Study on Customer Loyalty of Tourism Mobile E-commerce Platform—Taking Qunar as an Example

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Abstract. With the high popularity of the Internet and the good development of tourism, tourism mobile e-commerce platform emerged. Taking Qunar as the research object, this paper constructs a customer loyalty model of Qunar based on domestic and foreign literature. Through the empirical analysis of the data by SPSS22.0, it is concluded that ease of operation, interactivity, information accuracy, service timeliness, page aesthetics, low price and privacy protection have a significant positive impact on customer satisfaction and customer loyalty, and customer satisfaction has a significant positive impact on customer loyalty. It is suggested that Qunar should simplify the complexity of the operation process, optimize the aesthetics of the page, increase the level of price concessions, and improve the protection of personal privacy and other recommendations.

Research Background and Purpose

In recent years, the State Council has issued several policies related to the development of tourism, and continuously increased investment and support for the development of China's tourism industry. In April 2018, the State announced the establishment of the ministry of culture and tourism, with more professional and normative departments to promote the implementation of the cultural and tourism integration policy.

At present, China has become the world's largest consumer market for tourism. According to Statistical Reports on Internet Development in China, the booking volume of tourism mobile e-commerce platforms has reached 40.32 million in December 2018 alone, and the momentum of development is very rapid. According to statistics, the transaction scale of China's online tourism market reached 836.34 billion yuan in 2018, with increasingly fierce market competition.

Qunar was officially founded in 2005 and listed on the NASDAQ Stock Exchange in the United States in 2013. Qunar is the first travel search engine in China. It can provide air tickets, train tickets, hotels, group purchase for tourism, and travel information search and booking services for consumers anytime and anywhere. Currently, Qunar's full platform coverage of mobile clients and web pages can provide more diversified customized services to every consumer. On the basis of domestic and foreign literature, this study combines with the development status of Qunar, and conducts an empirical analysis of Qunar's customer loyalty, hoping to achieve the following objectives:

1. Make clear how consumers feel about how to use Qunar.
2. Explore the relevant factors influencing customer loyalty of Qunar.
3. Make reasonable suggestions to improve customer loyalty of Qunar.

Literature Review

Tourism e-commerce refers to the business system that takes the network as the main body, based on the tourism information base and electronic business bank, and uses the most advanced electronic means to operate the tourism industry and its distribution system. Customer loyalty refers to a kind of behavior that customers are attracted by a certain product or service of an enterprise, and then generate repeated purchase, which is mainly manifested through emotional loyalty, behavioral loyalty and conscious loyalty.
Domestic scholars began to study the influencing factors of customer loyalty at the end of the 20th century. Yaqian Wu (2013) believes that the higher the customer's trust in the enterprise, the higher the customer's satisfaction with the enterprise's services or products, the greater the probability of repeated purchase behavior [1]. Yuxuan Liang et al. (2017) believe that consumers’ experience of safety feeling, identity feeling, novelty feeling and comfort feeling has a significant positive impact on customer satisfaction and customer loyalty [2].

At present, the research direction of domestic and foreign academic circles on the tourism mobile e-commerce platform is mostly marketing strategy and profit model. There are few researches on the customer loyalty of the tourism mobile e-commerce platform, and there is no more mature model. After studying Ctrip, Juan Li (2015) found that the main influencing factors of satisfaction and loyalty are customer trust and product quality [3]. Xueyan Yang & Hongxin Li (2013) analyzed the factors influencing customer loyalty of online travel websites, and found that customer trust had a stronger impact on customer loyalty than information quality and price [4]. After conducting an in-depth study of online travel network, Tian Hu & Yingzhi Guo (2014) found that both satisfaction and trust have a direct impact on loyalty [5].

**Research Model Construction**

Based on domestic and foreign literature, this paper constructs a research model of Qunar's customer loyalty, as shown in Fig. 1:

![Research Model](image)

**Figure 1. Research Model.**

**Table 1. Research Assumption.**

| Assumption name | Assumption content |
|-----------------|--------------------|
| H1              | Ease of operation has a significant positive impact on customer satisfaction |
| H2              | Ease of operation has a significant positive impact on customer loyalty |
| H3              | Interactivity has a significant positive impact on customer satisfaction |
| H4              | Interactivity has a significant positive impact on customer loyalty |
| H5              | Information accuracy has a significant positive impact on customer satisfaction |
| H6              | Information accuracy has a significant positive impact on customer loyalty |
| H7              | Service timeliness has a significant positive impact on customer satisfaction |
| H8              | Service timeliness has a significant positive impact on customer loyalty |
| H9              | Page aesthetics has a significant positive impact on customer satisfaction |
| H10             | Page aesthetics has a significant positive impact on customer loyalty |
| H11             | Low price has a significant positive impact on customer satisfaction |
| H12             | Low price has a significant positive impact on customer loyalty |
| H13             | Privacy protection has a significant positive impact on customer satisfaction |
| H14             | Privacy protection has a significant positive impact on customer loyalty |
| H15             | Customer satisfaction has a significant positive impact on customer loyalty |
Based on the literature, this paper constructs a research model, including nine variables: Ease of operation, interactivity, information accuracy, service timeliness, page aesthetics, low price, privacy protection, customer satisfaction and customer loyalty, and puts forward the assumption content, as shown in Table 1.

Data Processing and Analysis

Sample Statistical Analysis

From the perspective of gender, men account for 51.46% and women account for 48.54%, and the ratio of men to women is 1.06:1. In terms of age, the sample group is mostly young people between 18 and 30 years old, accounting for 40.13%, indicating that people in this age group have more travel needs than people in other age groups, and more often use Qunar to order products. From the perspective of education background, the sample group is mainly university undergraduate education, accounting for 48.87%, indicating that the group using Qunar has a higher degree of education. From the perspective of occupation, the sample group is mainly concentrated in the employees of enterprises, accounting for 38.19%. From the perspective of monthly income stage, the sample group mainly concentrated in the income stage of 5000 yuan and below and the income stage of 5001-10000 yuan, accounting for 37.54% and 36.25% respectively, indicating that the main monthly income of the sample groups using Qunar is less than 10000 yuan.

Reliability Analysis

The coefficient of Cronbach's α of the sample population in this study is 0.943, greater than 0.9, indicating that the sample data is very reliable and has very high stability and consistency.

Validity Analysis

Table 2. KMO and Bartlett Sphericity Test of Sample Population.

| KMO and Bartlett's test                  |
|----------------------------------------|
| Kaiser-Meyer-Olkin measurement of sampling adequacy | 0.936 |
| Bartlett's sphericity test             |
| Approximate chi-square                 | 6367.227 |
| df                                     | 561    |
| P value                                | 0.000  |

It can be seen from Table 2 that the KMO value of the sample population is 0.936, greater than 0.9, indicating that the data has a high validity and is very suitable for factor analysis. The p value of the sample population is 0.000, indicating that there is a certain correlation between the variables, which is suitable for factor analysis.

Factor Analysis

In this study, principal component analysis is conducted on seven independent variables, and a total of seven factors with characteristic values greater than one are extracted, which are named as ease of operation, interactivity, information accuracy, service timeliness, page aesthetics, low price and privacy protection. Using the maximum variance method to rotate the factor load matrix orthogonal, the cumulative interpretation variance accounts for 71.589% of the total variance, more than 60%, indicating that the seven factors can reflect most of the information, and it is appropriate to extract the seven factors. Factor analysis is conducted on the two variables of customer satisfaction and customer loyalty, and the cumulative interpretation variance accounts for 76.026% and 80.411% of the total variance, respectively, both greater than 60%, indicating that it is appropriate to extract these two factors.
Regression Analysis

Model 1 in Table 3 is the regression coefficient and significance test of seven independent variables on customer satisfaction, and Model 3 is the regression coefficient and significance test of seven independent variables on customer loyalty. In model 1 and model 3, the significance of seven independent variables are less than 0.05, indicating that ease of operation, interactivity, information accuracy, service timeliness, page aesthetics, low price and privacy protection have a direct impact on customer satisfaction and customer loyalty, thus verifying the assumption H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12, H13 and H14. Model 2 is the regression coefficient and significance test of customer satisfaction on customer loyalty. It can be seen that the impact of customer satisfaction on customer loyalty has also passed the significance test, which verifies the assumption H15 proposed in this study.

Table 3. Regression Analysis of Each Variable.

| Variable          | Model 1            | Model 2            | Model 3            | Model 4            |
|-------------------|--------------------|--------------------|--------------------|--------------------|
| Constant          | 0.014 (0.071)      | 0.682 (3.755)      | -1.077 (-5.561)    | -1.079 (-5.616)    |
| Ease of operation | 0.177** (3.745)    | 0.136** (3.284)    | 0.115** (2.724)    |                    |
| Interactivity     | 0.157**(3.312)     | 0.135** (3.134)    | 0.115** (2.665)    |                    |
| Information accuracy | 0.144**(2.899)  | 0.123** (2.838)    | 0.106** (2.423)    |                    |
| Service timeliness | 0.146**(2.953)   | 0.159** (3.675)    | 0.142** (3.245)    |                    |
| Page aesthetics   | 0.134** (2.733)   | 0.130** (3.035)    | 0.114** (2.645)    |                    |
| Low price         | 0.137**(2.827)    | 0.294** (6.912)    | 0.278** (6.487)    |                    |
| Privacy protection | 0.135**(2.770)  | 0.141** (3.316)    | 0.125** (2.918)    |                    |
| Customer satisfaction | 0.634** (14.349) |                    | 0.122* (2.425)     |                    |
| F value           | 48.998             | 205.906            | 76.750             | 68.981             |
| R2                | 0.533              | 0.401              | 0.641              | 0.648              |
| Adjusted R2       | 0.522              | 0.399              | 0.633              | 0.638              |

Note: the numbers in brackets are the values of the t test.

Table 4. Assumption Test Results.

| Assumption name | Assumption content                                           | Verification results |
|-----------------|---------------------------------------------------------------|----------------------|
| H1              | Ease of operation has a significant positive impact on customer satisfaction | support              |
| H2              | Ease of operation has a significant positive impact on customer loyalty | support              |
| H3              | Interactivity has a significant positive impact on customer satisfaction | support              |
| H4              | Interactivity has a significant positive impact on customer loyalty | support              |
| H5              | Information accuracy has a significant positive impact on customer satisfaction | support              |
| H6              | Information accuracy has a significant positive impact on customer loyalty | support              |
| H7              | Service timeliness has a significant positive impact on customer satisfaction | support              |
| H8              | Service timeliness has a significant positive impact on customer loyalty | support              |
| H9              | Page aesthetics has a significant positive impact on customer satisfaction | support              |
| H10             | Page aesthetics has a significant positive impact on customer loyalty | support              |
| H11             | Low price has a significant positive impact on customer satisfaction | support              |
| H12             | Low price has a significant positive impact on customer loyalty | support              |
| H13             | Privacy protection has a significant positive impact on customer satisfaction | support              |
| H14             | Privacy protection has a significant positive impact on customer loyalty | support              |
| H15             | Customer satisfaction has a significant positive impact on customer loyalty | support              |

Model 3 in Table 3 is the regression analysis of seven independent variables on customer loyalty, and Model 4 is the regression analysis of seven independent variables and customer satisfaction on customer loyalty. From the data of Model 3 and Model 4, it can be seen that after adding the intermediary variable the p value of seven independent variables is still less than 0.05, but the value of B decreases. This indicates that customer satisfaction plays a part of intermediary role in ease of
operation, interactivity, information accuracy, service timeliness, page aesthetics, low price and privacy protection.

**Assumption Test Results**

Through data analysis software SPSS22.0, sample statistical analysis, reliability analysis, validity analysis, factor analysis and regression analysis are conducted on the data. The validation results of the assumption in this study are shown in Table 4.

**Conclusion**

This study mainly analyzes and studies the influencing factors of customer loyalty of the tourism mobile e-commerce platform taking Qunar as an example, and the following conclusions can be drawn: Firstly, ease of operation, interactivity, information accuracy, service timeliness, page aesthetics, low price and privacy protection have a significant positive impact on customer satisfaction and customer loyalty, and customer satisfaction has a significant positive impact on customer loyalty. Secondly, after reliability analysis, validity analysis and factor analysis of the data, it is found that the data reliability and validity of this study are high, and the correlation between factors is strong. Thirdly, customer satisfaction plays a part of intermediary role in ease of operation, interactivity, information accuracy, service timeliness, page aesthetics, low price and privacy protection.

**Recommendation**

**Simplify the Complexity of Operational Processes**

At present, the information filling and transaction process of the tourism mobile e-commerce platform are too complicated. In the process of online transaction, simple information filling and ordering steps can promote the user's satisfaction. Qunar should strengthen the degree of association with Alipay, WeChat and other payment clients, simplify the steps of real-name authentication and information filling in the ordering process, implement the website policy of "fill in once, use for a long time," and provide consumers with convenient services.

**Enhance Interaction with Consumers**

Traditional tourism mobile e-commerce platforms generally pay more attention to the low price of products, pay little attention to the interaction with consumers, and the connection between traditional tourism mobile e-commerce platforms and consumers is weak. Therefore, Qunar should strengthen the close contact with consumers, increase the interaction with consumers, and push travel products and information that consumers may be interested in. Qunar should meet the needs of consumers, optimize the communication function of the platform, and provide consumers with more interactive social services.

**Improve the Quality of Tourism Product Information**

As a travel search engine, the most basic function of Qunar is to provide consumers with travel product information, so it has a high requirement on the quality of travel product information. Qunar should improve the details of information introduction, optimize the variety of tourism products, so as to ensure the competitiveness of Qunar in the tourism industry.

**Improve After-sales Service**

When consumers conduct online transactions on Qunar, they can only ask questions and solve problems through the customer service platform of Qunar. The more timely Qunar solves the problems raised by consumers, the better consumers' experience in the use of Qunar. Therefore, Qunar should provide regular job training for customer service staff to solve customers' problems with better and faster service.
Optimize the Aesthetics of the Page

When consumers use the tourism mobile e-commerce platform, the most intuitive feeling comes from the page of the platform. Text and image are the two most basic elements of a web page, and Qunar should use a combination of image and text. When optimizing the aesthetics of the page, Qunar also needs to improve and perfect the clarity and creativity of the page.

Increase the Level of Price Concessions

Because consumers are sensitive to low prices, the lower the price of Qunar's products, the more attractive they are to consumers. Therefore, Qunar should not only strengthen the cooperation with airlines, hotels, tourist attractions and other suppliers to obtain lower prices, but also sign preferential policies with cooperative payment clients to grab market share at a lower price.

Improve the Protection of Personal Privacy

The security issues such as payment privacy protection and account information privacy protection in the tourism mobile e-commerce platform have always been the focus of consumers' attention when conducting online transactions. Therefore, Qunar should optimize the security construction of the website, adopt a payment method with higher security and stronger privacy protection to protect the privacy of consumers' online accounts and payment terminals.

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