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Exploration on User Acceptance Behavior of Hotel Artificial Intelligence Technology Based on Experience Quality

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Abstract: People's requirements for quality of life have generally improved, and activities such as traveling and office work cannot avoid solving the accommodation problem in hotels. Customers pay more attention to hotel products and services, rather than just satisfying their usage needs. In order to improve their brand effect and charisma, hotels need to study the factors that affect customer satisfaction from the perspective of user acceptance behavior. This article mainly used survey methods and model design methods to analyze the acceptance behavior of hotel artificial intelligence (AI) technology users. According to survey data, 62% of people believed that the quality of hotel service was what makes customers satisfied. Through scientific and effective questionnaires, hotels can better understand customers' acceptance and satisfaction with experience quality, thereby formulating corresponding improvement measures and service strategies to improve customer satisfaction and loyalty.

1. Introduction

Intelligent and automated systems can provide customers with a more convenient and efficient experience of quality. From the perspective of experience, customer perception of product or service quality is one of the important factors that affect customer acceptance behavior. Customer perceptions of products or services are a very important factor in the formation and development of experience quality. Whether consumers are satisfied with their goods or services directly determines their purchasing decisions.

From the perspective of user experience perception, in an intelligent system, customers may have some emotional reactions to hotel contact and product use. There are many theories related to user acceptance behavior that study experience quality and hotel AI. For example, some scholars have proposed perceptual systems based on semantic reasoning mechanisms in intelligent machine technology [1-2]. Some scholars believe that the quality of the service industry is the main channel to improve consumers' recognition of the brand image and enhance corporate reputation [3-4]. In addition, some scholars have designed intelligent speakers based on improving the user experience and combining the use environment of the room, ensuring that the hardware modeling design and

software interaction design meet the design requirements [5-6]. Experience value is a psychological satisfaction generated by customers for services or products. High intelligence, strong operability, and convenience are the main factors that affect the quality of customer experience.

This paper analyzed the factors that affect user acceptance behavior and experience quality based on AI systems. The influencing factors of user acceptance behavior in AI technology were explored. The relationship model between influencing factors in the context of intellectualization based on experience quality was constructed, and corresponding countermeasures and suggestions were proposed. This article analyzed the influencing factors of hotel experience quality, and expounded the basic theory of AI, thereby proposing an intelligent analysis of hotel service customer acceptance behavior. Through the form of a questionnaire, the content of the questionnaire design was tested, and people's attitudes towards hotels in terms of experience quality were calculated and analyzed.

2. AI Hotel Experience Quality Customer Acceptance Behavior

2.1 Hotel Experience Quality

The quality of hotel experience refers to the overall service experience provided by the hotel to customers, including customers' evaluation of how the hotel service meets their needs and expectations [7]. The following are some factors that may affect the quality of the hotel experience:

Room Comfort: It includes room size, bed comfort, pillow selection, high-quality bedding and towels, etc. Food quality: It includes the style and quality of the hotel's restaurants, as well as fresh, organic, and local specialties. Facilities and services: It includes a swimming pool, fitness center, massage services, spa, conference facilities, laundry services, etc. Employee performance: It includes the professionalism, etiquette, and service quality of employees, as well as the ability to provide personalized services. Cleanliness: It includes the cleanliness and tidiness of rooms, restaurants, public areas, swimming pools, gyms, and other places. Other factors: It includes convenient location, high-speed Internet connection, safety and security measures, etc. [8].

For hotel operators, improving the quality of the hotel experience can help improve customer satisfaction and loyalty, thereby improving booking rates and profitability. Therefore, hotel operators need to pay close attention to customer feedback and needs, and constantly update and improve services to provide better hotel experience quality [9].

2.2 AI

AI technology refers to the technology that utilizes computer science and related technologies to enable computer systems to have intelligent behaviors and abilities such as reasoning, learning, recognition, understanding, and expression like humans [10]. Common AI technologies include:

Machine learning is a method in which computers extract rules and conclusions from data through training models and algorithms. Natural language processing is a technology based on computer technology that allows computers to analyze and understand the semantics of human natural language. Image recognition is a technology that allows computers to automatically classify and recognize images by analyzing their characteristics and patterns [11]. Speech recognition is a technology that allows computers to convert speech signals into text or other forms by analyzing their acoustic characteristics and speech patterns. Intelligent recommendation is a technology that provides personalized recommendation services to users by analyzing their historical behavior, interests, preferences, and other information [12]. Intelligent control is a technology that allows computer systems to intelligently adjust and control the behavior and parameters of devices and systems by creating control models and algorithms. AI technology is widely used in various fields,

including smart home, driverless vehicles, healthcare, financial investment, logistics, and transportation. Its development has also had a profound impact on socio-economic development and changes in human lifestyles [13].

AI can provide more personalized, efficient, and intelligent services in hotels, thereby improving the quality of hotel experience. The application of AI in the quality of hotel experience includes the following aspects. Voice Assistant: Hotels can introduce voice assistant technology, which allows customers to book rooms, query information, adjust temperature, etc. through voice commands, thereby improving the convenience and efficiency of services [14]. Smart Rooms: Hotels can use smart room technology to allow guests to control lighting, curtains, audio, and other devices in the room through mobile phones or tablets, achieving personalized room settings and experiences [15]. Face recognition: Hotels can use face recognition technology to achieve self-service check-in and rapid checkout, improving the check-in and check-out experience of customers [16]. Recommendation system: Hotels can use the recommendation system to recommend personalized services and products based on customers' historical behaviors and preferences, thereby improving service satisfaction and loyalty. Data analysis: Hotels can analyze and mine customer behaviors and preferences through big data analysis technology, thereby understanding customer needs and feedback, and optimizing service processes and strategies. By introducing AI technology, hotels can provide more intelligent, efficient, and thoughtful services, thereby improving the quality of customer experience. At the same time, hotels also need to pay attention to protecting the privacy and security of customers and ensuring the legitimacy and reliability of AI technology [17].

2.3 Intelligent Evaluation of Hotel Service Customer Acceptance Behavior

Hotel service customer acceptance behavioral intelligence analysis refers to the use of big data technology and AI technology to conduct in-depth mining and analysis of hotel customer consumption behavior, evaluation, feedback, and other data, so as to understand the needs and behavior patterns of hotel customers, and targeted improvement and optimization of hotel services [18]. Specifically, intelligent analysis of hotel service customer acceptance behavior can be carried out from the following aspects:

Data collection: Information such as consumption data, reviews, evaluations, and questionnaires of hotel customers can be collected through various channels. Generally speaking, a customer's consumption record should include consumption type, consumption amount, consumption time, and consumption frequency. Data cleaning: By analyzing and sorting out collected data, it is possible to eliminate useless and duplicate data and ensure data quality [19]. Data analysis: By using data analysis tools to mine and analyze data, valuable information can be found in the data, and customer consumption behavior characteristics can be extracted, such as customer preferences, consumption cycles, and so on. Intelligent recommendation: Through machine learning algorithms, customers' consumption behavior characteristics are converted into tags in the classroom, and then clustered with other customers' tags for analysis. This identifies the most similar customer groups and recommends them to improve customer satisfaction and loyalty [20]. Service optimization: Based on the results of data analysis, it is possible to identify existing problems and shortcomings in the hotel, and further improve and optimize service quality and operational processes to improve customer satisfaction and loyalty. Intelligent analysis of hotel service customer acceptance behavior is very important for the hotel industry. It can help hotel operators better understand customer needs and habits, and can improve service quality and customer satisfaction, thereby improving performance and competitiveness.

3. Customer Acceptance Behavior of Hotel Experience Quality

3.1 Exploration Direction

The research on user acceptance behavior of hotel AI technology based on experience quality is a very practical topic.

Impact of experience quality on user acceptance behavior: This section mainly considers the relationship between user acceptance and willingness to use hotel AI technology and their experience quality. Data are collected through user interviews, questionnaires, and other methods, and statistical methods are used for analysis to assess the impact of experience quality on user acceptance behavior. Differences in acceptance behavior among different user groups: This section mainly considers the impact of factors such as age, gender, education, and occupation on hotel AI technology acceptance willingness. Through modeling, regression analysis, and other methods, the differences and similarities between different groups are analyzed to understand their impact on technology acceptance behavior. The impact of experience quality on user satisfaction and loyalty: This section mainly considers the relationship between experience quality and user satisfaction and loyalty. Through field experience and surveys, it is possible to understand user satisfaction and loyalty, and analyze the impact of different experience quality factors. Comparison of the importance of different experience quality factors: This section mainly considers the impact of different experience quality factors on user acceptance behavior. By constructing models, summarizing, and other methods, the importance of various experience quality factors for user acceptance behavior is compared to formulate corresponding strategies and measures. Multiple methods and tools need to be comprehensively used for evaluation and analysis.

3.2 User Acceptance Behavior Model

The user acceptance behavior model of hotel AI technology refers to the establishment of a model for user acceptance of AI technology by analyzing user behaviors, attitudes, and opinions. This model can help hotels understand the acceptance and preference of users for AI technology, so that hotels can better develop and apply AI technology and improve user satisfaction and loyalty. The specific framework of its model is shown in Figure 1.

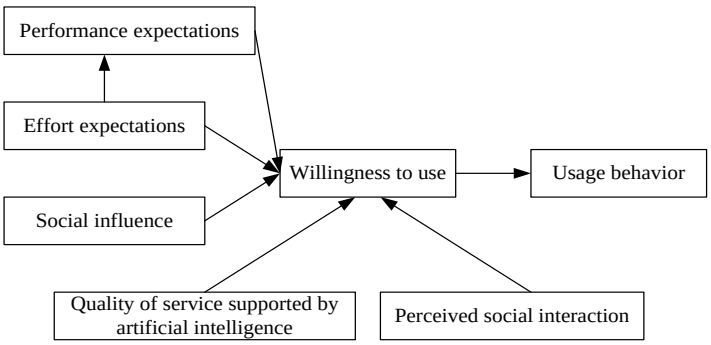

Figure 1: User acceptance behavior model

The user acceptance behavior model of hotel AI technology usually includes the following aspects:

Awareness and knowledge: It refers to whether users know and understand AI technology and its application in hotels. Perceived usefulness: It refers to whether users believe that AI technology is useful for their lives and travel, and can improve their experience and satisfaction. Perceived ease of use: It refers to whether users believe that AI technology is easy to use, and can provide

convenience and efficiency. Willingness and intention: It refers to whether users have the willingness and intention to use AI technology, and whether they are willing to pay corresponding time and money costs for this. Environment and culture: It refers to whether the environment and culture in which the user is located is suitable for using AI technology, and whether there are corresponding cultures and habits.

By establishing a user acceptance behavior model for hotel AI technology, hotels can better understand user needs and preferences, and formulate corresponding AI technology application strategies and development plans. At the same time, hotels can also continuously optimize the functions and performance of AI technology to improve user acceptance and satisfaction with AI technology, thereby enhancing the market competitiveness and brand image of hotels.

3.3 Questionnaire Design Variables and Measurement Questions

The experience quality of a hotel refers to the feelings and experiences gained by customers in the hotel, including the environment, services, facilities, and other aspects. In order to understand customers' acceptance of the quality of hotel experience, it is necessary to design corresponding variables and measurement questions. Design variables include:

Environmental variables: This includes whether the appearance of the hotel is attractive, whether the interior of the hotel is clean and comfortable, and whether the decoration style of the hotel meets the preferences of customers. Service variables: This includes whether the hotel staff's service attitude is friendly and enthusiastic, whether the staff effectively solves customers' problems and needs, and whether the hotel provides personalized services. Facility variables: This includes whether the hotel's facilities are modern and complete, whether the facilities meet customer needs, and whether the facilities are easy to use. Perception variables: This includes whether the customer feels comfortable and relaxed, whether the customer feels happy and satisfied, and whether the customer is willing to stay in the hotel again. The above are only some possible design variables and measurement questions, which can be adjusted and supplemented according to the actual situation of the hotel.

In addition, in order to accurately measure customers' acceptance of the quality of the hotel experience, it is also necessary to pay attention to the following aspects. The measurement questions should be as objective, specific, and easy to understand and answer as possible. Measurement questions should cover different aspects and dimensions to comprehensively reflect the customer's experience and feelings. Measurement questions should have good reliability and validity, that is, they can stably reflect the actual experience and feelings of customers, and have a certain correlation with other relevant variables and indicators. Designing appropriate variables and measuring questions can help hotels better understand customers' acceptance of experience quality, and develop corresponding improvement measures and service strategies to improve customer satisfaction and loyalty.

3.4 Questionnaire Survey Process

Questionnaire design: It is necessary to design appropriate questionnaire content and structure based on the actual situation and needs of the hotel. The questionnaire should include basic information, experience quality variables, measurement questions, and satisfaction evaluation. Sample selection: It is necessary to select appropriate samples for investigation based on the target customer group and needs of the hotel. The sample was determined through random sampling, stratified sampling, and other methods. A total of 200 hotel employees, management, and customers were surveyed. Questionnaire distribution: The questionnaire was distributed to selected samples, and online surveys, paper surveys, and other methods were used. At the same time, sufficient

explanations and explanations were provided to ensure that the respondents can understand and answer the questions. Data collection: The respondents' response data were collected, sorted and classified. Attention needs to be paid to checking the integrity and accuracy of data and promptly handling missing or incorrect data. Data analysis: Statistical software was used to analyze and process the data, and corresponding results and conclusions were obtained. Descriptive statistics, factor analysis, regression analysis, and other methods were used for analysis. Result interpretation: Based on the analysis results, it explained the customer's acceptance and satisfaction with the quality of the hotel experience. At the same time, corresponding improvement suggestions and measures were proposed to help hotels improve customer satisfaction and loyalty.

It should be noted that the following principles should be followed during the questionnaire survey process. It is necessary to protect the privacy and personal information of respondents and ensure the legitimacy and fairness of the questionnaire survey process. The content of the questionnaire should be as objective, specific, easy to understand and answer, and avoid subjective bias and misleading. The survey results should reflect the actual situation and true feelings, and avoid falsehood and exaggeration.

4. Reliability and Validity

4.1 Questionnaire Reliability

In the user acceptance behavior model, variables include performance expectations, effort expectations, social impact, willingness to use, usage behavior, service quality supported by AI, and perceived social interaction. There are several coefficient calculation methods for reliability:

Cronbach's reliability calculation formula is:

$$\eta = \frac{L}{L-1}[1-\frac{\sum t^2{}_b}{t^2{}_a}] \tag{1}$$

Among them, L is the number of test items, and $t^2{}_a$ is the total score of the coefficient of variation.

The equal length half reliability coefficient is expressed as:

$$B_1 = 2S(S+1) \tag{2}$$

The reliability coefficient is expressed as:

$$\psi = \frac{M}{M-1}[1-\frac{1}{\sigma}] \tag{3}$$

The reliability of the questionnaire design was calculated using Cronbach, and the results of its validity are shown in Figure 2.

In Figure 2, it can be found that the Cronbach value of each variable exceeded 0.7, indicating that the reliability of the questionnaire design was relatively good. Through the validity calculation of the questionnaire, the aggregation validity of the questionnaire was obtained. The average variance extraction value was calculated, and the minimum value was 0.55. This indicated that the aggregation of the questionnaire was also good, and the relevant degree of question design was high.

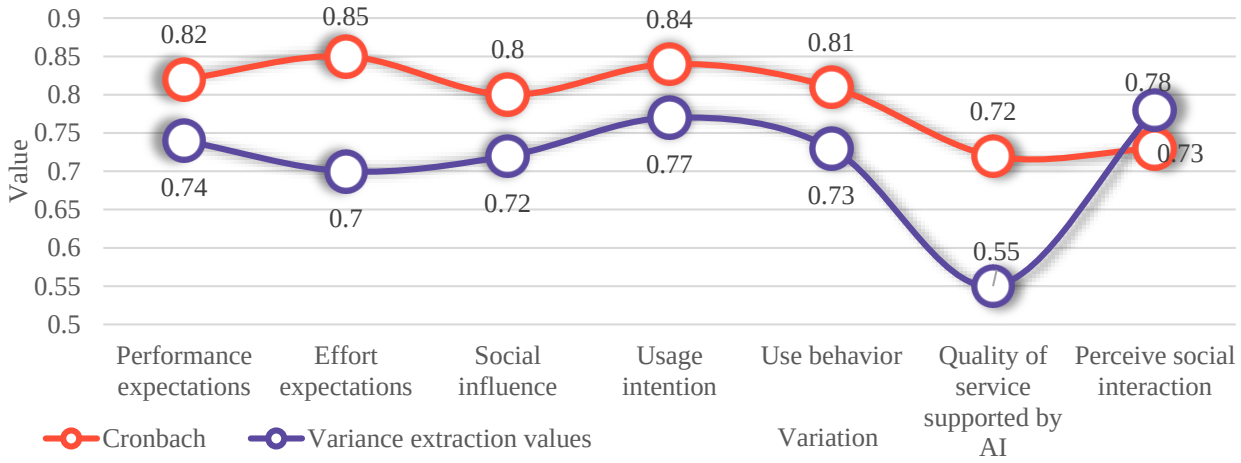

Figure 2: Reliability and validity of the questionnaire design

4.2 Significance of Variable Coefficients

A user acceptance model using hotel AI products was created, and then a comprehensive evaluation of the user acceptance model using hotel AI products was conducted. The significance of variable coefficients is shown in Table 1. The P-value is the probability, and T refers to the T-test. The P value of perceived social interaction in user acceptance behavior was 0.67, indicating that the relationship between the two was not significant and had no statistical value.

Table 1: Significant analysis of the variable coefficients

	T value	P value
Performance expectations	4.9	0
Effort expectations	3.5	0
Social influence	4.6	0
Usage intention	24	0
Quality of service supported by AI	3.9	0
Perceive social interaction	0.4	0.67

In Figure 3, it can be found that the standard value of perceived social interaction and AI supported service quality in user acceptance behavior was 0.07, and the standard value of effort expectation was 0.08. The performance expectations, social impact, and service quality of AI support had a direct positive impact on user engagement.

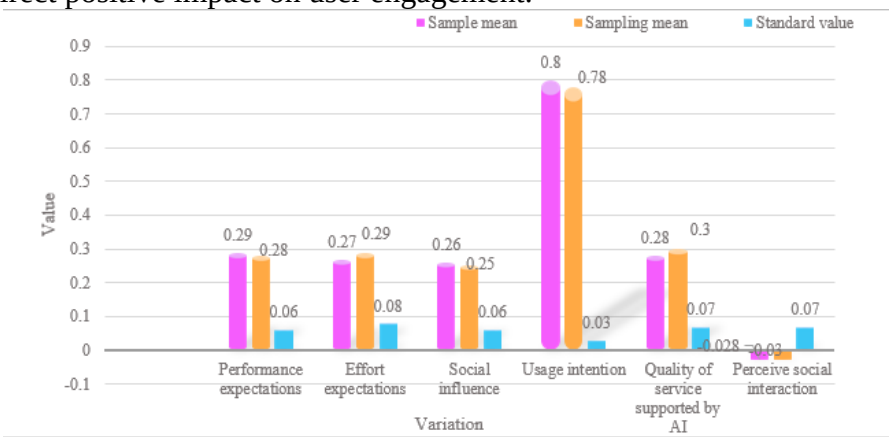

Figure 3: Sample means and standard values of the variables

4.3 Variable Attitudes Accepted by Users

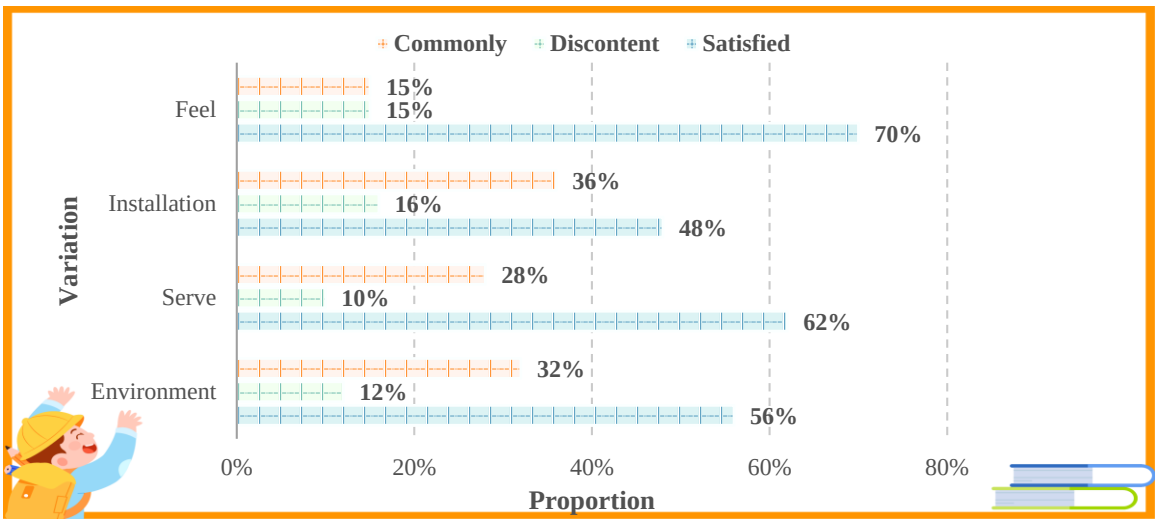

Figure 4: Analysis of variable attitudes accepted by users

As shown in Figure 4, it can be found that 70% of people believed that the user experience of hotel AI can make customers more satisfied and willing to generate consumption. Another 56% of people were relatively satisfied with the hotel environment. A small number of people were dissatisfied with these four aspects of attitude, indicating that the hotel's experience service needs to be further strengthened.

5. Conclusions

Based on intelligent technology, this article conducted an in-depth study of the relationship between AI and user acceptance behavior. The development and application of intelligent technology were studied, and various factors affecting customer acceptance behavior, such as service quality and emotional value dimensions based on perceptual quality models, were proposed. AI technology can help customers enjoy better and higher quality services at lower costs, thereby improving the customer experience. Therefore, in the direction of future scientific and technological development, it is necessary to focus on hardware facilities and equipment. At the same time, attention should also be paid to the interaction between software functions and user requirements. Intelligent features have a positive predictive effect on emotional value. Key factors that affect customer experience quality based on three aspects: perceived quality, intelligent mobility mechanisms, and driver models.

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