Relationship Research Between Tourism E-commerce Maturity and Customer Loyalty Based on AMOS Model

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Abstract. This paper explores the relationship between tourism e-commerce maturity and customer loyalty by building AMOS model, analyzes its influence path and uses structural equation model to verify it. Research hypotheses were tested using partial least squares structural equation modeling (PLS-SEM). The results showed that the four dimensions of tourism e-commerce maturity affect customer loyalty mainly through customer satisfaction and customer trust. Among them, the influence effect on customer trust from large to small is respectively information quality, transaction mechanism, customer-centric, but the effects of service response on customer trust are not statistically supported. The influence effect on customer satisfaction from large to small is respectively information quality and transaction mechanism, but the effects of customer-centric and service response on customer satisfaction are not statistically supported. Customer trust and customer satisfaction positively affect customer loyalty. As a saving variable, conversion cost will significantly and positively affect customer loyalty. The research results are conducive to guiding tourism e-commerce to improve service quality and enhance user loyalty from the perspective of users.

Keywords. Customer loyalty; Tourism e-commerce maturity; AMOS model

1. Introduction

During the COVID-19 epidemic, various travel platforms have launched online self-rescue efforts. A series of innovations, such as "cloud tourism", "OTA plus short video" and "travel plus live broadcast", have brought new experiences to users. However, most websites have similar functional Settings and business models, resulting in serious homogeneity and low user stickiness. The main reason lies in the lack of in-depth research on the influence of travel e-commerce maturity on customer loyalty from the perspective of customer perception. This paper aims to build a model of the influence of tourism e-commerce maturity on customer loyalty, and detect the influence path through AMOS model.

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2. Theory Background

2.1 Technology Acceptance Model

Technology Acceptance Model (TAM) interprets and anticipates the user's desire to receive and sustain new things or technologies[1]. After the model was put forward, it was used as a research frame and widely used in other fields, for example, significant broadcast shopping. Yuan build live customer service systems by using the technology acceptance model[2].

2.2 S-O-R Theory

The general pattern of human behavior is the S-O-R pattern, or "stimulus - organism - response." This model indicates that the consumer's buying behavior is caused by the stimulus, which comes from both the physiological and psychological factors inside the consumer's body and the external environment. Chandraa examines the impact of live streaming on purchase intention in social commerce in indonesia from the consumer's point of view using the S-O-R theory[3].

2.3 Tourism E-commerce Maturity

As one of the four major applied areas, E-commerce of tourism enterprise's performance has drawn scholars' attention gradually[4]. Based on the review of e-commerce current status and future tendencies, emerging technologies, and maturity or growth models in the domains of business and technologies, the authors develop an e-commerce maturity model[5]. Alejandro et al. builds systems for emerging economies with e-commerce implications, The integration Maturity model is used[6]. These studies provide a refined measuring tool for the maturity of tourism e-commerce. It has important guiding significance.

Based on previous studies, this paper measures the maturity of tourism e-commerce from four dimensions: customer-centric, transaction mechanism, information quality and service response, Uses 5-point Li Kert scale to measure the dimensions. The customer-centric is mainly reflected OTA can provide personalized services to meet the changing and diversified needs of customers. The transaction mechanism includes OTA online payment methods, functions, procedures and cancellation mechanisms. Service response refers to the professionalism and timeliness of OTA services. The information quality is mainly reflected in categories, characteristics and cost performance of the OTA information.

2.4 Customer Loyalty

A business needs to focus on customer loyalty, a concept that is understood from a relational perspective as the consumer's preferences to sustain a stable relationship with the brand, fact that involves consistent visits of the site, and in consequence, repeat purchases[7]. Previous research confirmed the relevance of loyalty management, key factors of customer loyalty acquisition and loss[8]. These studies demonstrate the numerous influencing variables of customer loyalty, but there are few studies on the influence path of e-commerce maturity on customer loyalty.

3. Methods

3.1 Theoretical model construction

3.1.1 Tourism e-commerce maturity and customer trust

The research on tourism e-commerce trust in academic circles has been relatively mature. Ma Linye believe that content characteristics of live shopping affect consumers' purchase intention through customer trust[9]. Refer to the above conclusions, the research assumes that each dimension of travel e-commerce maturity will positively affect customer trust.

3.1.2 Tourism e-commerce maturity and customer satisfaction

Agarwal found that agility, assurance of service, reliability, scalability, security, service responsiveness, and usability all have a positive and significant effect on overall cloud service quality, and established the partial mediation effect of customer satisfaction on the link between service quality and customer loyalty[10]. These factors correspond to four dimensions of the tourism e-commerce maturity in this paper. Therefore, this paper assumes that tourism e-commerce maturity have a positive impact on customer satisfaction.

3.1.3 Customer trust and customer loyalty

The social presence and trust of social media have a significant positive impact on online shopping customer loyalty. Moreover, The mediating function of trust is the connection between social existence and loyalty[11]. Therefore, this paper assumes that customer trust has a positive impact on customer loyalty.

3.1.4 Customer satisfaction and customer loyalty

Corporate social responsibility has significant and insignificant influence on customer loyalty through customer satisfaction and customer happiness[12]. Customer satisfaction has a significant impact on customer loyalty and should be incorporated into restaurant marketing mix strategy[13]. Therefore, this paper assumes that customer satisfaction has a positive impact on customer loyalty.

3.1.5 Conversion cost (adjustment variable) and customer loyalty

Findings reveal that both product quality and OSE significantly influence consumer loyalty, with OSE having the strongest effect. Perceptions of lower prices on e-commerce platforms are crucial[14]. Therefore, this paper assumes that conversion cost has a positive impact on customer loyalty, and makes an empirical test.

Based on the initial research hypothesis combined with the existing theoretical research basis, the specific research model is shown in Figure 1.

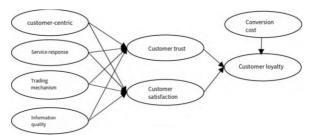


Figure 1. Research model

3.2 Research hypothesis

Based on the theoretical model, the following 11 research hypotheses are proposed.

- H1: The customer-centric tourism e-commerce has a positive and significant impact ²on customer trust.
- H2: The trading mechanism of tourism e-commerce has a positive and significant impact on customer trust.
- H3: The service response of tourism e-commerce has a positive and significant impact on customer trust.
- H4: The information quality of tourism e-commerce has a positive and significant impact on customer trust.
- H5: The Customer-centric tourism e-commerce has a positive and significant impact on customer satisfaction.
- H6: The transaction mechanism of tourism e-commerce has a positive and significant impact on customer satisfaction.
- H7: The service response of tourism e-commerce has a positive and significant impact on customer satisfaction.
- H8: The information quality of tourism e-commerce has a positive and significant impact on customer satisfaction.
- H9: Customer trust has a positive and significant impact on customer loyalty of travel e-commerce.
- H10: Customer satisfaction has a positive and significant impact on customer loyalty of travel e-commerce.
- H11: Conversion cost has a positive and significant impact on the customer loyalty of travel e-commerce.

3.3 Questionnaire design and data collection

The survey objects of the research should meet two conditions: first, they should be familiar with the basic use of the Internet; second, they should understand the tourism website or have consumption experience.

This questionnaire is mainly distributed online through Wenxing and wechat snowball, and the survey and distribution time is from April to August 2022. In order to ensure the reliability of data, experts' opinions are solicited in the early stage, and the questionnaire is pre-investigated. A total of 32 questionnaire items were studied, The 32 indicators in Figure 2 correspond to 32 items in the questionnaire, in which items Q1-Q7 are basic personal information, items Q8-Q11 are customer-centric measurement items, items Q12-Q14 are transaction mechanism measurement items, items Q15-Q17 are service response measurement items, and items Q18-Q22 are information quality

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questionnaire link: https://www.wjx.cn/vm/wmutqL3.aspx#

3.4 Sample

The sample data show an equal proportion of men and women. The main occupation for students and self-employed, of which students accounted for 42.78%, self-employed accounted for 27.62%, such groups travel time is relatively sufficient. The age distribution is mainly between 18 and 35 years old, accounting for 91.48%, indicating that Internet users generally tend to be younger. In terms of academic qualifications, 60.31% of the users with a bachelor's degree or above indicate that the users of tourism e-commerce are concentrated in the group of highly educated people. In terms of the choice of tourism platforms, the top three are Ctrip (53.14%), same-city tourism (13.45%), Qunar (10.99%), which is in line with the current reality of China's tourism e-commerce websites.

3.5 Statistical Procedure

Research hypotheses were tested using partial least squares structural equation modeling (PLS-SEM). First, evaluate the reliability and validity of the measurement model. Next, evaluate the structural model, the results were interpreted according to the P-value and significance level. The statistical software used is SPSS17.0 and AMOS26.0.

4. Results and Discussion

4.1 Reliability and validity

As can be seen from Cronbach's α , the total scale is 0.908, Each subscale is greater than 0.850, indicating that the variable reliability is higher and the stability is stronger(See Table1). The value of KMO (Kaiser-Meyer-Olkin) was 0.975, and the significance probability of Bartlett 's test was 0, which proved that the scale had good validity(See Table2).

Latent variable	Cronbachs Alpha	
customer-centric	0.850	
transaction mechanism	0.879	0.908
service response	0.895	
information quality	0.932	
customer satisfaction	0.879	
customer trust	0.859	
transfer cost	0.863	
customer loyalty	0.883	

Table 1. Reliability Statistics

Kaiser-Meyer-C	0.975	
	Approx. Chi-Square	10567.234
Bartlett's Test of Sphericity	df	300
	Sig.Bartlett	0.000

Table 2. KMO and Bartlett's Test

4.2 Structural model test and modify

Five indexes, $\chi 2$ / df (Chi-square/degree of freedom), RMSEA (root mean square of approximate error), NFI (gauge fit index), TLI (non-standard fit index) and CFI (comparative fit index), were used to evaluate the fit of the model. AMOS26.0 was used for parameter estimation by maximum likelihood (ML).

The method of deleting the minimum T-value one by one and adding MI (maximum) one by one is used to correct the model. Correct all non-significant T-values by removing the T-minimum path one by one, and then add MI (maximum). Here, when adding or deleting model paths, ensure that they have practical significance. The specific situation of model correction: ① Correction (deletion) path: service response \rightarrow customer satisfaction, correction reason: CR = -1.259 (minimum value), P = 0.208; ② Correction (deletion) path: customer-centric \rightarrow customer satisfaction, correction reason: CR = 1.923 (small value), P = 0.055; ③ Correction (increase) path: service response \rightarrow information quality, correction reason: correction index value MI (maximum value) = 289.349. The goodness of fit of the revised model is shown in Table 3. The parameters of each fitting index are very close to the ideal value, so the fitting effect of the revised model and the data is acceptable.

Index of fit x^2/df **RMSEA** NFI TLI CFI Output value 7.185 0.118 0.824 0.823 0.844 Ideal interval 1~ 5 <0. 08 > 0. 9 >0. 9 > 0. 9

Table 3. The goodness of fit of the modified model

4.3 Hypothesis testing results and discussion

The revised structural model and standard solution are shown in Figure. 2.The result parameters and hypothesis testing results of the revised model are shown in Table 4. Because H1 hypothesis, H2 hypothesis, H9 hypothesis and H10 hypothesis are consistent with previous research conclusions, the discussion will not be repeated here. The remaining 7 hypothesis testing results are discussed as follows:

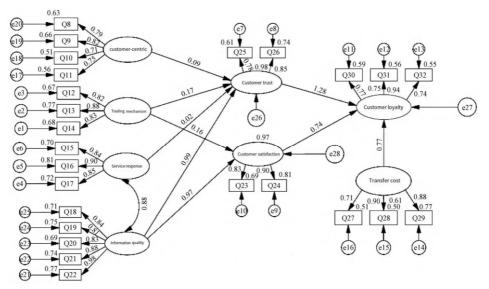


Figure 2. Standard resolution of the revised model

Table 4.	Modified	model result	parameters and	l hypothesis tests

Paths	Standardized path coefficient	S.E.	C.R.	P	Correspondence hypothesis
Customer trust <customer-centric< td=""><td>.092</td><td>.026</td><td>3.605</td><td>***</td><td>HI</td></customer-centric<>	.092	.026	3.605	***	HI
Customer trust< Trading mechanism	.167	.023	6.902	***	H2
Customer trust< Service Response	015	.050	280	.780	НЗ
Customer trust< Quality of information	.985	.067	14.225	***	Н4
Customer satisfaction< Trading mechanism	.157	.024	6.314	***	Н6
Customer satisfaction <quality information<="" of="" td=""><td>.971</td><td>.036</td><td>26.677</td><td>***</td><td>Н8</td></quality>	.971	.036	26.677	***	Н8
Customer loyalty < Customer trust	1.282	.299	3.364	***	Н9
Customer loyalty < Customer satisfaction	.736	.292	2.948	***	H10
Customer loyalty < Transfer cost	.766	.032	16.449	***	H11

a:*** indicates P < 0.001.

H3 hypothesis: The service response of tourism e-commerce has a positive and significant impact on customer trust, C.R. = -0.280, P = 0.780, which is not supported in the statistical sense. The empirical results show that the main factors affecting customer trust are website information quality and transaction mechanism. This shows that from the perspective of questionnaire respondents, timely service response is only the basis

for obtaining customer recognition, and will increase customer's favorable impression to some extent, but it is not the decisive factor for obtaining customer trust.

H4 hypothesis: The information quality of tourism e-commerce has a positive and significant impact on customer trust, C.R. = 14.225, P < 0.001, this hypothesis is statistically supported. The standardized path coefficient reaches 0.985, so it can be seen that information quality has the greatest effect on customer trust. This shows that information type, cost performance and detail of tourism e-commerce websites can best obtain the recognition and trust of customers, which is more in line with the characteristics of modern young people's pursuit of accurate online information, so as to reduce search costs and improve efficiency.

H5 hypothesis: Customer-centric has a positive and significant impact on customer satisfaction, C.R. = 1.923, P = 0.055, this hypothesis is not supported in statistical sense. This shows that customer-centric tourism e-commerce has become the most basic service guarantee, which can no longer constitute a key factor to improve customer satisfaction.

H6 hypothesis: The transaction mechanism of tourism e-commerce has a positive and significant impact on customer satisfaction, C.R. = 6.314, P < 0.001, this hypothesis is statistically supported. When the standardized path coefficient reaches 0.157, the effect of the transaction mechanism on customer satisfaction is second only to the information quality of the tourism website. This shows that online payment methods, payment procedures and cancellation mechanism can affect customer satisfaction experience to some extent, simplify the payment process, and facilitate customers to book and return immediately, in order to truly realize customers' demands for free online transactions.

H7 hypothesis: The service response has a positive and significant impact on customer satisfaction, C.R. = -1.259, P = 0.208. This hypothesis is not supported in statistical sense. This shows that in the eyes of respondents, timely service response, like customer-centric, is only the basic condition to achieve customer satisfaction, but not the decisive factor.

H8 hypothesis: The information quality of tourism e-commerce has a positive and significant impact on customer satisfaction, C.R. = 26.677, P < 0.001, this hypothesis is statistically supported. The standardized path coefficient reaches 0.971, so it can be seen that information quality has the most significant effect on customer satisfaction. This shows that the quality of website information is the key factor affecting customer satisfaction, tourism e-commerce enterprises should strive to improve and optimize the website information. In particular, how the website can provide users with personalized and cost-effective information is worth discussing.

H11 hypothesis: Conversion cost has a positive and significant impact on the customer loyalty of travel e-commerce, C.R.=16.449, P<0.001, the hypothesis is statistically supported. The standardized path coefficient is 0.766, indicating that the conversion cost has a greater effect on customer loyalty. This indicates that increasing the transfer cost of customers' consumption on the existing e-commerce platform can improve customer loyalty to some extent, such as creating online interactive communities and upgrading VIP offers, so as to increase their activity and stickiness on the platform.

The results of hypothesis testing are shown in Table 5.

Table 5. Hypothesis test result

Serial Number	Research hypothesis	Test the results
Н1	Customer-centric travel e-commerce has a significant and positive impact on customer trust	Support
Н2	The trading mechanism of tourism e-commerce has a positive and significant impact on customer trust	Support
НЗ	The service response of tourism e-commerce has a positive and significant impact on customer trust	Unsupported
Н4	The information quality of tourism e-commerce has a positive and significant impact on customer trust	Support
Н5	Customer-centric travel e-commerce has a significant and positive impact on customer satisfaction	Unsupported
Н6	The transaction mechanism of tourism e-commerce has a positive and significant impact on customer satisfaction	Support
Н7	The service response of tourism e-commerce has a positive and significant impact on customer satisfaction	Unsupported
Н8	The information quality of tourism e-commerce has a positive and significant impact on customer satisfaction	Support
Н9	Customer trust has a significant and positive impact on the customer loyalty of travel e-commerce	Support
H10	Customer satisfaction has a positive and significant impact on customer loyalty of travel e-commerce	Support
H11	Conversion cost has a positive and significant impact on the customer loyalty of travel e-commerce	Support

5. Conclusion

The maturity of travel e-commerce is an important factor affecting customer loyalty, which is mainly realized through the two intermediate variables of customer satisfaction and customer trust. In statistical sense, the influence of customer trust and customer satisfaction on customer loyalty is significant and significant. In line with previous research conducted by reference 11 and 13, the present study has arrived at similar conclusions regarding the matter under investigation. Therefore, the key to cultivating loyal customers still needs to start from the two aspects of customer trust and customer satisfaction.

Among the dimensions of travel e-commerce maturity, except service response, the other three dimensions will positively and significantly affect customer trust. Its impact on customer trust from the largest to the smallest are information quality, transaction mechanism and customer-centric. In line with previous research conducted by reference 9, the same results were obtained. This requires e-commerce platforms to improve search engine optimization technology, update data information in a timely manner, and ensure user information security while making online transactions convenient and fast, so as to improve customer experience.

Among the dimensions of tourism e-commerce maturity, only information quality and transaction mechanism have a positive and significant impact on customer satisfaction, and information quality has the greatest impact on customer satisfaction. In line with previous research conducted by reference 10, the same results were obtained.

However, customer-centric and service response are not supported in statistical sense. This conclusion once again emphasizes the importance of information quality and transaction mechanism of tourism e-commerce platforms, that is, to push accurate and efficient information to users and ensure the liberalization and standardization of online transactions, which can not only enhance customer trust, but also quickly improve customer satisfaction.

Customer trust and customer satisfaction have a positive impact on customer loyalty, which is supported by statistical significance. As a moderating variable, conversion cost also has a significant positive impact on customer loyalty, which is supported by statistics. In line with previous research conducted by reference 14, the same results were obtained. In the case of the same price, the fundamental factors affecting the user conversion cost are high-quality service and brand premium. How to accumulate the user's sense of belonging and emotional investment in the platform is worthy of further discussion by tourism e-commerce enterprises.

The above conclusions show that for tourism e-commerce platforms, the most effective and significant way to increase user stickiness and improve customer loyalty is to improve information quality, transaction mechanism and customer-centric three aspects. To be specific, tourism e-commerce enterprises should strive to improve and optimize the credibility, usefulness and vividness of the website information, enriching the information types of the website, improving the cost performance and detailed level of information search can best obtain customer recognition and trust; To simplify the payment process and facilitate customers to order and return immediately, in order to truly realize customers' demands for free online transactions; Create online interactive communities, upgrade VIP offers, etc., to increase customer activity and loyalty on the platform.

There are some limitations in the study. For example, the distribution of questionnaires was concentrated, resulting in a single sample; In terms of model, the research built a theoretical model based on the results of previous studies and the characteristics of the travel e-commerce industry, but this model can not contain all the influencing factors of customer loyalty. Therefore, the future research signification can consider building a more systematic theoretical model of e-commerce maturity and customer loyalty, and verify it in other e-commerce industries.

Acknowledgment

This work was partially funded by the School-Level Scientific Research Youth Project of Xiangnan University in 2022 (2022JX22) and Teaching Reform Research Project of Xiangnan University in 2023.

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