Study on the Effects of Logistics Service Quality on Consumers’ Post-Purchase Behavior of Online Shopping

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Abstract

Logistics is the bottleneck of online shopping, and logistics service quality (LSQ) has a great influence on consumer’s purchase experiences. From consumer’s perspective, the influences of LSQ on consumers’ post-purchase behavior of online shopping were empirically studied. Structure Equation Model was adopted to examine the relations between LSQ and consumer’s satisfaction, website image, complaints, and repurchase intention. Results show that LSQ has significant effects on satisfaction, website image, and complaints respectively; satisfaction and complaints significantly affect repurchase intention; and website image has no significant effect on repurchase intention but an obvious effect on satisfaction. The study improved LSQ theory and systematically explored the effects of LSQ on post-purchase behavior, and provided references for online stores to understand the role logistics service played in online shopping from consumer’s view.

Keywords: Logistics Service Quality, Post-Purchase Behavior, Online Shopping

1. Introduction

In recent years, online shopping attracts more and more consumers by advantages of convenience, high speed, low cost. For example, 360buy, Taobao, Vancl, etc. have made a unprecedentedly development in China. According to the statistics, Chinese online shopping market transactions have reached 461 billion Yuan in 2010, and online shopping websites have earned 430 million regular users and 148 million shoppers online [1]. However, the quantity of users continues to increase, but the acceleration has gradually slowed [1]. It is found that the rate of users’ initial online shopping is still on the rise, but repurchase rate remains low [1]. It is likely because users are not satisfied with online shopping experiences. There are many factors result in users’ dissatisfaction with online shopping, such as inconsistent quality of goods with description on website, poor after-sale service, etc. According to a survey of online shopper, dissatisfaction of logistics service is one of main factors leading to complaints. In e-commerce, transaction can be easily reached through high efficient information processing, but orders could not be fulfilled without logistics service. Logistics has become the bottleneck of the development of e-commerce. Comparing with rapid development of e-commerce, LSQ cannot meet the needs of users. Especially, LSQ varies greatly of different express delivery companies, which seriously affects experience of users shopping on line. Statistics of post-purchase evaluation of Taobao indicates that 70% complaints are related with logistics service, such as damaged package, slow, non-standard service, non-home-delivery and so on, which seriously affects the demand of high-end consumers. As for 360buy, a very famous B2C website in China, because third-party logistics providers can not follow the standards of logistics operation for electronic products, the rate of damaged products in distribution keeps a high level for a long time, which leads to a larger voice of consumer complaints and high cost of return orders. Eventually, it has to build private logistics system by itself.

LSQ for online shopping needs to be improved, however, only when we get to know how LSQ influences consumers’ post-purchase behavior of online shopping, can we take proper measures to enhance LSQ. This article tries to answer these questions. We will test the relationships between LSQ and consumer’s satisfaction, website image and complaints, and the eventual effects on repurchasing intention of consumers.
2. Literature review

Most of the early concepts of logistics service were described from the operational level and service provider’s perspective. Perrault and Russ first proposed the concept of logistics service which refers to delivering “the right amount of the right product at the right place at the right time in the right condition at the right price with the right information”, i.e., 7Rs [2]. This mainly highlighted time utility and place utility of logistics. Then Ackerman supposed that the form utility should also be incorporated into logistics services [3]. According to this concept, logistics service level is often measured by the rate of product availability, the rate of order fulfillment, and the rate of the freights in good condition [4].

However, Mentzer argued that the definition of logistics service might derive from customers. From the perspective of customers’ needs, it may be more reasonable to evaluate LSQ, which also makes sense for managers of logistics companies. Literature [4] shows that physical distribution service (PDS) consists of three dimensions, namely availability, timeliness, quality of physical distribution service. The study laid the foundation for the measurement of LSQ later, but was still limited in the conception of traditional physical distribution. Other scholars adopted SERVQUAL, to measure B2B logistics service [5]. But the effect was not desirable. Bienstock argued that SERVQUAL dimensions (Tangibles, Reliability, Responsiveness, Assurance, Empathy) was not appropriate for all services measurements [6]. As there was no way to measure a variable of empathy in the PDS, and SERVQUAL did not meet the conditions of service for consumers, therefore, SERVQUAL was not fit for the PDS measurement. Bienstock proposed three dimensions of physical distribution service quality based on Mentzer’s research, including timeliness, availability, and conditions of goods [6].

With the evolution of the logistics concept from physical distribution to modern logistics, Mentzer seized the opportunity to continue his research, who empirically tested that LSQ consists of nine dimensions in B2B settings in 1999, namely information quality, ordering procedures, ordering release quantities, timeliness, order accuracy, order quality, order condition, order discrepancy handling, and personnel contact quality[7, 8]. Science the scales developed by Mentzer are suitable for B2B settings, they are not fit for consumer’s buying situation.

Post-purchase behavior is a part of the consumers’ behavior, which refers to consumers’ emotional and actual behavior based on the evaluation of purchase decisions after purchasing a product or service, which mainly includes post-purchase evaluation, satisfaction, complaints, repurchase and other behaviors. Scholars have different definitions on post-purchase behavior for different research purposes. Cho established a relatively comprehensive evaluation model of consumer post-purchase to verify the relationship among the post-purchase elements of satisfaction, importance of purchase, personality characteristics of consumers and complaints, repurchase [9]. Mugge argued that post-purchase behavior included product attachment and satisfaction and tested how utility and appearance of the product influence post-purchase behavior [10].

Literature review shows that LSQ is a multi-dimensional variable whose components vary largely in different contexts. Secondly, existing researches have validated that product quality and other factors have obvious influences on post-purchase behavior, but few of them focus on the role of LSQ. This article will explore the effects of LSQ on consumers’ post-purchase behavior of online shopping in order to confirm the relations between LSQ and satisfaction, complaints, and repurchase intention. It also provides a reference for relevant businesses to improve LSQ of online shopping and promote the development of E-commerce.

3. Theory and hypotheses

In our study, logistics service begins with order initiation, and ends when the goods is received by customers. Since consumers have the same basic demands for logistics service, whether B2C or C2C online shopping will not make a difference in this study. Therefore, this research includes all categories of consumers online shopping. Online shopping can’t be completed without quick and efficient logistics service. This study focuses on the effects of LSQ on website image, consumers shopping satisfaction, complaints and repurchase intention. The theory model is shown in Figure 1.
3.1. Logistics service quality

Previous researches have confirmed that LSQ is a multi-dimensional variable and its components vary in different circumstances. This study takes LSQ as a formative variable, and its indicators are composed of its dimensions. As online shopping eventually need to achieve the delivery of goods bought by consumers, thus, the delivery service is the core element of customers’ logistics service needs. Secondly, it is different from store shopping that consumers initially can’t have control to the goods. As a result, they particularly concern with logistics information, such as the order status, the locations of their goods, etc., thus information service is another important need of consumers [11]. Thirdly, it is inevitable to have a communication between logistics staff and consumers, and its staff skills and attitudes directly affect customer satisfaction. Therefore, the personnel service is another dimension of logistics service. Fourthly, the normative logistics service such as the standardized operation and procedures may reflect the companies’ professionalism and display the companies’ image, but also have effects on the customers’ psychology.

Logistics service is an indispensable part of online shopping. Efficient and convenient logistics service will contribute to customers’ pleasant shopping experiences, and its quality could directly affect customer’s satisfaction with the whole online shopping. If LSQ can’t meet users’ demand, it is likely to get customers’ grumbles, and even returns and complaints. In addition, LSQ may also make customers reconsider the images of shopping websites. Good logistics service can enhance customers’ recognition of the website image, but poor logistics service will lower customers’ evaluation of the website image. According to above, we hypothesize as follows:

- H1a: LSQ has a positive impact on consumers’ satisfaction of online shopping;
- H1b: LSQ has a negative impact on customer complaints;
- H1c: LSQ has a positive impact on website image.

3.2. Consumers’ satisfaction

Consumers’ satisfaction depends on the comparison between post-purchase evaluation and consumers’ expectation. If the post-purchase evaluation is higher than previous expectation, consumers will be satisfied, otherwise, dissatisfaction may happen. A satisfied online shopping experience is usually a pleasant one. Once consumers have the same or similar needs, those satisfied consumers are most likely to access the same shopping websites or internet stores to purchase goods. Therefore, we hypothesize:

- H2: Consumers’ satisfaction has a positive impact on repurchase intention.

3.3 Consumer’s complaints

When consumers are dissatisfied with the online shopping experiences, dissatisfaction may be expressed as complaints through some channels, such as web community, others, etc., according to which, complaints can be divided into private and public complaints. Most online shopping websites...
provide the function of after-sale evaluation. When consumers are not satisfied with the shopping consequences, they are very likely to express complaints on the forums. The stronger complaints will lead to the lower likelihood of repurchase. Thus, we propose hypothesis H3.

H3: Consumers’ complaints have a negative impact on repurchase intention.

3.4. Website image

The website image is an overall evaluation in consumers’ minds. It represents the quality of goods and services provided by the web site. Good website image has a brand effect, representing a set of certain products and services’ properties. Good image of a website or store plays a stimulating role in consumers’ positive shopping experience, which may also affect their repurchase intention. Accordingly, we propose the hypotheses H4a and H4b.

H4a: Website image has a positive impact on satisfaction.

H4b: Website image has a positive impact on repurchase intention.

4. Methodology

4.1. Measurements

Most of the indicators of constructs are borrowed from previous researches. Only little revising of the measures was made to adapt the context of online shopping. LSQ was measured by four indicators, namely delivery quality, information quality, personnel contact quality, and normative operation [8, 12]. Indicators of satisfactory, website image, repurchase intention are adopted from literature [13, 14]. Measures of complaints are borrowed from [15] [16]. The items were measured by a five-point Likert scales varying from extremely dissatisfactory/disagree to extremely satisfactory/agree. We employed a questionnaire to collect data both online and offline. Before a formal survey, a pilot-test was conducted to modify the indicators based on respondents’ suggestions to make the questions easier and clearer.

4.2. Samples

Since most of the online shoppers are young people, therefore, we seek undergraduates, graduates, and young staff in companies as the samples of this study. 230 questionnaires were sent to offline respondents, and 197 valid questionnaires were received, which takes up 85.6% of the total respondents. Additionally, 44 valid responses were gathered from a professional survey website, www.sojump.com. Sample statistics indicates that males account for 39.8% and females account for 60.2%; among goods purchased by consumers, apparel accounts for 42.7%, books account for 17.3%, cosmetics account for 11.6%, digital products account for 11.6%, food accounts for 3.7%, others take up 12.9%; the expenditures of purchases indicate that 50-100 yuan account for 41.5%, 100-200 yuan takes up 20.5%, and over 200 yuan takes up 15%.

4.3. Reliability and validity

Exploratory factor analysis was made on all constructs with VARIMAX rotation except formative variable, LSQ. Results indicated that the value of KMO was 0.803, and Bartlett’s Test of Sphericity was significant, which suggests the indicators were fit for factor analysis. Four factors were extracted according to the standard, i.e., eigenvalue should be greater than 1.0, and 70.354% of the total variance was explained. All indicators loadings are greater than 0.75 on only one of the four factors, and cross-loadings to other factors are not exceeding 0.5, which shows discriminate validity are acceptable. Factor analysis results were shown in Table 1.

Confirmatory factor analysis was made by SmartPLS 2.0 software through partial least square approach. Cronbach’s α and composite reliability (CR) were used to test reliability, average variance extracted (AVE) was adopted to test convergent validity. And the discriminant validity was examined through comparing the intercorrelation of the construct with another and the square root of the AVE. The outcomes (Table 2) suggest all the factors’ Cronbach’s α were greater than 0.75, CRs of all factors were higher than 0.75, and AVEs were greater than 0.5, indicating reliability and validity were acceptable.
Table 1. Factor analysis results

<table>
<thead>
<tr>
<th>Indicators</th>
<th>SI</th>
<th>WI</th>
<th>CC</th>
<th>RI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website Image1</td>
<td>.176</td>
<td>.865</td>
<td>.035</td>
<td>.066</td>
</tr>
<tr>
<td>Website Image2</td>
<td>.147</td>
<td>.890</td>
<td>.111</td>
<td>.040</td>
</tr>
<tr>
<td>Website Image3</td>
<td>.136</td>
<td>.825</td>
<td>.044</td>
<td>.084</td>
</tr>
<tr>
<td>Satisfaction1</td>
<td></td>
<td></td>
<td>.850</td>
<td>.210</td>
</tr>
<tr>
<td>Satisfaction 2</td>
<td></td>
<td></td>
<td>.846</td>
<td>.207</td>
</tr>
<tr>
<td>Satisfaction 3</td>
<td></td>
<td></td>
<td>.864</td>
<td>.107</td>
</tr>
<tr>
<td>Complaints1</td>
<td>.092</td>
<td></td>
<td></td>
<td>.373</td>
</tr>
<tr>
<td>Complaints2</td>
<td>.094</td>
<td></td>
<td></td>
<td>.858</td>
</tr>
<tr>
<td>Complaints3</td>
<td>.000</td>
<td></td>
<td></td>
<td>.843</td>
</tr>
<tr>
<td>Repurchase Intention1</td>
<td>.250</td>
<td></td>
<td></td>
<td>.803</td>
</tr>
<tr>
<td>Repurchase Intention2</td>
<td>.096</td>
<td></td>
<td></td>
<td>.855</td>
</tr>
<tr>
<td>Repurchase Intention3</td>
<td>.379</td>
<td></td>
<td></td>
<td>.770</td>
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</table>

Eigenvalue          5.225 20.82 1.961 1.285  
Variance Explained/% 34.835 48.714 61.767 70.354

Table 2. Reliability and validity

<table>
<thead>
<tr>
<th>Construct</th>
<th>CR</th>
<th>α</th>
<th>AVE</th>
<th>CC</th>
<th>WI</th>
<th>SI</th>
<th>LSQ</th>
<th>RI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>0.903</td>
<td>0.838</td>
<td>0.756</td>
<td><strong>0.869</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WI</td>
<td>0.816</td>
<td>0.745</td>
<td>0.769</td>
<td>0.151</td>
<td><strong>0.876</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI</td>
<td>0.943</td>
<td>0.909</td>
<td>0.846</td>
<td>0.188</td>
<td>0.218</td>
<td><strong>0.920</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSQ</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.242</td>
<td>0.042</td>
<td>0.049</td>
<td><strong>0.856</strong></td>
<td></td>
</tr>
<tr>
<td>RI</td>
<td>0.891</td>
<td>0.820</td>
<td>0.733</td>
<td>0.167</td>
<td>0.347</td>
<td>0.550</td>
<td>0.370</td>
<td><strong>0.856</strong></td>
</tr>
</tbody>
</table>

Note: The square root of AVE is on the diagonal. CC: complaints; WI: website image; SI: satisfaction; RI: repurchase intention.

4.4 Hypotheses test and discussions

We employed Smart PLS 2.0 to test hypotheses of the structure model. The result (Figure 2) indicates that all of the hypotheses were supported but H4b.

Firstly, LSQ has significant influences on customer satisfaction, complaints, and website image, which indicates that LSQ plays an important role in online shopping from the view of consumers, and has significant impacts on consumers’ psychology and behavior. It is noteworthy that LSQ will significantly affect the website image, which suggests that consumers tend to link LSQ with the shopping website rather than logistics service providers, no matter website itself or third-party logistics. Therefore, for online stores, it is not wise that just outsourcing logistics services to express companies, while not concerning about the actual logistics services experienced by consumers. In fact, logistics service has a great impact on its website image.

Consumers’ satisfaction has a positive effect on repurchase intention, while consumers’ complaints may significantly lower repurchase intention. Although website image does not directly affect repurchase intention, it has an obvious impact on customer’s satisfaction, which reveals that consumers go shopping on the websites with good images will enhance their shopping satisfaction. Additionally, online merchants should recognize poor LSQ will lead to the increase of consumers’ complaints, which will ultimately affect their future sales. Particularly, customer complaints spread faster and wider on the internet than traditional manners, therefore, correctly handling consumer complaints is very important.
5. Conclusions

The influences of LSQ on consumers’ post-purchase behavior were studied in online shopping context in this article. The results show that LSQ has a positive effect on the website image, consumers’ satisfaction, but a negative impact on customer complaints; website image has a positive effect on consumers’ satisfaction; consumer repurchase intention was significantly influenced by customer satisfaction and complaints.

Theoretical implication lies in systematically exploring the influences of LSQ on post-purchase behavior, and validating the relationships among satisfaction, complaints, and repurchase intention, which improves LSQ theory. As for practical implication, it offers some references for online stores to understand the role logistics service played in online shopping, as well as the influence of LSQ on consumers’ psychology and behavior, which may promote them to improve their logistics service and enhance competitiveness.

Limitation of the research is that we do not test the moderation effects of consumers’ characteristics on the relationship between LSQ and its consequences. For example, the high-end consumers want higher LSQ, which may more easily incur complaints. In the future, influences of sub-dimensions of LSQ on post-purchase behavior should be studied so as to offer more specific references for business or third-party logistics service providers to enhance online shopping LSQ.

6. Acknowledgement

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7. References


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**Figure 2.** Structure Model Test

Note: * significant at $p<0.05$; ** significant at $p<0.01$; *** significant at $p<0.001$.