

## Antecedents of Online Customer Satisfaction in China

Zhao Chen, Kwek Choon Ling, Guo XiaoYing and Tang Chun Meng  
Faculty of Management and Information Technology, UCSI University,  
Jalan Menara Gading, UCSI Heights, 56000 Kuala Lumpur, Malaysia

---

**Abstract:** E-commerce is the internet detonation type development direct product is the networking application brand-new development direction. Online shopping website is developed rapidly in China. Customer satisfaction is the basic factor affecting the development of online shopping website and maintaining the market share of online shopping website operators. Therefore, this research will aim to evaluate the antecedents of customer satisfaction in the China online shopping environment. A total of 351 online shoppers in China were participated in this study revealed that trust, information quality, price, privacy, payment, web design and delivery are the key antecedents of the customer satisfaction in the China online shopping environment.

**Key words:** Online shopping, customer satisfaction, trust, information quality, price, privacy, payment, delivery, web design

---

### INTRODUCTION

With the evolution of internet technology, the development of e-Commerce in the world economy has created an unprecedented impact on the daily life of human being. China Internet Network Information Center (CNNIC) stated that since 1997, internet users in China has increased in geometric progression. In June, 2000 there were 10 million internet users in China. There are nearly as many as 60000 domain names registered under .cn domain names. The rapid expansion of the internet provides a very broad space for the development of e-Commerce activities in China.

China Internet Network Information Center (CNNIC) released the 23rd China Internet Development Statistics Report. The report showed that as at the end of 2008, the number of Chinese netizens reached 298 million in which 22.6% of internet penetration ratio in China is noted for the 1st time >21.9% of the global average; the number of broadband internet users reached 270 million and the number of CN domain names reached 13.572 million. These indicators continue to be the number one in the world showing that the proportion and the value of internet are growing larger in China.

The rapid growth of online shopping in China signifies the importance of focusing on the problem of customer satisfaction as a key factor to address when designing any online retail shop and online shop website. Customers must be satisfied with their online shopping experience; otherwise they will not shop in the same website or same online shop again (Kim and Stoel, 2004).

A recent survey displayed by CNNIC found that only 3.5% of the Chinese respondents were very satisfied with the online shopping experience (Liu *et al.*, 2008).

Dissatisfaction of customers usually leads to lost customers and income. Compared with American customers, Chinese customers have several different characteristics; their perception of security is lower; vast fake goods and false advertising lead them to undertake higher purchasing risks the buyer sometimes is not the customer they are more sensitive to price they are more carefully about making purchase decision (Lu, 2005). Hence, an essential understanding of the factors affecting Chinese online shopping customers' satisfaction is of great importance to online shopping operators. Therefore, this study would like to evaluate the antecedents of online customer satisfaction in China.

The underlining antecedents in this study include trust, information quality, price, privacy, payment, web design and delivery.

### Literature review

**Customer satisfaction:** It is widely expected that e-Commerce activity will continue to grow and that it will play a significant part of the global economy development in the near future (Graja and McManis, 2001).

Customer satisfaction is one of the key criteria of the online shopping study. Today, more and more online shopping operators attach great importance to customer satisfaction (Mihelis *et al.*, 2001). At a global level, profitability and long-term growth of any enterprises are strongly related to the customer satisfaction and customer

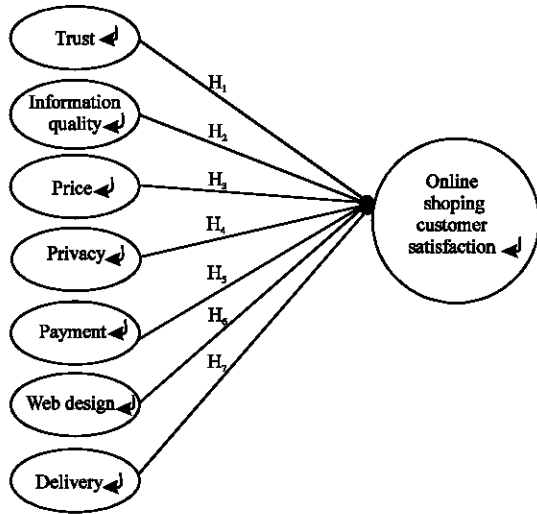


Fig. 1: Proposed conceptual framework (Developed for this research)

loyalty (Reichheld and Scheffer, 2000). Any increasing of customer retention rate can increase profit (Huffmire, 2001). Rosen (2001) asserts that approximately 37% of online shopping website sales revenue comes from visitors who are repeatedly visiting the website. Customer satisfaction is critical for establishing long-term client relationships (Patterson *et al.*, 1998).

As a result, a fundamental understanding of factors affecting online customer satisfaction is of great importance to e-Commerce (McKinney *et al.*, 2002). Szymanski and Hise (2000) stated that convenience, site design and financial security were dominant factors in e-satisfaction while the product information had relatively small impact on online customer satisfaction. Jun *et al.* (2004) identified six factors associated with online customer satisfaction including reliable/prompt responses, access, ease of use, attentiveness, security and credibility. The study of Jun *et al.* (2004) found that reliable/prompt responses, ease of use and attentiveness had significant influence on online customer satisfaction. Hui claimed that trust, information quality, system quality and service quality are the key factors influencing the online customer satisfaction in the online shopping environment.

Liu *et al.* (2008) did an empirical study on online shopping customer satisfaction in China and discovered that the information quality, customer service, website design, transaction capability, response time, privacy, delivery, merchandise attributes and payment are the strong predictors of customer satisfaction. This research chooses trust, information quality, price, privacy, payment, website design and delivery to be the

antecedents of the customer satisfaction in the China online shopping environment. Figure 1 shows the proposed conceptual framework for this research.

**Trust:** Trust is the customer perception of confidence in the e-marketer’s reliability and honesty (Liu *et al.*, 2008). Buying decisions are always depended on trust in the product, salesperson or company (Hosmer, 1995). Internet shopping decisions involve trust between customers and merchants and their computer systems (Lee and Turban, 1999). Trust is especially an important factor in online transaction because trust absorbs transaction-specific uncertainty through justifying the negative effect of perceived information asymmetry and the resulting possibility of encountering opportunistic behaviour (Pavlou and Fygenson, 2006). According to Blau (1964), trust is a key point in the appearance and maintenance of social exchange relationships. Bradach and Eccles (1989) view trust as a control mechanism that facilitates exchange relationships characterized by vagueness, vulnerability and dependence. These characteristics will affect the online shopping system and environment where customers are unable to personally inspect the vendor, physically examine the products or collect the product upon payment (Bradach and Eccles, 1989). Customers have incomplete information and cognitive resources available and thus seeking to reduce the uncertainty and complication of online transactions by applying mental shortcuts (Grabner-Kraeuter, 2002). One effective short cut is trust which can serve as the way to reduce the complexity of human conduct in situations where people have to cope with uncertainty. Due to limited control over the vendor and the non-attendance of proven guarantees that the vendor will not engage in undesirable opportunistic behaviors, trust is becoming a critical factor of decision making process in any online shopping environment (Gefen, 2002). Gefen *et al.* (2000) introduced that customers in general will keep away from purchasing products or services from the online vendor whom they distrust or they suppose that the online vendor will not be ethical and behave in a socially suitable way (i.e., trust to be bad). In fact, prior research states that trust plays a key role in driving customer satisfaction (Lin and Wang, 2006).

**Information quality:** Szymanski and Hise (2000) found that customer satisfaction for the online shopping is largely influenced by the quality of a website’s product information.

Website information is often supervised rather than read in detail, useful information and reliable information are very important to the customers for their quick access

(Szymanski and Hise, 2000). Other researchers stated that the need for information content to be precise, relevant and complete. Since, a primary role of an online store is to provide information about product, transaction and service, higher quality information leads to better buying decisions and improve the levels of customer satisfaction (Peterson *et al.*, 1997).

**Price:** Over several decades ago, price is a measuring tool of product quality to buyers. This behaviour was not reasonable but simply to show that products on a price scale, resulting in a strong, positive relationship between price and product quality. In order to receive more product benefits, price measures foregone/given up in a business (Petroshius and Monroe, 1987). Thus, price is used as an informational incentive for judging the product by individuals. In a product line environment when the buyer is facing to a line of products and products prices, the price characteristics of the product line influences consumer evaluation and satisfaction (Petroshius and Monroe, 1987). Chen and Chang (2003) also mentioned that one of the most commonly reasons effect on online shopping is price and many early online marketers used price as a key competitive factor to attract consumers to visit their websites. Moreover, the Chinese are quite sensitive to price more than other country (Lu, 2005). Hence, price has a lot to do with Chinese customers' satisfaction.

**Privacy:** Privacy refers to the rights of individuals and organizations to decide for themselves when how and to what extent information about them is to be transmitted to others (Grandinetti, 1996). The lack of privacy on the websites will make online shoppers have serious concerns about their credit card transactions and privacy of personal information (Jun *et al.*, 2004). Therefore, the privacy policy regarding consumer personal information protection was included in the web pages. At the purchase stage, privacy may affect customer satisfaction. Compared with the traditional economy, online consumers are more keenly aware of the need for privacy online (Culnan, 1999). Inadequate infrastructure, lack of trust and privacy and security concerns often lead to lost of sales (Yianakos, 2002).

**Payment:** e-Commerce has created new financial system. The study of Liu *et al.* (2008) uncovered that the underlying constructs of customer satisfaction with online shopping is payment. According to the research finding, Liu *et al.* (2008) indicated that a convenient payment mechanism will have a positive effect on online shopping customer satisfaction. Thus, payment will be

examined in this research as a factor in influencing the customer satisfaction in the China online shopping environment.

**Web design:** Existing extant literature has argued that a user-friendly interface is a very important factor to ensure the success of trading via web sites. Del Galdo and Nielsen (1999) called for a need to improve the suitability of the web site in a belief that low usability will lead to unsatisfied users and the site will not grow into long-term success. Gummerus *et al.* (2004) define the user interface as the medium through which consumers are in contact with the e-service provider. Srinivasan *et al.* (2002) proved that the interactivity aspect of e-Commerce function is strongly related to customer loyalty. The web design variable is a very important antecedent to website trust and website satisfaction across cultures from different place (Lee and Joshi, 2007). Also, Alam and Yasin (2009) found from their study in Malaysia that the website web design is strongly related to customer satisfaction. Website design was received as a strong factor in influencing online shopping satisfaction (Lee and Joshi, 2007). Zhang *et al.* (1999) make an attempt to evaluate the website quality from user satisfaction and dissatisfaction perspective. Their studies show that the website design features can be regarded as the hygiene and motivator factors that contribute to the user dissatisfaction and satisfaction with a website.

**Delivery:** The lack of physical interactions between sellers and buyers is one of the important weaknesses of e-retailing. Massad *et al.* (2006) argued that delivery performance is the key factor for keeping customers satisfied with online shopping stores. Liu *et al.* (2008) stated that in the e-commerce environment not only the consumption of goods is separated from production, thus making it necessary for goods to be delivered to consumers before consumption, there is also a delay in the delivery of goods. Delayed delivery may have a negative effect on satisfaction (Liu *et al.*, 2008). Online shopping stores should pay attention to improve customer experience by providing safe packaging, reliable, cost and effective delivery options; prompt feedback on the delivery status and ensuring timely delivery of the ordered products (Massad *et al.*, 2006). The online store operators should also make it easy to track and monitor the delivery progress. An informed customer is likely to be a more satisfied customer (Massad *et al.*, 2006).

**Hypothesis:** Prior discussion has led to a brief examination of the existing literature, the seven hypotheses are developed:

- H<sub>1</sub>: Trust has significant positive impact on online shopping customer satisfaction in China
- H<sub>2</sub>: Information quality has significant positive impact on online shopping customer satisfaction in China
- H<sub>3</sub>: Price has significant positive impact on online shopping customer satisfaction in China
- H<sub>4</sub>: Privacy has significant positive impact on online shopping customer satisfaction in China
- H<sub>5</sub>: Payment has significant positive impact on online shopping customer satisfaction in China
- H<sub>6</sub>: Web design has significant positive impact on online shopping customer satisfaction in China
- H<sub>7</sub>: Delivery has significant positive impact on online shopping customer satisfaction in China

## MATERIALS AND METHODS

**Research design:** According to Bush, an information research process that consists of four distinct yet interrelated phases: Determine the research problem, select the appropriate research design, execute the research design and communicate the research results. Base on the study, this research has determined that trust, information quality, price, privacy, service quality, payment, web design and delivery as antecedents of customer satisfaction in the online shopping environment. This research will adopt deductive research. The study also used descriptive research, cross-sectional design and quantitative research to test all the seven hypothesized relationship.

**Questionnaire design:** A questionnaire whether it is called a schedule interview form or measuring instrument is a formalized set of questions for obtaining information from respondents (Malhotra, 1996). Any questionnaire has three specific objectives. First, it must translate the information needed into a set of specific questions that the respondents can and will answer. Second, a questionnaire must uplift, motivate and encourage the respondent to become involved in the interview to cooperate and to complete the interview. Third, a questionnaire should minimize response error (Malhotra, 1996). A self-administrated questionnaire will be used in this research. There are four types of measurement as following: Nominal scales, ordinal scales, internal scales, ratio scales. Researcher used ordinal scale and nominal scale to measure the questions that appeared in the section one and two of questionnaire. Researchers used interval scale to measure the questions that appeared in the section three of the questionnaire. A Likert scale asks respondents to indicate the extent to which they either agree or disagree with a series of mental or behavioral belief statements about a given object

(Hair *et al.*, 2006). This research use Likert scale to measure the question in the questionnaire. This research uses 5-points Likert scale anchored by 1 is strongly disagree, 2 is disagree, 3 is neither agree nor disagree, 4 is agree, 5 is strongly agree.

**Sampling:** A sample is a subset of the population that should represent that entire group. Sampling involves selecting a relatively small number of elements from a larger defined group of elements and expecting that the information gathered from the small group will enable accurate judgments about the larger group (Hair *et al.*, 2006). In any sampling plan, the first task of the researcher is to determine the group of people or objects that should be investigated.

The target population of this research is the customers with online shopping experience in China. Due to lack of the sampling frame, this research will choose purposeful sampling for the purpose of screening qualified respondents in the study (Hair *et al.*, 2006). In this research, the sampling size is 400.

**Administration of survey:** Self-administered surveys is a form of data collection technique in which the respondent reads the survey questions and records his or her responses without the presence of a trained interviewer (Hair *et al.*, 2006). Researches will distribute the self-administered questionnaires to all the students and staff from the Faculty of Information Technology at one of the reknown public university in Beijing, China. The students and staff with online shopping experience will be asked to fill in the questionnaire and returned the questionnaire on the spot. A total of 400 questionnaires were distributed and only 371 questionnaires were returned. After a thoroughly checking, only 351 usable questionnaires were adopted in the analysis for this study.

## RESULTS AND DISCUSSION

**Respondents' screening analysis:** Based on the survey, all the 351 respondents have online shopping experience. Respondents who do not have online shopping experience are excluded in this research. Based on the result, a total of 76.8% (298) of respondents always visit the online shopping website and 13.7% (53) of respondents visit the online shopping website once in a while. According to the finding, more than half of the respondents often browse the online shopping website. Among the respondents, 59.9% (209) of respondents choose Taobao website, 14.2% (50) of respondents choose Dangdang website and Zhuoyue website, 9.4% (33) of respondents choose Paipai website and 2.6% (9) choose others.

Table 1: Reliability of the constructs

Constructs	Composite reliability
Trust	0.722
Information quality	0.728
Price	0.757
Privacy	0.755
Payment	0.831
Web design	0.785
Delivery system	0.803
Customer satisfaction	0.758

Developed for this research

**Respondents' demographic profile:** Based on the finding, 10.5% (37) of respondents are <16 years old, 42.7% (150) of respondents are 16-25 years old, 25.6% (90) of respondents are 26-35 years old, 11.4% (40) of respondents are 35-45 years old and 9.7% (34) of respondents are >45 years old. According to the survey finding, there are 34.8% (122) of total respondents are male and 65.2% (229) of total respondents are female. This is a normal phenomenon because the main user group of online shopping is female in China. The finding of the data also indicated that 40.2% (141) of total respondents are married and 59.8% (210) of total respondents are unmarried. According to this finding, majority of respondents are unmarried.

**Reliability test:** Reliability refers to the extent to which a scale produces consistent results if repeated measurements are made (Malhotra, 1996). The items on the scale are divided into two halves and the resulting half scores are correlated. High correlations between the halves indicate high internal consistency. A popular approach to measure reliability is to use the coefficient alpha (Malhotra, 1996). The value of coefficient alpha or Cronbach's alpha with range of >0.70 is considered acceptable and good.

In Table 1, the results indicated that the Cronbach alpha for all the eight constructs were well >0.7 as recommended by Cavana. Cronbach alpha for the constructs ranged from the lowest of 0.722 (trust) to 0.831 (payment). According to Table1, the results showed that the scores of the Cronbach's alpha for all the constructs used in this research >0.70 and they indicated that the measurement scales of the constructs were stable to measure the constructs.

**Validity test:** Validity refers to the extent to which the conclusions drawn from the experiment are true (Hair *et al.*, 2006). Construct validity addresses the question of what construct or characteristic the scale is in fact, measuring (Malhotra, 1996). The details of the factor analysis were shown in Table 2. Depended on the output shown, factor analysis was appropriate because the value of Kaiser-Meyer-Olkin (KMO) was 0.837 (between 0.5 and

1.0) and the statistical test for Bartlett test of sphericity was significant ( $p = 0.000$ ;  $df = 465$ ). Based on the principal components analysis and VARIMAX procedure in orthogonal rotation, Table 2 also showed that the Eigenvalues for all the constructs were >1.0, ranging from the lowest 1.165 (payment) to the highest of 7.307 (web design). In term of convergent validity, the factor loadings for all items within the constructs showed in Table 2 were >0.5. According to the Table 2, discriminate validity indicated that all items were allocated according to the different constructs. Therefore, the items were not overlapping and they supported respective constructs.

**Regression analyses:**

**Pearson correlation analysis:** The Pearson correlation coefficient measures the degree of linear association between two variables. It varies between -1.00 and 1.00, with 0 representing absolutely no association between two variables and -1.00 or +1.00 representing a perfect link between two variables (Hair *et al.*, 2006). Based on the Table 3, all variables are significant associated with each other ( $p < 0.05$ ). The absolute values of the correlation among the constructs tested in the hypotheses stated from the weakest one of 0.194 (between payment and delivery system) to the strongest one of 0.456 (between web design and payment). According to this result, all Pearson correlation data had two stars, indicating correlation is significant at the 0.01 level. In addition, the Pearson correlation coefficient between the independent variables (trust, information quality, price, privacy, payment, web design and delivery system) and dependent variable (customer satisfaction) are 0.340, 0.312, 0.311, 0.353, 0.313, 0.378 and 0.325, respectively.

The values of Pearson correlation coefficient is ranging from 0.194-0.456. All the associations between the constructs have positive signs that indicate the positive direction of the associations among all the constructs tested.

**Multiple regression analysis:** Multiple regression analysis is the appropriate technique to analyze the linear relationship between a dependent variable and multiple independent variables by estimating coefficients for the equation for a straight line (Hair *et al.*, 2006). Multiple regression analysis will be used to test the seven hypotheses of this research.

Based on the Table 4, the range of Tolerance values was between 0.644-0.801 in which were all >0.10 and the VIF value ranges from 1.248-1.522 in which are all <5 (Hair *et al.*, 2006). The findings showed that there is no multicollinearity problem among all the independent

Table 2: Eight factors identified by the principal components factor analysis

Name of factors	Variables	Factor loading	Eigenvalue	Cronhach alpha
Trust	Based on my experience with this website in the past, I know it is honest	0.700	1.471	0.722
	Based on my experience with this website in the past, I know it is not opportunistic	0.629		
	Based on my experience with this website in the past, I know it keeps its promises to customers	0.671		
	Based on my experience with this website in the past, I know it is trustworthy	0.691		
	Based on my experience with this website in the past, I know it has the ability to complete transactions	0.526		
Information quality	Information provided by this website is relevant to my purchase decisions	0.587	1.600	0.728
	Information provided by this website is easy to comprehend	0.723		
	Information provided by this website is accurate	0.658		
	Information provided by this website is complete	0.652		
	Information provided by this website is timely	0.653		
Price	I am satisfied with the price of the product in this website	0.726	1.393	0.757
	I am satisfied with the price of the shipping and handling charges	0.762		
Privacy	The website clearly explains how user information is used	0.733	1.714	0.755
	Only the personal information necessary for the transaction to be completed needs to be provided	0.663		
Payment	Information regarding the privacy policy is clearly presented	0.737	1.165	0.831
	This website has complete payment options referring to post office remittance, online payment, cash on delivery, etc	0.801		
Web design	I accept the payment options provided by the website	0.846	7.307	0.785
	I like the layout of the website	0.610		
	This website uses good color combinations	0.770		
	I like the color combination of this website	0.634		
	I feel happy when I use the website	0.622		
Delivery system	The website is easy to use	0.506	2.146	0.803
	The website is user friendly	0.677		
	The product is delivered by the time promised by the company	0.733		
	You get what you ordered from this site	0.782		
	The items sent by the site are well packaged and perfectly sound	0.745		
Customer satisfaction	I am satisfied with the delivery mode of the web site (post, express delivery, home delivery)	0.752	2.084	0.758
	I like to purchase products from this website	0.709		
	I am pleased with the experience of purchasing products from this website	0.711		
	I think purchasing products from this website is a good idea	0.676		
	I am satisfied with the experience of purchasing products from this website	0.720		

KMO measure of sampling adequacy = 0.837 (KMO>0.5); p = 0.000 (p< 0.05); df = 465; Cumulative percentage rotation sums of squared loadings = 60.903

Table 3: Correlations

Variables	Correlations	Customer satisfaction	Information quality	Payment	Delivery	Web design	Privacy	Trust	Price
Customer satisfaction	Pearson correlation	1	0.312**	0.313**	0.325**	0.378**	0.353**	0.340**	0.311**
	Sig. (2-tailed)	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	351	351	351	351	351	351	351	351
Information quality	Pearson correlation	0.312**	1	0.233**	0.236**	0.282**	0.311**	0.320**	0.319**
	Sig. (2-tailed)	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000
	N	351	351	351	351	351	351	351	351
Payment	Pearson correlation	0.313**	0.233**	1	0.194**	0.456**	0.275**	0.244**	0.223**
	Sig. (2-tailed)	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000
	N	351	351	351	351	351	351	351	351
Delivery	Pearson correlation	0.325**	0.236**	0.194**	1	0.365**	0.349**	0.302**	0.220**
	Sig. (2-tailed)	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000
	N	351	351	351	351	351	351	351	351
Web design	Pearson correlation	0.378**	0.282**	0.456**	0.365**	1	0.345**	0.317**	.369**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000
	N	351	351	351	351	351	351	351	351
Privacy	Pearson correlation	0.353**	0.311**	0.275**	0.349**	0.345**	1	0.410**	0.302**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	-	0.000	0.000
	N	351	351	351	351	351	351	351	351
Trust	Pearson correlation	0.340**	0.320**	0.244**	0.302**	0.317**	0.410**	1	0.289**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000
	N	351	351	351	351	351	351	351	351
Price	Pearson correlation	0.311**	0.319**	0.223**	0.220**	0.369**	0.302**	0.289**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-
	N	351	351	351	351	351	351	351	351

\*\*Correlation is significant at the 0.01 level (2-tailed)

Table 4: Results of multiple linear regression analysis

Variables	Unstandardized coefficients	Standardized $\beta$ coefficients	t-value	Significant (t)	Collinearity statistics	
					Tolerance (e)	VIF
Trust	0.093	0.117	2.206	0.028	0.747	1.340
Information quality	0.101	0.110	2.144	0.033	0.801	1.248
Price	0.135	0.104	2.010	0.045	0.786	1.273
Privacy	0.124	0.117	2.150	0.032	0.717	1.395
Payment	0.162	0.119	2.276	0.023	0.766	1.305
Web design	0.078	0.130	2.266	0.024	0.644	1.552
Delivery	0.116	0.129	2.502	0.013	0.791	1.264

Dependent variable: Customer satisfaction; Independent variables: Trust, information quality, price, privacy, payment, web design and delivery; R = 52.6%, R<sup>2</sup> = 27.6%, Adjusted R<sup>2</sup> = 26.1%, F = 18.697; p = 0.000 (p<0.05); Developed for this research

variables in this research. According to Table 4, the p-value for all the seven independent variables are <0.05, indicating trust, information quality, price, privacy, payment, web design and delivery had significant relationship with customer satisfaction.

Based on the SPSS output, the multiple regression equation was formed as following: Online shopping customer satisfaction = 4.959+0.093 (Trust) +0.101 (Information quality) +0.135 (Price) +0.124 (Privacy) +0.162 (Payment) +0.078 (Web design) +0.116 (Delivery).

### CONCLUSION

Standardized beta coefficient explains the intensity among variables, variables are ranged as following based on intensity: 0.130 (Web design), 0.129 (Delivery), 0.119 (Payment), 0.117 (Privacy), 0.117 (Trust), 0.110 (Information quality) and 0.104 (Price). It can be said that web design is the most relatively powerful independent variable in influencing customer satisfaction in China online shopping environment.

Based on the results, the value of the R<sup>2</sup> is 0.276. This means that the changes of customer satisfaction in the online shopping environment was explained 27.6% by the factors of trust, information quality, price, privacy, payment, web design and delivery.

### LIMITATIONS

Although, the research findings provide some new insights to researchers, these findings still have some limitations. Researchers will describe some limitations associated with the research findings as following: The study in this research used cross-sectional data. Cross-sectional data can mislead researchers about changes over time. In another word, it is only able to reveal the net effect of predictor variable towards a particular criterion variable at a specific point in time. This research finding cannot explain why the observed patterns are there. Therefore, this research finding will not able to portray how the determinants of customer satisfaction change over time in the online shopping environment. In addition, the adoption

of non-probability sampling technique has limited the ability to generalize this research finding.

### IMPLICATIONS

Based on the research finding, the online shopping operators may need to implement the following strategies to improve the level of customer satisfaction in the China online shopping environment. The proposed strategies include improving the customer trust by providing quality interpersonal treatment that signal to customers that the vendor cares for their well being (Fang *et al.*, 2011), improving the information quality of online shopping website through incorporating completely, timely, friendly and true information, creating a safety online shopping environment through protection of personal information and improvement of payment system and creating friendly and clearly online shopping website (Liu *et al.*, 2008).

### RECOMMENDATIONS

Due to the limitation of this research, it is suggested to use longitudinal study to examine the changes of antecedents of customer satisfaction over time. In addition, the future research should adopt probability sampling technique to allow the ability to generalize the research finding.

### REFERENCES

- Alam, S.S. and N.M. Yasin, 2009. An investigation into the antecedents of customer satisfaction of online shopping. Proceedings of the Australian and New Zealand Marketing Academy Conference, November 30-December 2, 2009, Melbourne, Australia.
- Blau, P.M., 1964. Exchange and Power in Social Life. 1st Edn., Wiley, Academic Press, New York, USA, ISBN: 9780887386282, Pages: 352.
- Bradach, J.L. and R.G. Eccles, 1989. Price, authority and trust: From ideal types to plural forms. *Annu. Rev. Sociol.*, 15: 97-118.
- Chen, S.J. and T.Z. Chang, 2003. A descriptive model of online shopping process: Some empirical results. *Int. J. Serv. Ind. Manage.*, 14: 556-569.

- Culnan, M.J.G., 1999. Internet Privacy Policy Study: Privacy Online in 1999: A Report to the FTC. Georgetown University, Washington, DC., USA.
- Del Galdo, E. and J. Nielsen, 1999. International User Interface. Katherine Schowalter, USA.
- Fang, Y.H., C.M. Chiu and E.T.G. Wang, 2011. Understanding customers' satisfaction and repurchase intentions: An integration of IS success model, trust and justice. *Internet Res.*, 21: 479-503.
- Gefen, D., 2002. Customer loyalty in e-commerce. *J. Assoc. Inform. Syst.*, 3: 27-51.
- Gefen, D., D. Straub and M.C. Boudrea, 2000. Structural equation modeling techniques and regression: Guidelines for research practice. *Commun. Assoc. Inform. Syst.*, 7: 1-78.
- Grabner-Kraeuter, S., 2002. The role of consumers' trust in online-shopping. *J. Bus. Ethics*, 39: 43-50.
- Graja, H. and J. McManis, 2001. Quantifying customer satisfaction with E-commerce websites. Proceedings of the 17th IEE UK Teletraffic Symposium, May 16-18, 2001, Dublin, Ireland.
- Grandinetti, M., 1996. Establishing and maintaining security on the internet. *Sacramento Bus. J.*, 13: 22-22.
- Gummerus, J., V. Liljander, M. Pura, A. Van Riel, 2004. Customer loyalty to content-based web sites: The case of an online health-care service. *J. Serv. Market.*, 18: 175-186.
- Hair, J.F., R.P. Bush and D.J. Ortinau, 2006. Marketing Research: Within a Changing Information Environment. 3rd Edn., McGraw-Hill/Irwin, New York, USA., ISBN-13: 9780077109363, Pages: 730.
- Hosmer, L.T., 1995. Trust: The connecting link between organizational theory and philosophical ethics. *Acad. Manage. Rev.*, 20: 379-403.
- Huffinire, D., 2001. Improving customer satisfaction, loyalty and profit: An integrated measurement and management system. *Choice*, 38: 946-947.
- Jun, M., Z. Yang and D.S. Kim, 2004. Customers' perceptions of online retailing service quality and their satisfaction. *Int. J. Qual. Reliabil. Manage.*, 21: 817-840.
- Kim, S. and L. Stoel, 2004. Apparel retailers: Website quality dimensions and satisfaction. *J. Retail. Consumer Serv.*, 11: 109-117.
- Lee, K. and K. Joshi, 2007. An empirical investigation of customer satisfaction with technology mediated service encounters in the context of online shopping. *J. Inform. Technol. Manage.*, 18: 18-37.
- Lee, M.K.O. and E. Turban, 1999. A trust model for Internet shopping. *Int. J. Electr. Commerce*, 6: 75-91.
- Lin, H.H. and Y.S. Wang, 2006. An examination of the determinants of customer loyalty in mobile commerce contexts. *Inform. Manage.*, 43: 271-282.
- Liu, X., M. He, F. Gao and P. Xie, 2008. An empirical study of online shopping customer satisfaction in China: A holistic perspective. *Int. J. Retail Distrib. Manage.*, 36: 919-940.
- Lu, H.T., 2005. The Behavior Differences of Chinese Consumers. Chinese Social Science Press, Beijing.
- Malhotra, N.K., 1996. Marketing Research: An Applied Orientation. 2nd Edn., Prentice-Hall, New Jersey, USA.
- Massad, N., R. Heckman and K. Crowston, 2006. Customer satisfaction with electronic service encounter. *Int. J. Electr. Commerce*, 10: 73-104.
- McKinney, V., K. Yoon and F.M. Zahedi, 2002. The measurement of web-customer satisfaction: An expectation and disconfirmation approach. *Inform. Syst. Res.*, 13: 296-315.
- Mihelis, G., Y. Siskos, Y. Politis and Y. Malandrakis, 2001. Customer satisfaction measurement in the private bank sector. *Eur. J. Operat. Res.*, 130: 347-360.
- Patterson, P.G., L.W. Johnson and R.A. Spreng, 1998. Modeling the determinants of customer satisfaction for business-to-business professional services. *J. Acad. Market. Sci.*, 25: 4-17.
- Pavlou, P.A. and M. Fygenon, 2006. Understanding and predicting electronic commerce adoption: An extension of the theory of planned behaviour. *MIS Q.*, 30: 115-143.
- Peterson, R.A., S. Balasubramaniam and J.B. Bart, 1997. Exploring the implications of the internet for consumer marketing. *J. Acad. Market. Sci.*, 25: 329-346.
- Petroshius, S.M. and K.B. Monroe, 1987. Effect of product-line pricing characteristics on product evaluations. *J. Consum. Res.*, 13: 511-519.
- Reichheld, F.F. and P. Schefter, 2000. E-loyalty: Your secret weapon on the web. *Harvard Bus. Rev.*, 1: 105-113.
- Rosen, S., 2001. Sticky web site is key to success. *Commun. World*, 18: 36-37.
- Srinivasan, S.S., R. Anderson and K. Ponnarolu, 2002. Customer loyalty in e-commerce: An exploration of its antecedents and consequences. *J. Retailing*, 78: 41-50.
- Szymanski, D.M. and R.T. Hise, 2000. E-satisfaction: An initial examination. *J. Retail.*, 76: 309-322.
- Yianakos, C., 2002. Nameless in cyberspace: Protecting online privacy. *J. Bank. Financial Serv.*, 116: 48-49.
- Zhang, P., R.V. Small, G.M. Von Dran and S. Barcellos, 1999. Websites that satisfy users: A theoretical framework for web user interface design and evaluation. Proceedings of the 32nd Annual Hawaii International Conference on System Sciences, January 5-8, 1999, Maui, HI., USA.