Research on the Influence of Perceived Quality on Short Tenants' Rental Decision in Online Reviews

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Abstract: The rise of online short rental platforms has brought more choices for people's accommodation. However, for consumers, they have no direct access to housing products. Therefore, the perceived quality of previous online reviews of tenants has certain referenced value for them to understand housing sources and make purchasing decisions. To study the influence of online comments' perceived quality on tenants' rental decision, this paper uses Python to crawl the housing data of Xiaozhu short rental platform, through content analysis and multiple regression analysis, to extract three dimension of perceived quality of the platform: Responsiveness, Reliability, and Assurance. This study shows that Reliability and Assurance in online reviews have significant positive effects for the tenants' rental decisions. This study provides a special dimension of perceived quality for online short rental platforms and has certain theoretical value and practical significance.

Key words: online reviews, perceived quality, consumers' purchasing decision

1. INTRODUCTION

With the development of sharing economy, online short rental has been accepted by more and more people as a new choice to travel and stay. However, before making the decision of renting, consumers on online short rental platforms usually cannot have direct access to housing products, and can only learn about housing information through multiple channels in advance. As a kind of consumptive shared knowledge, IWOM is an important way for consumers to obtain information and is also an important factor influencing their purchasing decisions. As one of the main forms of IWOM, online reviews are an important source for consumers to obtain products' information and reflect their real feelings. Therefore, they have stronger influence and persuasion on products. It can play a more important role in the process of consumers' purchasing decisions.

At present, researches on online reviews are mostly carried out from the perspectives of comments' content and quantity, but few researches on products' perception and perceived quality are involved in online reviews, and no special dimension of perceived quality of online reviews is proposed for short rental platforms. In addition, due to the diversity of information in online comments and the colloquial expression of consumers, many machines cannot properly process online comments' information, so it is not sure whether the perceived quality conveyed by online comments will have an impact on user's decision. Therefore, this paper takes online short rental platform as the research object, uses network content analysis and multiple regression analysis to explore the influence of perceived quality in online reviews on tenants' rental decision in online short rental platform represented by Xiaozhu.

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2. LITERATURE REVIEW

2.1 Online reviews

Online reviews are the most important form of IWOM. It mainly evaluates products in the form of text. It is a review of a product or company submitted by consumers over the Internet. Studies have shown that online

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comments can more objectively and comprehensively reflect reliable and valuable information (Chevalier & Mayzlin, 2003) [1]. The results of Zhao et al. (2017) have shown that price, collection amount, overall score and regional differences in online information have an influence on the housing sales of Airbnb[2]. Milan' (2014) studies have found that online comments will have an impact on 84% of customers' hotel reservation behaviors, which is more reliable than the information provided by hotels[3]. Ye et al. (2009) found that there was a positive correlation between the number of online comments and housing sales [4].

2.2 Perceived quality of products

Quality is a collection of product's characteristics and quality, it manifests the product's comprehensive value and it's the important index used to test product's performance. Zeithaml et al. (1990) proposed five dimensions of perceived quality of service-oriented products, namely tangibility, reliability, responsiveness, empathy and assurance[5]. Liang (2010) designed nine measurement indexes including product quality perception, service quality perception, customer relations and so on in her research, so as to measure the quality of service in the hotel [6]. Kuang (2011) studied the influence of E-commerce service quality on customers' online reservation satisfaction, and found that website usability, reliability and reactivity had a significant impact on customer satisfaction[7].

2.3 Consumers' purchasing decisions

The purchasing decision of consumers reflects the individual behavior of consumers, which is very important for each stage of purchasing behavior of consumers. Existing researches mainly study the purchasing decisions of consumers based on the S-O-R model. Zhang (2011) studied the influence of emotion, perceived value and perceived information on the purchasing decisions of consumers based on the S-O-R model[8]. Hsieh et al. (2014) combined S-O-R model with PAD model to study the influence of website information, website navigation, shopping enjoyment of consumers on purchasing decisions[9]. In addition, there are many studies on the influence of purchasing decisions from other perspectives. Monroe (1990) found that the cost, value and perceived quality of products would jointly influence consumers' purchasing decisions[10]. Through experimental research, Wu et al. (2011) found that the lower the price of online products, the higher the reputation, and the greater the impact on consumers' purchasing decisions[11].

2.4 Influence of online reviews on consumers' purchasing decisions

Online review has become an increasingly popular and important channel to get products' information, which has a great impact on consumers' purchasing decisions and product sales. Chatterjee (2006) found that feedback systems such as comments and ratings can be converted into effective information for potential consumers to make comparative choices[12]. Especially in the field of accommodation, this reputation feedback system has an important impact (Ye et al.2011)[13]. Knells et al. (2013) pointed out in their research on the content of online comments that consumers would transfer the perceived value of a product or service through the semantic information of online reviews, most of these semantic information included the attributes of the product itself, personal real experience and so on[14]. Therefore, in the shared-rental platform, the relevant information conveyed in the online comments of early tenants will have an impact on the decision of potential tenants.

2.5 Literature evaluation

Based on the review of the above literature, we know that the perceived quality collected by consumers through online reviews has an important impact on the perceived quality of products or services and is often accompanied by purchasing decisions. However, there are few studies on the quality perceived by consumers in online reviews on short rental platforms. Therefore, this paper takes Xiaozhu short rental platform as the object to study the impact of perceived quality of online reviews on tenants' rental decisions.

3.   STUDY 1: EXTRACTION OF THE DIMENSION OF PERCEIVED QUALITY IN ONLINE REVIEWS

This paper is divided into two studies. Study 1 uses network content analysis to extract the dimension of perceived quality of online comments on short rental platforms; Study 2 uses the results of study 1 to conduct multiple regression analysis with SPSS software, so as to explore the influence of online reviews' perceived quality on tenants' rental decisions on short rental platforms.

3.1 Selection of network content analysis

Network content analysis refers to the acquisition of content text from the network. The data are objective and real. Compared with the questionnaire survey method, the environmental conditions for the acquisition of data are more natural and real. The online texts includes the opinions expressed by netizens and consumers on BBS and the post-transaction evaluation, which can reflect their consumption process, products and services obtained. In this study, The textual data of online comments are the description and feedback of consumers' experience of the products and services they have acquired after the transaction is completed, although the information in the comment is not fully reflect all products and services provided by the service provider, to some extent, the online texts reflects the dimensions and attributes of products and service that consumers are concerned about, and it has a direct effect on potential consumers reading comments to obtain more information.

3.2 Data capture and preprocessing

In this study, Python was used to write a web crawler. On November 14, 2017, all qualified housing data on Xiaozhu short rental platform, including housing price, the number of housing orders and online comments of the tenant were obtained. The capture time lasted for 65 hours, and a total of 32,145 original housing samples were obtained. Through the verification of the data, it is found that some landlords have multiple housing sources. In order to make this study more rigorous, this paper selects the landlord data with only one housing source and obtains 5,951 sample data of the landlord. At the same time, there are landlords who only release housing sources but do not accept any orders. In this study, this part of landlord data was removed and a total of 4,904 sample data of the landlord were obtained.

According to the research's object, the number of comments and the total number of orders are processed with outliers. After removing outliers of the number of comments and the total number of orders, 3,465 sample data of housing sources were obtained, with a total of 21,559 comments. According to experimental results by Pavlou & Dimoka (2006), 80% of consumers only paid attention to the comments on the first page when referring to the comments[15]. Xiaozhu showed up to 10 comments on each page of housing sources, so the first 10 comments data of each housing source were finally adopted.

3.3 Data encoding

• Sample preprocessing: Before coding, the first 10 comments of 3,465 houses will be obtained and imported into EXCEL for coding.

• Pre-coding by researchers: Removing the first 10 comments of 3,465 housing sources, 100 comments were randomly selected. To build the coding sample set 1, the comments in the sample set were divided into 231 sentences, ending with periods and exclamation marks. Firstly, according to relevant indicators of comments of online tourism and hotel websites, an initial coding framework was established, including topics such as health, comfort, service, facilities et al. In the coding process, the two professional researchers read independently. According to the specific text content of the online short rental website, they marked the topic tag. When the comments did not match the original coding framework, new topic tags could be added. After a complete round of independent coding, the two researchers discussed their codes and further combined them into related coding topics.

• Coder training and consistency test: Before starting coding, two coders were trained professionally

according to the initially adjusted coding framework, and each code or topic was explained to familiarize them with the relevant coding framework and operational definitions, so as to improve their reading speed and accuracy of the comment text. Before using the content analytical method, it is very important to check the coder's reliability. After a round of coding, the codes of the two coders were compared and analyzed, it shows that the coding reliability between coder 1 and researcher is 93.8%, the coding reliability between coder 2 and researcher is 91.1%, and the coding reliability between coder 1 and coder 2 is 89.7%, which indicates that the coding classification between coders and between coders and researchers has passed the reliability test.

3.4 Coding framework and operational definition of the source and elements of perceived quality by the tenant's online comments

Combined with the description of coding content, Responsiveness includes: Service and attitude within the role, Services outside of roles; Reliability includes: landlords' personal characteristics, tenants' sticky behavior; Assurance includes: housing hygiene, comfort level, housing aesthetics, convenience of life, surrounding environment, housing facilities, consistency of description/picture, extra charge. In the coding process, for the described Hashtag, the positive description tag "1", the negative description tag "-1", and the negative description tag "0" are not marked. For example, if the comment mentions "the room is very clean", it will be marked "1" under the theme of housing hygiene. If the comment mentions "the room is not very clean and dusty", it will be marked "-1" under the theme of housing hygiene. Finally, the element markers of each dimension of perceived quality of online comments are summed and processed to obtain their values on each perceived quality dimension. The sources' elements and coding framework of the dimension of perceived quality in online reviews are shown in figure 1.Based on this framework, researchers and coders began to do extensive critical reading and topic coding.

Figure 1. Sources' elements, coding framework and operational definitions of perceived quality in online reviews

The dimension of perceived quality	Elements of theme	Coding operational definition
Responsiveness	Service and attitude within roles	Describe the services and attitudes of the landlord in his/her role.
	Services outside of roles	Describe services out of the landlord's responsibility, such as providing travel tips, free food and fruit, small gifts, etc.
Reliability	Landlords' personal characteristics	Describe the landlord's personality, hobbies, overall image, "good landlord" and "rich of charm", etc.
	Tenants' sticky behavior	It refers to the guest recommended to others or later to come back, such as "next time to come back to your home" and so on.
Assurance	Housing hygiene	Describe the sanitary condition in the house.
	Comfort level	Describe the comfort or warmth of the guest's staying.
	Housing aesthetics	Describe the decoration, style and layout of room.
	Convenience of life	Including the convenience of food, housing medicine, entertainment and other aspects.
	Surrounding environment	It refers to the surrounding environment of the residential area.
	Housing facilities	It refers to the living rooms' supplies or kitchen equipment supplies.
	Consistency of description/picture	It refers to the actual room and the site housing source described by the consistency.
	Extra charges	It refers to the rental contract outside the cost.

3.5 Coding statistical results

After complete coding, the frequency of each perceived quality dimension in each comment of each landlord was statistically analyzed. Among them, Responsiveness includes service and attitude within the role, services outside of roles, which accounts for 15.69% in total. Reliability includes the theme of landlord's personal characteristics and tenant's sticky behavior, accounting for 25.25% in total. Assurance includes eight elements, namely housing hygiene, comfort level, housing aesthetics, convenience of life, surrounding environment, housing facilities, consistency of description/picture, extra charge, accounting for 59.06% in total. The results are shown in figure 2:

Figure 2. Frequency and percentage statistics for each dimension of perceived quality of tenant's online comments

The dimension of perceived quality	Frequency	Ratio
Responsiveness	7685	15.69%
Reliability	12363	25.25%
Assurance	28923	59.06%
Total	48971	100%

4.   STUDY 2: INFLUENCE OF PERCEIVED QUALITY DIMENSION IN ONLINEREVIEWS ON TENANTS'RENTAL   DECISIONS

4.1Study design

4.1.1 Research hypothesis

According to study 1, three dimensions of perceived quality, namely responsiveness, reliability and assurance, were extracted from the information of online comments by tenants. Responsiveness refers to the service provided by the merchant and the behavior of responding to the service; Reliability refers to the reliability of the product itself and the merchants who provide the product; Assurance refers to the degree of guarantee of products and services provided by the merchant. In this study, The responsiveness is reflected by service and attitude within the role, services outside of roles; The characteristics of the landlord and the sticky behavior of the tenant are used to reflect the reliability; The assurance is reflected by housing hygiene, comfort level, housing aesthetics, convenience of life, surrounding environment, housing facilities, consistency of description/picture and extra charge. These dimensions in the online comments reflect the perceived quality of the house to some extent. Based on the sorting of existing literature, this paper makes the following hypothesis:

H1: The responsiveness in online reviews has a positive impact on tenants' rental decisions.

H2: The reliability in online reviews has a positive impact on tenants' rental decisions.

H3: The assurance in online reviews has a positive impact on tenants' rental decisions.

4.1.2 Data source

The data sources in this study are identical to those in study 1.

4.1.3 Measurement of variables

The independent variables in study 2: Responsiveness, Reliability and Assurance are extracted by the network content analysis in study 1, while the control variables: price and dependent variables: total number of orders are data obtained by crawling through python in study 1.

• Measurement of related variables of perceived quality in online reviews: The elements of each dimension of perceived quality are marked in the network content analysis to measure each dimension. The values of each dimension in the online review were obtained by arithmetically summing the values of each dimension of perceived quality in each landlord's first 10 comments. Finally, the values of each dimension of perceived quality in the online comments were obtained.

• Measurement of tenants' rental decision: The rental decision of the tenant indicates the decision made by

the tenant after the analysis and processing of the information of perceived quality obtained by the tenant, that is, whether to rent a certain housing sources or not. Therefore, this study uses the total number of orders of the housing sources on the website to reflect the tenant's rental decision.

4.2 Data analysis

4.2.1 Descriptive statistical analysis

This study takes the housing price as the control variable, the dimension of perceived quality in the online comments of tenants as the independent variable, and the tenant's rental decision as the dependent variable. In traditional rental houses, price is the leading factor influencing consumers' choice, and this study mainly studies the impact of online reviews' dimension of tenants on orders, so this study takes housing price as the control variable. The specific descriptive results are shown in figure 3.

Figure 3. Descriptive statistical analysis of variables

Variable	N	Minimum	Maximum	Mean	Std
Price	3465	30	9999	395.337	529.0624
Total number of orders	3465	1	76	16.872	16.3498
Responsiveness	3465	-1	15	2.1786	2.4151
Reliability	3465	-1	15	3.5558	3.1222
Assurance	3465	-5	31	7.6811	6.57577

4.2.2 Multiple regression analysis

In order to examine the impact of dimension of perceived quality of tenants' online reviews on tenant's rental decisions, the quality in tenants' reviews was studied. The dimension of perceived quality is brought into the linear regression model as independent variable, tenants' rental decision is taken as the dependent variable, and housing price is taken as the control variable. The significance level between the above independent variables and dependent variables was examined. SPSS22 is used for multiple linear regression analysis to test and judge the influence of various quality signals on tenants' rental decision. Firstly, collinearity statistics among variables were analyzed, as shown in figure 4, the analysis found that the independent variables of tolerance are closed to 1, The VIF (variance's inflation factor) is also closed to 1, it indicates that the linear correlation among the characteristic variables is weak, little effect on coefficient estimation of regression equation and results.

Figure 4. Collinearity statistics indicators

Variable	Tolerance	VIF
Prices	.993	1.007
Responsiveness	.542	1.845
Reliability	.401	2.492
Assurance	.406	2.461

Then, we uses multiple regression analysis with SPSS to explore the causal relationship between variables. The model's regression results are shown in figure 5. As can be seen from the comparison between model 2 and model 1, the explanatory power of the model was significantly improved after independent variables entered the equation ($\triangle R^2$=0.366, p<0.001). As can be seen from the regression results of model 2, the responsiveness of the independent variable (β=-0.146, p>0.05) has no significant impact on the tenant's rental decision, H1 is rejected. Reliability (β=1.762, p<0.001) has a significant positive impact on tenants' rental decision, H2 is supported. Assurance of independent variable (β=0.809, p<0.001) has a significant positive impact on tenants' rental decision, H3 is supported.

Figure 5. Results of regression analysis

	Variable	Model 1	Model 2
	(constant)	17.617	4.957
Control　variable	price	-0.002***	0.000
	Responsiveness		- 0.146
Independent　variables	Reliability		1.762***
	Assurance		0.809 ***
	R²	0.004	0.366
	Δ R²	0.004	0.366
	Δ F	12.913***	499.133***

Note: *** means p<0.001, ** means p<0.01, * means p<0.05

5.　CONCLUSION AND DISCUSSION

In this paper, Python was used to crawl the second-hand data of Xiaozhu, and content analysis was used to extract the responsiveness, reliability and assurance of perceived quality, so as to study the impact of perceived quality of online reviews on tenants' rental decisions. The results are as follows:

It shows that the reliability and the assurance of online reviews have a significant positive impact on tenants' rental decisions. And in the short rental homestay which is featured with personalization, the tenants pays more attention to reliability and assurance when choosing rooms. For example, some excellent personal characteristics and good service attitude of the landlord make the tenant feel warm and comfortable, convey goodwill and friendliness, and promote the tenant to stay. In addition, there are many tenants who show that they will live in the same house next time, recommend their colleagues and friends to live here and continue to live, etc. These tenants' behaviors also show the landlord's excellent receiving capacity, so as to generate follow-up stickiness and loyalty, and then affect the decision of other tenants to rent a house. And the element such as housing hygiene, comfort level, housing aesthetics, etc. They reflect the overall quality of the housing stock, thus prompting tenants to make rental decisions. However, the responsiveness has no significant impact on the tenant's decision of renting, which indicates that the tenant takes the host's series of responsive behaviors towards the tenant or the basic requirements of the platform for granted, and thus does not produce the decision behavior of renting.

This research has certain practical significance. As can be seen from the thematic features with significant influence in the tenant comments, on the basis of meeting the basic sanitary conditions, potential tenants pay more attention to the characteristics of the landlord mentioned in the previous tenant comments, the services and attitudes provided by the landlord in the actual housing process, and the comfort level of the housing. Moreover, in the eyes of other consumers, landlords and consumers' sticky rental decision and recommendation of housing resources to others also affect consumers' quality perception and rental decision. Therefore, in the process of receiving and getting along with tenants, excellent service and personal characteristics reflected in this process are very important for the formation of overall good accommodation experience of tenants. By strengthening the quality signals that tenants are focused on and improving other aspects of the service, it can facilitate the expression and appreciation of tenants in their housing reviews, thus influencing potential consumers. At present, there are five aspects of the platform, including cleanliness, matching description, traffic location, safety degree and cost performance, for tenants to score, but the actual effect of each label on consumers cannot be fully confirmed. Combined with the results of this study, the platform can also guide customers to make a comment subdivision. On the one hand, it is convenient for potential consumers to have a comprehensive understanding of information, improve consumers' perception of the quality of houses and their surroundings, and promote

tenants' decision to rent. On the other hand, it can also conduct quantitative evaluation on the housing quality of the landlord's service, so as to improve the overall housing quality level.

However, the disadvantages are that this paper only selects the data of one online short rental platform for research, with the purpose of controlling the influence of users' attributes and effect of platform. In the future, the research should compare the differences of perceived quality in online comments between short rental platforms with different business models. In data filtering, this study only selects the related data of landlord with only one housing source. Compared with the overall samples of housing sources, the sample may not enough. In future studies, the overall data should be considered to improve the universality of the results.

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