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Electronic retailing: Exploring relationship among product quality and delivery services role in customer's commitment and loyalty in China

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ABSTRACT: The purpose of the study is to investigate the relationships among product quality & delivery services, commitment and e-loyalty in the context of e-tailing. The stated variables have considerable importance on firm's performance. The data were collected from a sample of 383 students at universities in China during the first quarter of 2014. Confirmatory factor analysis (CFA) and structural equation modeling (SEM) were used to investigate the hypotheses about relationship among model constructs. The study hypotheses developed were positively confirmed. The study reveals implications in product quality & delivery services, commitment and e-loyalty that are helpful to both academics and practitioners.

KEYWORDS: Product quality, Delivery services, e-tailing, e-loyalty, commitment

1 INTRODUCTION

In response to the increasingly diverse competition, e-retailers are consistently seeking strategies to insulate and increase profit. These strategies concentrate on improving product quality and delivery services, commitment and e-loyalty. A product quality and delivery services has gained tremendous attention from managers and academics due to its considerable influence on affective and continuance commitment and e-loyalty. Generally quality has been considered as an investment for organization, but the efforts for its improvement result in improve clientele, increased purchasing volume from existing customers and rise in firm's profit [1].

Substantially, in the exchange relationship a product quality has critical value and it must exist, therefore a business relationship can be built around it. Therefore product does not meet the customer's standard and expectations, and then they do not have motivation to continue the relationship [2]. Similarly delivery services are vital for developing relationship in the context of e-tailing. Therefore, it is essential that delivery of right product within the promised time frame, with accurate product information available on e-tailer website and customers receive what they are expected to receive from e-tailers [3]. In online shopping product quality and delivery services has vital role for customer's satisfaction, commitment and loyalty. For instance, the express delivery companies have chartered aircraft to optimizing their high volume areas services of e-tailing in mainland China. Therefore, to fulfill this objective more than 100 cargo jets have been leased by major couriers i.e. SF Express (Group) Co Ltd (private courier service in China) have its own air fleet and although deployed 31 cargo planes at the delivery peak period during november 2013. Similary, YTO Express (logistics) Co Ltd has run two Boeining 737 cargo planes on the Beijing-Shenzhen route to facilitate delivery. Although, State Post Bureau EMS, express delivery unit has been leased 26 freighters making deals with Air China Cargo Co Ltd and PEMPCO international. Chinese e-commerce focused on fast speed by a few hours [4].

In the context of relationship marketing commitment has great recognition and importance. The commitment is a key precursor to achievement of valuable outcomes such as future intentions [5] and profitability [6]. Perhaps, customer

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commitment refers as an attitude that reflects the desire to maintain a valued relationship [7]. E-loyalty is widely refers as customer's favorable attitude and commitment towards the e-tailer that results in repeat purchase behavior [8]. Subsequently, e-loyal customers have increased profitability to the e-tailer based on long term customer commitment and reduced costs of acquiring new customers. E-loyal customers are willing to pay premium prices, which are not the ones seeking the lower prices. Particularly, they also provide rich enough source of profit as referring new customers to e-tailer [9].

The purpose of this study is to propose and test a model of product quality and delivery services, commitment and e-loyalty. This study focuses on development of commitment and e-loyalty through improving product quality and delivery services of e-tailing. This paper begins with the proposed model and hypotheses. We explain research design and methodology, hypotheses testing results, conclusion, implications and limitations and suggestions for future research with conclusion.

2 THEORETICAL FRAMEWORK DEVELOPMENT AND RESEARCH HYPOTHESES

2.1 PRODUCT QUALITY

Product quality refers as customer's perceptions of all non-price attributes of an organization's goods and services [10]. Especially this definition comprises both intrinsic characteristics and associated all services. The various kinds of products have been traded by online retailers. Thus online product quality concept is similar with the conventional traded products [11]. Particularly in online shopping there are two most influential factors have been considered quite critical and important while making decisions such as product quality and product variety [12]. As customer's expectation has been met online in this manner they tend to continue to visit that specific e-tailor. Keenely (1999) argues that online firm's fundamental objective is to maximize product quality for online buyers. Similarly it is argues that cost minimization and quality maximization are the critical success factor of e-commerce [13].

2.2 DELIVERY SERVICES

In the context of online shopping environment reliable, safe and timely delivery is fundamental and integral objective e-tailing. E-tailing customers are interested to buy products at home and they required safe, reliable and quick delivery of desired product at their desired destinations. In online shopping environment timely and reliable delivery play critical role to meeting customer's expectations and make them satisfied. Online customers can switch very easy form one web to another web page just a single click away or even customer moved towards conventional click and mortar retailers due to the late, unsafe and undesirable products delivery.

Online customers pay much more concentration and considered product delivery as an important factor as they have paid for it. However, reliable delivery is "means objective" while timely delivery is "fundamental objective" of online retailers in the e-commerce [13]. Particularly it has been considered three aspects critical for delivery performance of the firms and it encompasses that suppliers of product should be able to meet delivery schedule (Timely delivery), adjust and accommodate certain changes in delivery schedule (flexibility) and consistently deliver right products (accurate) in the hand of customers [3].It is found that delivery performance has positive influence on customer's satisfaction [14], and it is the antecedent of satisfaction [15]. Liu et al. (2008) argues that delayed delivery of product can make customers dissatisfied [16].

2.3 COMMITMENT

The researchers have used different definitions and perspective to characterize two components of commitment such as affective and continuance commitment [17]. The effective 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" [18]. Thus the essence of effective 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 [19]. Thus, continuance commitment in exchange relationship is built on the side bets, switching costs and scarcity of alternatives [18].

2.4 E-LOYALTY

Loyalty refers as the repeated purchase behavior presented over a period of time driven by a favorable attitude toward the subject [20]. A true loyal customer has strong commitment and attachment towards retailer. It is quite difficult to distracted customer towards slightly more attractive alternatives. Substantially, a true loyalty shows higher purchase intention, willingness to pay more and resistance to switch toward alternative [21]. Lim and Razzaque (1997) have classified four main categories of loyalty i.e. brand loyalty, vendor loyalty retailer loyalty and service loyalty [22]. Therefore, customer loyalty requires that there is a strong desire by the customers for products and that they have several vendors to choose products based on their preferences [23]. Based on the previous research and literature review following hypotheses were proposed. Theoretical framework stated in Fig.1.

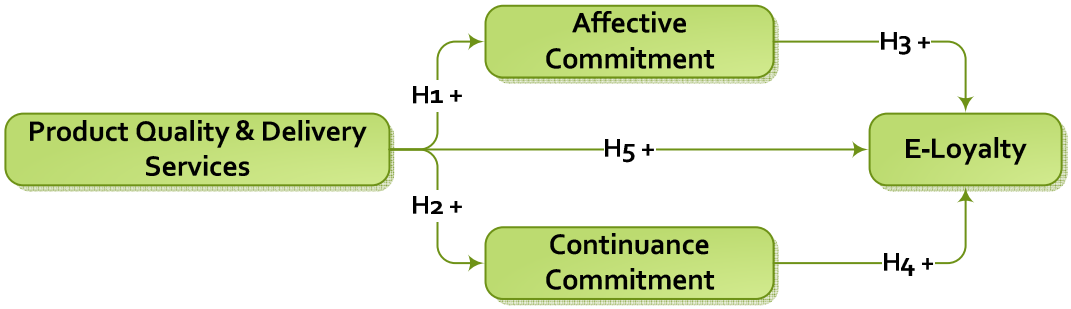

Fig. 1 Theoretical Framework

H1: E-tailing product quality and delivery services positively influences affective commitment
H2: E-tailing product quality and delivery services positively influences continuance commitment
H3: Affective commitment positively influences e-loyalty
H4: Continuance commitment positively influences e-loyalty
H5: E-tailing product quality and delivery services positively influences e-loyalty

3 RESEARCH METHODOLOGY

3.1 QUESTIONNAIRE DESIGN

We reviewed the literature to explore valid measures for this study related constructs and adapted existing scales to measure online shopping offline aspects such as, i.e. product quality and delivery services[24], commitment [19] and e-loyalty [8]. 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).

3.2 SAMPLING AND DATA COLLECTION

According to Fung Business Intelligence Center 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 [25]. 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 [26]. Therefore, in this study we used convenience sampling and paper survey approach to collect data 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 Sample Percentage		
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

3.3 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 0.874 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 [27]. 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 0.89 to 0.83. A Cronbach's alpha of value 0.7 or higher is commonly considered as a cut off for reliability [28, 29]. 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. product quality and delivery services (0.983-0.675), affective commitment (0873-0.688) and Continuance commitment (0.883-0.663) and e-loyalty (0.852-0.657) that exceed the recommended level of 0.60 [27]. The composite reliabilities (CR) range from 0.91 (product quality and delivery services) to 0.87 (continuance commitment) which exceed the recommended level of 0.70. The average variance extracted (AVE) measure ranges from 0.65 (affective commitment) to 0.58 (e-loyalty) which is better than recommended value of 0.50 [27]. 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	Product Quality and Delivery Services	Affective Commitment	Continuance Commitment	E-Loyalty
PQ	0.987			
PA	0.950			
TD	0.737			
PS	0.695			
RD	0.687			
PV	0.418			
AF1		0.777		
AF2		0.944		
AF3		0.742		
AF4		0.673		
CC1			0.518	
CC2			0.945	
CC3			0.859	
CC4			0.432	
L1				0.735
L2				0.739
L3				0.846
L4				0.888
L5				0.640
L6				0.432

*Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization. a. Rotation converged in 6 iterations. *(PA: Product availability, PQ: Product quality, PV: Product variety, RD: Reliable delivery, TD: Timely Devlivery, PS: Pakage safety, AC: Affective Commitment, CC: Continuance Commitment, L: e-Loyalty)*

Table 3. Results of internal reliability and convergent validity tests

Internal Reliability			Convergent Validity		
	items	Cronbach α	Item Total Correlation	Standardized Factor Loadings	Composite Reliability	Variance Extracted
P.Q & Del. Services	PQ	0.89	0.864	0.983	0.91	0.63
	PA		0.808	0.922		
	TD		0.726	0.743		
	PS		0.729	0.678		
	RD		0.752	0.675		
	PV		0.804	0.687		
AFF. Commit.	AF1	0.85	0.680	0.688	0.88	0.65
	AF2		0.818	0.822		
	AF3		0.765	0.873		
	AF4		0.743	0.830		
Cont. Commit	CC1	0.83	0.648	0.813	0.87	0.64
	CC2		0.751	0.832		
	CC3		0.756	0.883		
	CC4		0.526	0.663		
E-Loyalty	L1	0.87	0.678	0.698	0.89	0.58
	L2		0.731	0.779		
	L3		0.735	0.778		
	L4		0.776	0.852		
	L5		0.648	0.792		
	L6		0.417	0.657		

4 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 =293.40, df=154 (p-values=0.00), GFI=0.93, AGFI=0.90, NFI=0.94, CFI=0.97, RMSEA=0.049 indicating that model is acceptable with no substantive differences. Moreover, fit indices of structural model are presented in Table 4. The path between product quality and delivery services and affective commitment (B=0.118), product quality and delivery services and continuance commitment (B=0.103), affective commitment and e-loyalty (B=0.44), continuance and e-loyalty (B=0.158), product quality and delivery services and e-loyalty (B=0.195) are found significant and support H1, H2, H3,H4, and H5. In this way product quality and delivery services has direct significant influence on e-satisfaction and indirect impact via e-trust. This evidence shows that e-tailing should design effective mechanism of information management to improve their product quality, variety, availability by significantly considering e-tailing delivery services in the context of reliability, package safety and timely perspective in order to develop and sustainable relationship with online customers. The standardized parameter estimates of hypothesized paths are presented in Table 5.

Table 4. Fit indices for structural model

Fit Index	Scores	Recommended cut-off values
Absolute fit Measures		
Minimum fit function chi-square (x2)	293.40 (p=0.00)	The lower, the better
Degree of freedom (d.f)	154	
(x2)/d.f	1.905	<5
Goodness-of-fit index (GFI)	0.93	>0.80
Root mean square residual (RMSR)	0.049	<0.05
Incremental fit measures		
Adjusted goodness-of-fit index (AGFI)	0.90	>0.80
Tucker-Lewis index (TLI)	0.96	>0.90
Normal fit index (NFI)	0.94	>0.90
Comparative fit index (CFI)	0.97	>0.90
Parsimonious fit measures		
Parsimonious normed fit index (PNFI)	0.762	The higher, the better
Parsimonious goodness-of-fit index (PGFI)	0.680	The higher, the better

Table 5. Standardized parameter estimates of hypothesized paths

Hypotheses	Path	Coefficient (t-value)	Result
H1	Product quality & Delivery services → affective commitment	0.118 (3.06)*	Supported
H2	Product quality & Delivery services → continuance commitment	0.103 (3.09)**	Supported
H3	affective commitment→ e-loyalty	0.44 (5.30)	Supported
H4	continuance commitment→ e-loyalty	0.158 (7.61)**	Supported
H5	Product quality & Delivery services→ e-loyalty	0.195 (5.51)	Supported

*p<.001 & **p<0.05

H1: E-tailing product quality and delivery services positively influences affective commitment (γ=0.118; p<0.001). This finding of result confirms the belief that the higher the product quality and delivery services online customers receive from a e-tailers. It significantly increased customers' affective commitment with e-tailing.

H2: E-tailing product quality and delivery services positively influences continuance commitment (γ=0.103; p<0.005). This study result confirms the belief that the higher the product quality and delivery services online customers receive from a e-tailers. It significantly increased customers' continuance commitment towards e-tailing.

H3: Affective commitment positively influences e-loyalty (γ=0.44; p<0.001). In the context of e-tailing affective commitment of online customers towards e-tailers also enhanced e-loyalty that ultimately influences on e-tailers profitability.

H4: Continuance commitment positively influences e-loyalty (γ=0.158; p<0.005). In the context of e-tailing affective commitment of online customers towards e-tailers also enhanced e-loyalty that ultimately influences on e-tailers profitability. It is also identified that continuance commitment has weak relationship comparative to affective commitment with e-loyalty.

H5: E-tailing product quality and delivery services positively influences e-loyalty (γ=0.195; p<0.001. It is investigated that e-tailers product quality and delivery services has indirectly via commitment and also directly influences on e-loyalty.

5 MANAGERIAL IMPLICATIONS

This study finding provides several managerial implications. The basic premise of the proposed theoretical model was that e-tailers should understand comprehensively the factors that are necessary to achieve high product quality and delivery services that will positively impact on customer's commitment and loyalty, and use them as diagnostic information. Perhaps, by recognizing and analyzing such diagnostic indicators, e-tailers will be better able to formulate and implement their policies and strategies. The explanation of the research model has the potential to help e-tailers better understand how e-tailing customers assess product quality and delivery services as well as their influence on commitment and loyalty. Learning the unexplored relationship between e-tailing product quality and delivery services, commitment and e-loyalty, e-tailers can effectively allocate their resources and develop a rational plan to improve their product quality/delivery services under specific business circumstances.

6 CONCLUSION, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

While 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 product quality & delivery services, commitment and loyalty of e-tailing. Empirical tests of the model, using a sample of young e-tailing customers, were conducted to support the proposed hypotheses.

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 product quality & delivery services, commitment and e-loyalty. This study reveals several limitations. Firstly, sampling frame includes universities students that may lead to loss of generalizability of results. Secondly, dependent variable in the hypothesized model, commitment and e-loyalty are likely to be influenced by some other variables other than product quality & delivery services of e-tailing, which were not the specific object of this study. Therefore, future studies might be conducted to the specific product quality & delivery services of particular brands, category influence on e-loyalty in the context of e-tailing.

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