdul-Muhmin, 2005). In line with these authors, we propose that in the context of online shopping e-satisfaction is positively associated with affective and continuance commitment. Thus, we propose subsequent hypotheses.

H4: E-satisfaction positively influences affective commitment

H5: E-satisfaction positively influences continuance commitment

The relationship between e-trust and commitment

Trust refers as "a willingness to rely on an exchange partner in whom one has confidence" (Moorman et al., 1992). Practically it is observed that expectation of trustworthiness results from the ability to expertise, reliability and intentionality. Morgan and Hunt (1994) defined trust as the confidence in the exchange partner's ability, reliability and integrity (Allen and Meyer, 1990). Trust is the determinant of commitment and successful business relationship (Morgan and Hunt, 1994). It is found that trust influenced positively on commitment (Tellefsen, 2002). Therefore, it is suggested that trust influenced firms to focus on the positive motivation to stay in the relationship based on the feeling of connectedness and identification with each other (affective commitment), less due to continuance (continuance commitment) reasons to stay with the supplier (De Ruyter et al., 2001). Thus, we propose subsequent hypotheses.

H6: E-trust positively influences affective commitment

H7: E-trust positively influences continuance commitment

RESEARCH METHODOLOGY

Questionnaire design

In this study we have reviewed the literature to explore valid measures for this study related constructs and adapted existing scales to measure e-tailing system quality (Ahn et al. 2005) influence on e-satisfaction (Fornell et al. 1996; Kim et al. 2009), e-trust (Garbarino and Johnson 1999; Ribbink et al. 2004) and commitment (Fullerton, 2003). Firstly, scales from literature were explored in English, therefore initial questionnaire was developed in English. Then, English version questionnaire were translated into Chinese by two Chinese Master and Ph. D students. Further, Chinese version questionnaire were translated back into English, hence this version of questionnaire was counter checked against the original English version for discrepancies and their rectification. This approach has been adopted to facilitate appropriate measurement development and to confirm meaning consistency, to improve understandability of the survey and proper use of terminology in Chinese.

In this study all the indicators in the questionnaire were measured using a 7-Point Likert scale ranging from strongly disagree to strongly agree (1= strongly disagree; 7= strongly agree).

Sampling and data collection

Fung Business Intelligence Center reported that Chinese online customers are young people and over 60% were aged 30 or below in 2012. It is highlighted that middle aged customers preferred to buy online due to more buying power (Fung Business Intelligence Center 2013). Particularly, it is recommended that universities students are likely to be the first and more attractive potential consumers segment of e-commerce due to their high education level and income (Lightner et al. 2002).

In our study respondents were selected using convenience sampling method, therefore data for this study were obtained through survey from universities different locations such as libraries, research labs, canteens and mini markets in mainland China. In our study 430 respondents have completed the survey, after sorting and removing errors 383 valid and usable questionnaires left for data analysis. The response rate was 89 percent. The profile of respondents and their characteristics are stated in Table 1.

Table 1- Respondent profile (n=383)

Demographics Variable	Category Percentage		Sample
Gender	Male	222	58.0
	Female	161	42.0
Age (Years)	Below-20	79	20.6
	20-29	299	78.1
	30-39	5	1.3
Education Level	High School	3	0.8
	Bachelor	218	56.9
	Master	147	38.4
	Ph. D	15	3.9
Profession	Students	383	100
Shopping Experience (Years)	Under 1	48	12.5
	1-4	239	62.4
	Over 4	96	25.1

Construct development

In this study we used Kaiser-Meyer-Olkin (KMO) to measure sampling adequacy and the Bartlett test of sphericity. The results that showed KMO value of 0.885 with the significance of Bartlett's test at 0.000 level, indicates the data for exploratory factor analysis (EFA) fitting. We used maximum likelihood analysis for data reduction and promax rotation with Kaiser Normalizations for clarifying the factors. Hence EFA was conducted with specifying four numbers of factors. The cumulative variance explanation reaches 62%. All the items have strong loadings on the construct in the pattern matrix which are >0.30 (Hair et al., 1998). The results of EFA are shown in Table 2.

The internal consistency reliability of all items was examined by Cronbach alpha and item to total correlations. Therefore, the alpha coefficients and item to total correlations for each construct are shown in Table 3. The Cronbach's alpha of all measurement constructs ranges from 0.90 to 0.84. A Cronbach's alpha of value 0.7 or higher is commonly considered as a cut off for reliability (Nunnally 1978; Hair et al. 2006). Convergent validity has been examined based on measurement items standardized factor loadings, composite reliability and the variance extracted measures. The results of convergent validity test are also presented in Table 3. Standardized factor loadings of all items in each construct range from i.e. system quality (0.776-0.647), e-satisfaction (0.881-0.866), e-trust (0.907-0.627), affective commitment (0.867-0.658) and continuance commitment (0.876-0.677) that exceed the recommended level of 0.60 (Hair et al. 1998). The composite reliabilities (CR) range from 0.90(system quality) to 0.87

(continuance commitment) which exceed the recommended level of 0.70. The average variance extracted (AVE) measure ranges from 0.76 (e-satisfaction) to 0.53 (system quality) which is better than recommended value of 0.50 (Hair et al. 1998). The higher value of AVE, CR and factor loadings results, therefore adequately demonstrates the convergent validity of the measurement items.

Table 2- Results of exploratory factor analysis (EFA)

Items	System Quality	e-Satisfaction	e-Trust	Affective Commitment	Continuance Commitment
SQ1	0.646				
SQ2	0.570				
SQ3	0.787				
SQ4	0.865				
SQ5	0.706				
SQ6	0.740				
SQ7	0.879				
SQ8	0.502				
S1		0.831			
S2		0.869			
S3		0.875			
T1			0.584		
T2			0.616		
T3			0.571		
T4			0.818		
T5			0.825		
T6			0.762		
AF1				0.810	
AF2				0.894	
AF3				0.789	
AF4				0.704	
CC1					0.593
CC2					0.886
CC3					0.790
CC4					0.559

Extraction Method: Maximum Likelihood.

*Rotation Method: Promax with Kaiser Normalization. a. Rotation converged in 6 iterations. *(SRQ: Information Quality, S: Satisfaction, T: Trust, AF: Affective Commitment, CC: Continuance Commitment)*

Table 3- Results of internal reliability and convergent validity tests

	Internal Reliability			Convergent Validity		
	Construct items	**Cronbach α**	**Item Total Correlation**	**Standardized Factor Loadings**	**Composite Reliability**	**Variance Extracted**
System Quality	SQ1	0.89	0.695	0.728	0.90	0.53
	SQ2		0.645	0.724		
	SQ3		0.723	0.774		
	SQ4		0.728	0.745		
	SQ5		0.657	0.706		
	SQ6		0.713	0.751		
	SQ7		0.753	0.776		
	SQ8		0.518	0.647		
E-Sat	S1	0.90	0.813	0.881	0.90	0.76
	S2		0.808	0.866		
	S3		0.810	0.868		
E-Trust	T1	0.86	0.642	0.627	0.88	0.57
	T2		0.638	0.698		
	T3		0.567	0.651		
	T4		0.687	0.805		
	T5		0.694	0.907		
	T6		0.670	0.819		
Aff. Commitment	AF1	0.88	0.680	0.658	0.88	0.64
	AF2		0.818	0.823		
	AF3		0.765	0.867		
	AF4		0.743	0.842		
Cont. Commitment	CC1	0.84	0.648	0.751	0.87	0.62
	CC2		0.751	0.867		
	CC3		0.756	0.840		
	CC4		0.526	0.677		

Convergent Validity

We used CFA to test convergent validity. In CFA, convergent validity can be assessed by testing each individual item's standardized coefficient greater than the twice its standard error shows that measurement model is significant (Anderson and Gerbing, 1988). In this study all the factor loadings for the indicators measuring the same construct are statistically significant (i.e. greater than twice their standard error), that reflects as evidence supporting the convergent validity of those indicators. In our study all t-tests were significant showing that all indicators are effectively measuring the same construct in the presence of high convergent validity.

Discriminant validity

Discriminant validity measures the extent to which individual items intending to measure one latent construct do not at the same time measure a different latent construct (DeVellis, 1991). In the study Tab.3 can be seen that the average communalities (Average Variance Extracted-AVE) used to measures the each construct are greater than the variance shared with other constructs. Therefore, it is demonstrated that the discriminant validity of all scales is adequate. Moreover, all AVE exceeded 0.50, which indicating strong construct validity. In overall, the measurement results are satisfactory and recommend that it is appropriate to proceed with the investigation and evaluation of the theoretical framework.

ANALYSIS AND RESULTS

We used SPSS AMOS-IBM version 21 to analyze the data and demonstrate structural equation modeling (SEM) of this study. It is a powerful multivariate analysis technique used to measure latent variables and investigate causal relationship among proposed model variable. Specifically, SEM allows conducting confirmatory analysis (CFA) for theory development and testing.

The overall model fit indices are x2 =477.82, df=256 (p-values=0.00), GFI=0.91, AGFI=0.89, NFI=0.92, CFI=0.96, RMSEA=0.048 indicating that model is acceptable with no substantive differences. Moreover, fit indices of structural model are presented in Table 4. The factor correlation matrix and standardized parameter estimates of hypothesized paths are presented in Table 5 and 6 respectively.

Table 4- Fit indices for structural model

Fit Index	Scores	Recommended cut-off values
Absolute fit Measures		
Minimum fit function chi-square (x2)	477.82(p=0.00)	The lower, the better
Degree of freedom (d.f)	256	
(x2)/d.f	1.87	<5
Goodness-of-fit index (GFI)	0.91	>0.80
Root mean square residual (RMSR)	0.048	<0.05
Incremental fit measures		
Adjusted goodness-of-fit index (AGFI)	0.89	>0.80
Tucker-Lewis index (TLI)	0.95	>0.90
Normal fit index (NFI)	0.92	>0.90
Comparative fit index (CFI)	0.96	>0.90
Parsimonious fit measures		
Parsimonious normed fit index (PNFI)	0.785	The higher, the better
Parsimonious goodness-of-fit index (PGFI)	0.717	The higher, the better

Table 5- Factor Correlation Matrix

Factor	System Quality	E-Trust	Aff. Commitment	E-Satisfaction	Cont. Commitment
System Quality	1.000				
E-Trust	0.092	1.000			
Aff. Commitment	0.194	0.486	1.000		
E-Satisfaction	0.581	0.253	0.363	1.000	
Cont. Commitment	-0.102	0.433	0.546	0.036	1.000

Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.

Figure 2 Structural equation modeling of the Study

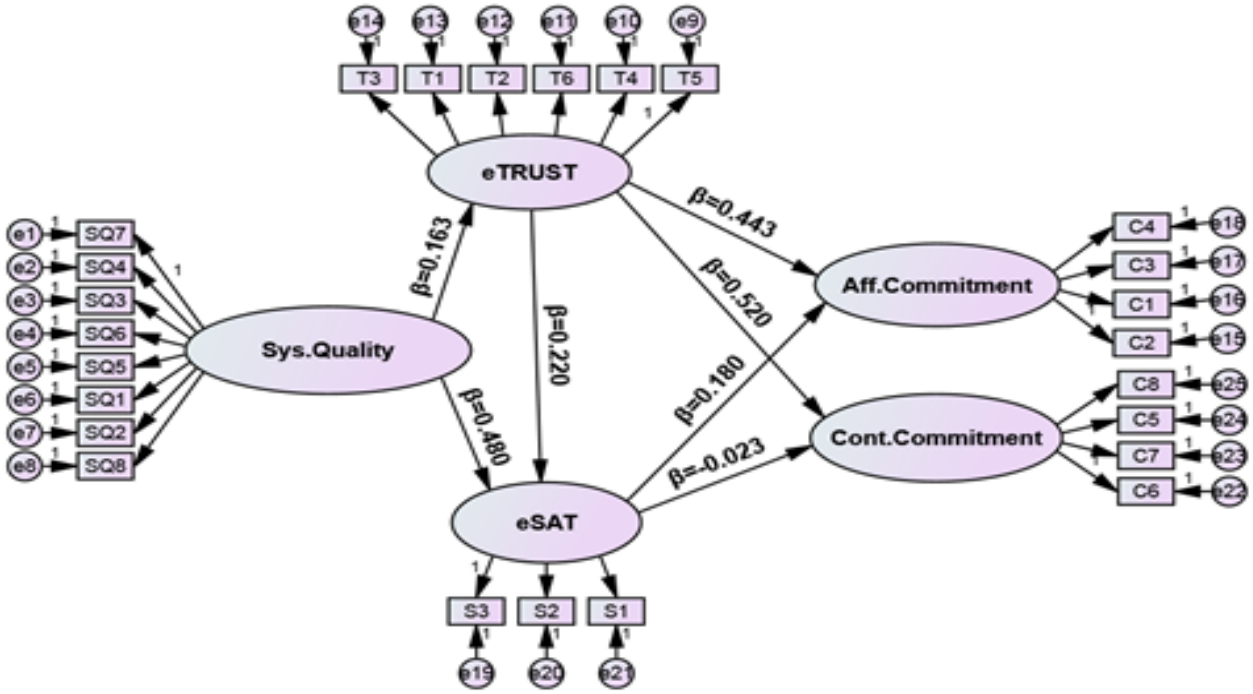


Table 6- Standardized parameter estimates of hypothesized paths

Path	Hypotheses	Co-efficient Estimate	Standard Error	t-value	p-value
System Quality => E-satisfaction	H1	0.480	0.046	10.474	P<0.001
System Quality => E-trust	H2	0.163	0.053	3.071	P<0.005
E-trust=> E-satisfaction	H3	0.220	0.042	5.292	P<0.001
E-satisfaction => Affective commitment	H4	0.180	0.059	3.035	P<0.005
E-satisfaction => Continuance commitment	H5	-0.023	0.072	-.314	P=0.754
E-trust => Affective commitment	H6	0.443	0.056	7.970	P<0.001
E-trust => Continuance commitment	H7	0.520	0.067	7.798	P<0.001

H1: System quality positively influences e-satisfaction (β=0.480; p<0.001). The result supports the finding of (Lin, 2007) who found that system quality is the determinants of satisfaction. Our findings are similar with Bharati and Chaudhury (2004) which argued that system quality is positively related with satisfaction.

H2: System quality positively influences e-trust (β=0.163; p<0.005). This study results support the findings of Corritore et al. (2003). This study confirms the belief that as system quality increases on e-tailers website it will enhanced the online customers trust.

H3: E-trust positively influences e-satisfaction (β=0.220; p<.005). This study supports the finding of (Harris and Goode, 2004; Jin and Park, 2006; Singh and Sirdeshmukh, 2000) and confirms that e-trust is essential for e-satisfaction.

H4: E-satisfaction positively influences affective commitment (β=0.180; p<0.005). This study found that e-tailing satisfaction is significantly associated with affective commitment. As Bansal et al. (2004) explained that online shopping customers' commitment is the consequence of satisfaction. The result of study supports the findings of (Vasudevan et al., 2005; Abdul-Muhmin, 2005).

H5: E-satisfaction positively influences continuance commitment (β=0-.023; p>0.005). In our study e-satisfaction has not significantly associated with continuance commitment.

H6: E-trust positively influences affective commitment (β=0.443; p<0.001). In this study trust play more important role against e-satisfaction in the context of online customers affective commitment. E-trust has stronger relationship with affective commitment but at the same time it is the prerequisite for e-tailing customer's satisfaction. This study supports the findings of De Ruyter et al. (2001).

H7: E-trust positively influences continuance commitment (β=0.520; p<0.001). This study supports the findings of De Ruyter et al. (2001). E-trust is the strongest antecedents of continuance commitment in the context of online shopping.

MANAGERIAL IMPLICATIONS

This study finding provides several managerial implications. The basic evidence of the proposed theoretical model was that e-tailers should understand comprehensively the factors that are necessary to improve the e-tailing system quality that will positively impact on e-satisfaction, e-trust and customer's commitment, and use them as diagnostic information. Perhaps, by recognizing and analyzing such diagnostic aspects, e-tailers will be better able to formulate and implement their policies and strategies.

We suggests that a great success in the context of e-tailing will be the result from a strategy that identified one targeted aspect of system quality, rather than from one in which the e-retail firm can improves marginally on all the aspects. The explanation of the research model has the potential to help e-tailers better understand and assess how system quality influences on e-satisfaction, e-trust and commitment. Learning the unexplored relationship between e-tailing system quality, e-satisfaction, e-trust and commitment, e-tailers can effectively allocate their resources and develop a rational plan and strategies to improve their e-tail system quality under specific business circumstances.

CONCLUSION, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

In fact several authors have focused on multidimensional aspect of e-tailers product quality & delivery services and the relationship between customer satisfaction, e-trust and customer loyalty. This research sought to establish the bridges between system quality, e-satisfaction, e-trust and commitment of e-tailing. Empirical tests of the model, using a sample of young retail customers, were conducted to support the proposed hypotheses. Specifically, this research contributes to the progress of establishing and measuring the constructs of system quality, e-satisfaction, e-trust and commitment.

This study has several limitations. Firstly, sampling frame includes universities students that may lead to loss of generalizability of results. Secondly, dependent variable in the hypothesized model, e-satisfaction, e-trust and commitment are likely to be influenced by some other variables other than system quality of e-tailing, which were not the specific object of this study. Therefore, future studies might be conducted to explore the role of e-tailing system quality in the specific brand or product category and it's influenced on customer's commitment.

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