

Studying The Impact Of Online Service Quality On Customer Loyalty And Satisfaction

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Abstract:

As the online market has grown rapidly over the years, online marketing activities have attracted much attention. Many companies have created customer loyalty by improving the quality of online services, but these effects need to be further examined. The authors propose a research model consisting of eight factors: information quality, product quality, product price, website quality, delivery method, system responsiveness, customer service, and satisfaction. The research sample was collected through an online survey of all customers who visited a website specializing in providing local specialty agricultural products. After eliminating invalid ballots, 720 qualified ballots were collected. The study used the structural equation modeling (SEM) method to measure the impact of factors on customer satisfaction and loyalty. Results: Information quality, product quality, web quality, product price, system responsiveness, delivery, and customer service have statistically significant positive impacts on customer satisfaction. The study suggests that e-commerce businesses need to invest in improving the quality of online services to increase customer satisfaction and loyalty, helping to develop a sustainable business.

Keywords: *satisfaction, loyalty, local agricultural products, quality, price, service.*

1. Introduction

The article studies the impacts of online service quality on customer loyalty and satisfaction in rural Vietnam. According to the e-commerce index of the Vietnam E-commerce Association, the country currently has more than 64 million internet users, accounting for 66% of the population; 62 million social network users with 143 million mobile subscribers... which is an important basis for the strong development of the e-commerce market. Through reputable e-commerce websites today, consumers can easily buy typical Vietnamese agricultural products online. At the same time, they can feel more secure when buying products online, because typical agricultural products have been strictly controlled by authorities for quality and have food safety certificates.

Kim & Stoel, 2004, stated that a company's website plays an important role, it affects the customer's shopping process, making it easy for them to find information; Well-designed websites will reduce the time for customers to search for information and avoid inappropriate information (Luo, Ba & Zhang, 2012). In addition, (Ma & Zhang, 2003; Kandampully et al., 2015) also stated that the quality of online services is also an important factor in determining the success of an e-commerce website through meeting customer satisfaction and loyalty. The

study has great practical significance, providing the basis for building solutions to improve business efficiency for small-scale producers and rural enterprises. At the same time, the study also contributes to systematizing the theory of e-commerce in the context of Vietnam's agricultural economy.

2. Theoretical basis

2.1 Online service quality

According to Kumar, P.K. (2012), Service Quality is an important approach in business management to bring satisfaction and improve the competitiveness and efficiency of the industry.

Nowadays, with the popularity of Internet information technology, the development trend of electronic network services is increasingly promoted. Currently, scholars studying online service quality mainly refer to the quality of websites (web) affecting customer satisfaction (Loiacono et al., 2000; Zeithaml et al., 2002; Barnes and Vidgen, 2002; Wolfinbarger & Gilly, 2003). Besides web quality, some studies such as Szymanski & Hise (2000); and Wolfinbarger & Gilly (2003) also suggested that it is also related to product quality, security, delivery, and transaction capabilities (Szymanski & Hise, 2000; Wolfinbarger & Gilly, 2003).

2.2 Customer satisfaction

According to Kotler (2001), customer satisfaction is the level of a person's emotional state that stems from comparing the results obtained from consuming a product/service and the customer's expectations. On that basis, Kotler identified 3 levels of satisfaction: (1) If the results received are less than expected, the customer will feel dissatisfied; (2) If the results received are as expected, the customer will feel satisfied; (3) If the results received exceed the customer's expectations, they will feel very satisfied with that service. Customer satisfaction is the result of a combination of service quality, product quality, and price (Parasuraman, 1994), which is a psychological state that leads to expectations about products and services before customers buy (Oliver et al., 1997). In addition, consumers' perceptions of the convenience of online shopping (products offered and product information), website design, and security play an important role in assessing online shopping satisfaction (Szymanski and Hise, 2000). Measuring customer satisfaction is important for businesses because satisfaction with products/services will influence customers' decisions about whether to continue using the business's products/services or not.

2.3 Customer loyalty

From the attitudinal perspective, Shankar et al found that loyal consumers have a willingness to consume are not easily persuaded by others, and are more willing to recommend products and services to others (Shankar et al., 2003). Ma and Zhang pointed out that customer loyalty refers to the dependence of customers when they purchase products and services of a business (Ma & Zhang, 2003). Loyal customers will have a favorable attitude will make repeated purchases, and will actively promote and recommend the business, in other words, customer loyalty is a combination of attitude and behavior (Ma & Zhang, 2003). In addition, loyalty is not only reflected in the loyal behavior of repeated purchases but also includes a positive attitude of loyalty towards a certain product and brand (Kandampully et al., 2015). Based on the above arguments and applying them to the research situation, we believe that customer loyalty in

purchasing local specialty agricultural products is a preference and frequent use of these products on the agricultural e-commerce platform.

2.4 The relationship between service quality and satisfaction

Service quality and satisfaction are two different concepts but are closely related in service research (Parasuraman et al., 1988). The research results of Parasuraman et al. (1988) show that the higher the perception of service quality, the more satisfied customers are. Studies by Buttle (1998), Lee et al. (2000), Gilbert and Veloutsou (2006) have also demonstrated that service quality leads to customer satisfaction. That means service quality leads to satisfaction. To achieve a high level of customer satisfaction, most researchers assume that a high level of service quality will be provided by service providers because service quality is often considered an antecedent of customer satisfaction (Mesay, 2012).

Siddiqi (2011) described that all the service quality attributes are positively related to customer satisfaction and customer satisfaction is positively related to customer loyalty in retail banking settings. Furthermore, Auka (2012) also stated that service quality will lead to high customer satisfaction and increased loyalty.

2.5 The relationship between satisfaction and loyalty

Service managers and market researchers believe that there is a strong theoretical basis for an empirical exploration of the link between customer satisfaction and loyalty. Studies claim that there is a strong and positive relationship between customer satisfaction and loyalty.

Empirical research shows that satisfied customers tend to be more loyal than less satisfied ones and are therefore important to a company's profitability (Reichheld and Sasser, 1990). Conversely, dissatisfaction can lead to customer defection. Such satisfaction is positively related to customer loyalty and dissatisfaction can lead to customer defection.

A satisfied customer is more likely to repurchase a product and share his or her experience with five or six others (Gronroos, 2000; Zairi, 2000), and dissatisfaction can cause a customer to leave an organization even if the organization has satisfied them tenfold (Mohsan, 2011). As customer satisfaction increases, loyalty increases.

Several other studies have found satisfaction to be a leading factor in determining loyalty (He and Song, 2009; Mensah, 2010). Tee et al., (2012) found a positive relationship between customer satisfaction and customer loyalty. Thus, the studies concluded that there is a significant relationship between customer satisfaction and loyalty. They asserted that high levels of customer satisfaction will lead to increased loyalty for the companies.

2.6. Research hypothesis and model

2.6.1. Research hypothesis

From the above arguments, we hypothesize that:

Hypothesis 1 (H1): Information quality has a positive relationship with customer satisfaction when purchasing local specialty agricultural products.

Hypothesis 2 (H2): Quality of local specialty agricultural products (QP) has a positive relationship with customer satisfaction

Hypothesis 3 (H3): Price (PP) has a positive relationship with customer satisfaction.

Hypothesis 4 (H4): WEB quality has a positive relationship with customer satisfaction.

Hypothesis 5 (H6): System responsiveness has a positive relationship with customer satisfaction

Hypothesis 6 (H7): Customer service has a positive relationship with customer satisfaction

Hypothesis 7 (H8): Satisfaction has a positive relationship with customer loyalty

2.6.2. Research model

The research model is presented in Figure 1.



Figure 1. Proposed research model

3. Research methods

3.1. Data

To conduct the study, we conducted an online survey of all customers who visited a website specializing in providing local specialty agricultural products between February 2022 and May 2022. As a result, we obtained a sample of 845 subjects who agreed to participate in the survey. After eliminating some invalid ballots, we obtained a sample of 720 subjects with the following characteristics:

Table 1: Post-survey statistics meet research requirements

	Characteristic	Amount	Rate %
Age	>25	143	19.9%
	25 - 35	291	40.4%
	36 - 45	158	21.9%
	>45	128	17.8%
Gender	Nür	469	65.1%
	Nam	251	34.9%
Income	<10tr	182	25.3%
	10 -15	235	32.6%
	> 15tr	303	42.1%
Education	≤ THPT	119	16.5%

	TC - CĐ	312	43.3%
	ĐH- SDH	289	40.1%
Living area	Others	233	32.4%
	Economic center or big city	487	67.6%

3.2. Analytical method

After collecting data, we evaluated CMB-Common method bias, analyzed the reliability of the scale by Cronbach's Alpha coefficient and EFA exploratory factor analysis, then the data was analyzed by confirmatory factor to measure the suitability, test the reliability, test the convergence and discrimination by variance in Model Validity Measures, measure the impact of factors on satisfaction and satisfaction on loyalty by SEM model, test the suitability of the model with market data by Bootstrap. Besides, we also considered the impact of customer characteristics on satisfaction and loyalty through t-tests and ANOVA, with the support of IBM SPSS 25 and AMOS 24 software.

4. Results and discussion

4.1. CBM Testing

For research using online survey methods to collect information can lead to inflated or biased data Podsakoff (2003) (Common method bias - CMB) if the data is CMB will bias the results. To check CMB, the author uses Harman's single-factor analysis method, in which all items (measuring latent variables) are loaded into a common factor. If the total variance for a single factor is less than 50%, it shows that CMB does not affect the data. The results of single factor analysis show that the total % variance = 27.577% <55% so the collected data is guaranteed (Table 2).

Table 2: CBM Testing

Total Variance Explained						
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.469	33.673	33.673	12.863	32.157	32.157
2	3.566	8.915	42.588			

4.2. Reliability testing of the scale and exploratory factor analysis

Testing the reliability of the scale using Cronbach's Alpha

According to Hoang Trong and Chu Nguyen Mong Ngoc (2008), a Cronbach's Alpha coefficient from 0.8 to nearly 1 is a good measurement scale, and from 0.7 to 0.8 is usable. A Cronbach's Alpha coefficient of 0.6 or higher can also be considered for use in a new research context. A usable scale must have a Corrected Item – Total Correlation coefficient of 0.3 or higher (Hair et al., 2010).

Table 3. Reliability of the scale

Scale	Number of observed variables	Item-Total Correlation	Cronbach's Alpha
Product quality scale	5	0.703	0.863
Information quality scale	6	0.709	0.891
Web Quality Scale	4	0.75	0.882
Product price scale	4	0.732	0.874
System response scale	5	0.766	0.910
Shipping scale (delivery)	5	0.781	0.916
Customer Service Scale	5	0.793	0.863
Satisfaction scale	3	0.832	0.913
Loyalty scale	3	0.821	0.921

The results of the scale reliability analysis in the table above show that the calculated values are all guaranteed to be good scales.

4.3 Exploratory factor analysis

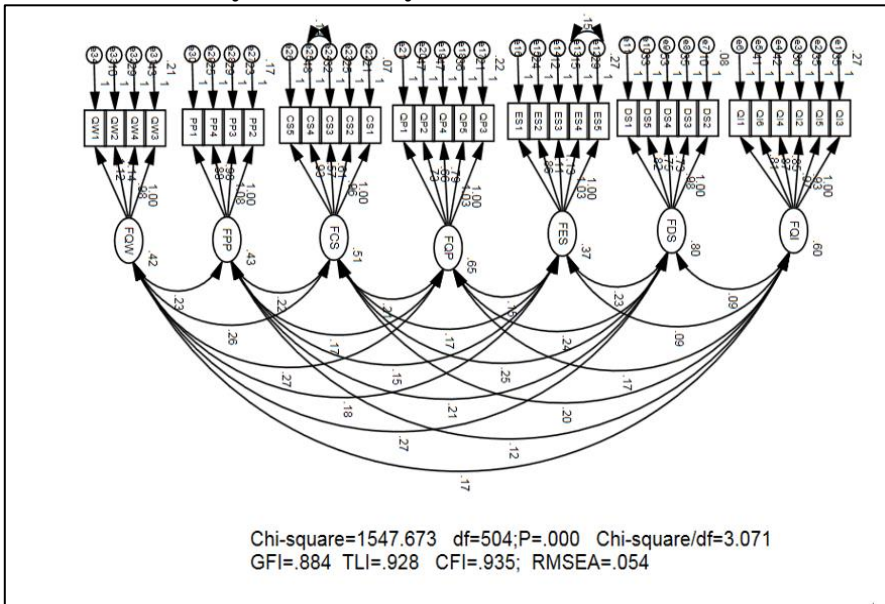
Exploratory Factor Analysis (EFA)

Table 4. EFA analysis results

Test value in EFA	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.917
Sig.	0.000
Cumulative %	64.218
Factor Loading	>0.5

The results of exploratory factor analysis show that the KMO coefficient in Bartlett's test = 0.771 > 0.5; and its significance level (Sig < 0.001) so the exploratory factor analysis method is appropriate. In addition, the total variance extracted (Cumulative %) > 50% and the factor loading coefficient of each observed variable is all > 0.5, so the scale ensures suitability through EFA assessment.

4.4 Confirmatory factor analysis CFA



Hình 2. Mô hình CFA

Note: FQW: web quality, FPP: product price, FCS: customer service, FQP: product quality, FES: system responsiveness, FDS: delivery, FQI: information quality.

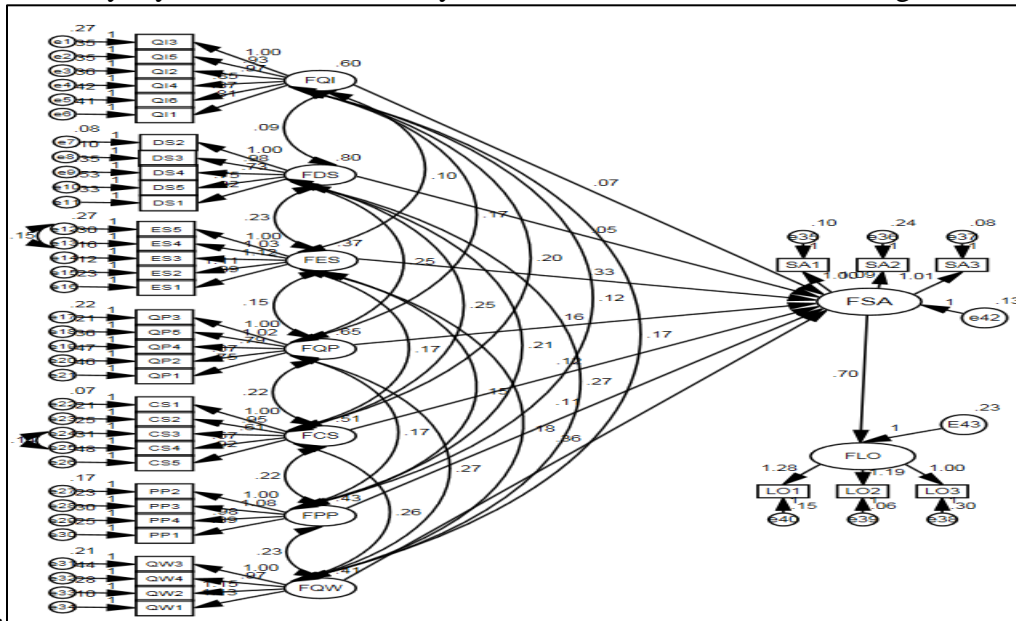
The analysis results show that: CMIN/df < 4, GFI=0.88, TLI=0.928, CFI = 0.935; and RMSEA =0.054 therefore, confirmatory factor analysis is appropriate for market data.

4.5 Regression analysis and model fit testing

4.5.1 SEM model analysis results

The study uses structural equation modeling (SEM) to conduct regression models of the impact of online service quality on customer satisfaction and the impact model of satisfaction

on customer loyalty. The model and analysis results are shown in detail in Figure 3 and Table 5



below.

Figure 3. SEM Model

Note: FQW:web quality, FPP :product price, FCS :customer service, FQP:product quality, FES: system responsiveness, FDS: delivery, FQI: information quality, FSA:satisfaction, FLO: loyalty.

Table 5 SEM structural model synthesis results

Dependent variable	R2	Independent variable	Beta	Standardized Beta	t	P
Satisfaction	0.73	Information quality	0.07	0.07	2.76	0.006
		Delivery	0.05	0.06	2.09	0.037
		System respond	0.33	0.29	9.49	<0.001
		Product quality	0.16	0.19	6.21	<0.001
		Customer Services	0.12	0.13	3.94	<0.001
		Product price	0.11	0.10	3.33	<0.001
		Web quality	0.36	0.33	8.62	<0.001
Loyalty	0.49	Satisfaction	0.70	0.70	18.43	<0.001

The analysis results show that in the regression model on the relationship between service quality and customer satisfaction, there are 7 variables included in the model: Information quality; Delivery; System response; Product quality; Customer service; Product price; Web quality, all of these variables have a statistically significant impact on the model. In addition, the impact signs of these variables are all positive, which means that when the quality of these online services increases, it will increase customer satisfaction. Of the above factors, web quality and system response are the 2 factors that have the strongest impact on customer satisfaction when participating in online transactions and experiences of local specialty

agricultural products, with impact coefficients of 0.33 and 0.36, respectively. Next are factors such as price, product quality, and customer service, these factors have impact levels ranging from 0.11 to 0.16, and the remaining factors such as delivery and information quality have lower impact levels (0.05 and 0.07). Besides, the coefficient $R^2 = 0.73$ means that these variables explain 73% of the change in satisfaction. With this result, we can conclude that the variables belonging to the components of online service quality that the study included are the main factors in explaining customer satisfaction.

In the impact model of satisfaction on loyalty, our research results recorded a relatively strong and significant relationship between customer satisfaction and customer loyalty. In this model, satisfaction has an impact coefficient of 0.7 and is positive, which means that when satisfaction increases by 1 unit, customer loyalty will increase by 0.7 units.

4.5.2 Bootstrap Testing

This test helps to evaluate the reliability of the estimates in the evaluation model. The study conducted a regression with 500 replicate samples with replacement and then compared the bias of the regression coefficient in the theoretical model with the average estimated coefficient of the bootstrap. The analysis results showed that the critical value of the bias corresponding to the 5% significance level (Cr_P) of these two methods is <1.96 , so there is no difference in the coefficients of these two methods. Thus, the theoretical model built is suitable for market data.

Table 6 Bootstrap Test Results

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	SE	Mean	Bias	SE-Bias	CR-P
Satisfaction	Information quality	0.027	0.072	-0.002	0.002	1.00
	Delivery	0.029	0.06	0.001	0.002	0.50
	System Respond	0.04	0.296	0.004	0.003	1.33
	Product quality	0.029	0.184	-0.002	0.002	1.00
	Customer service	0.043	0.127	0.001	0.003	0.33
	Product price	0.034	0.1	-0.003	0.002	1.50
	Web quality	0.046	0.334	0	0.003	-
Loyalty	Satisfaction	0.034	0.705	0.003	0.002	1.50

4.6 The relationship between customer characteristics and satisfaction and loyalty

To evaluate the relationship between customer characteristics and loyalty and satisfaction when participating in online experiences or transactions of local agricultural specialties, the study used T-test and ANOVA. If the analysis result has $p.value < 0.05$, there is a relationship. Otherwise, there is no relationship

Table 7 Results of *t* test and ANOVA analysis

Characteristic	Satisfaction		Loyalty	
	Level	P. value	Level	P. value
Gender				
Female	3.73	0.67	3.39	0.64
Male	3.70		3.44	
Age				
Under 25	3.79	0.06	3.45	0.45
25 to 35	3.75		3.42	
35 to 45	3.58		3.31	
Above 45	3.72		3.42	
Education				
High School	4.00	>0.001	3.48	>0.001
College	3.94		3.64	
University	3.36		3.12	
Income				
Under 10 million	3.97	>0.001	3.63	>0.001
From 10m to 20m	3.76		3.44	
Above 20m	3.53		3.25	
Living area				
Others	3.86	>0.001	3.53	>0.001
Economic center or big city	3.42		3.15	

The analysis results show that customer satisfaction and loyalty when transacting on local agricultural specialties are not different by age or gender. In other words, the loyalty or satisfaction of men and women or between different age groups is the same. Meanwhile, education, income and living area have a statistically significant relationship with satisfaction

and loyalty, specifically, people with high education and high income have lower levels of satisfaction and loyalty than people with lower income or lower education, customers living in large cities or economic centers have higher levels of satisfaction than customers living in other areas.

5. Conclusion

Online service quality is a multidimensional concept, in each different field, the way of determining and their impact is different. The purpose of this study is to measure the level of influence of factors in online service quality on customer satisfaction when participating in online transactions of local agricultural products. By using the SEM linear structural model, the study identified factors such as: Information quality, product quality, web quality, product price, system response, delivery and customer service have a statistically significant positive impact on customer satisfaction. In addition, the study also found a relatively strong positive relationship between satisfaction and customer loyalty. In addition, the study also showed that education, income and living area have a statistically significant relationship to both satisfaction and loyalty.

5.1. Recommendation

The research results have built a model of rural e-commerce in Vietnam based on agricultural specialties and rural local education experiences (in which the transaction website takes Hanoi as a typical example).

The research has great significance for the development of the three-agriculture model (agriculture - rural areas - farmers) in Vietnam in the new era:

First, create a trading floor for agricultural specialties with a tightly managed system between investment enterprises, farmers, and local authorities. The brand is guaranteed, gaining absolute trust from consumers.

Second, rebuild the system of local folk tales that are not yet in books. Preserve and maintain local traditional cultural values.

Third, put agricultural specialties into specific planning according to the strengths of local regions, with management from all stages.

5.2. Limitation

To perfect the research in the future, it is possible to expand to regions across the country and establish a trading system for all regional specialties, as well as experience programs related to local agricultural specialties. Moreover, the model can be applied to other countries in the world as well as cross-border e-commerce and cross-border practical educational experiences. Combine the development of O2O e-commerce stores to deliver and sell local specialties.

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