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THE INFLUENCE OF SERVICE QUALITY AND PERCEIVED VALUE ON CUSTOMER LOYALTY OF SMART HOTELS IN YUNNAN, CHINA

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ABSTRACT

This research aims to study the influence of service quality and perceived value on customer loyalty to smart hotels in Yunnan, China. The researcher used the questionnaire as the research tool and collected data from 400 samples of customers in Yunnan province. Descriptive statistics were used to analyze data, including Frequency, Percentage, Mean, Standard Deviation, and inferential statistics, including Independent Samples t-test, One-way ANOVA, LSD, and Multiple Linear Regression at the statistical significance level of 0.05. The results found that most respondents were over 61 years old, primarily male, and had a high school or secondary school education, a monthly income of more than 12,001 yuan, and other occupations. The first hypotheses were tested, and the results found that Age, Gender, Income Level, Education, and Occupation significantly influence smart hotel customer loyalty in Yunnan, China. The results of the second hypothesis tested found that service quality (assurance, responsiveness, empathy, tangibles, and reliability) significantly influences customer loyalty. For the last hypothesis tested, the service quality (functional, emotional, social, monetary, and cognitive) also positively and significantly impacts customer loyalty.

Keywords: *Smart hotel, customer loyalty, service quality, perceived value*

INTRODUCTION

An important area of research has become an influential factor in customer loyalty in the case of smart hotels, especially in China's Yunnan province. The rapid development of technology and the increasing significance of customer personalization service have altered the hospitality industry. Smart hotels couple the latest technology systems and data analytics to improve the guest experience. To this end, there is an opportunity to understand how those factors influence customer loyalty. The unrelenting focus on customer loyalty is significant because it can generate sustained business thrust and profitability in the ultra-competitive hotel market (Sagar, 2024).

Customer loyalty is also heavily influenced by service quality. Service quality is where the service provided meets or exceeds customers' expectations. It manifests in five basic dimensions: Reliability, Responsiveness, Assurance, Empathy, and tangibles. With high quality, especially with hotels containing advanced technologies, customer satisfaction and customer loyalty will increase significantly. This leads to the only conclusion: high service quality positively affects customer loyalty in many industries, such as banking products and hospitality. It confirms that high service quality is crucial for smart hotels to build customer loyalty. Integrating advanced technologies such as AI-powered concierge, smart room control, and personalized recommendation to ameliorate the overall guest experience and foster long-term loyalty (Rane et al., 2023).

Combining sophisticated technologies into smart hotels provides abundant chances to enhance customer satisfaction and service quality. For example, big data platforms could analyze the customers' preferences and behaviors and help the hotels provide tailor-made services and offers to guests. AI technologies provide personal recommendations, guess the guests' needs, and automate trivial tasks to enhance the guest experience. Additionally, equipment like voice-activated assistants, automatic lighting, and temperature adjustments in

bright rooms could increase guests' convenience and comfort. These high-tech upgrades the service quality and increase customer satisfaction and loyalty (Heiets et al., 2022).

Alongside demographic factors and service quality, other factors, including brand reputation, pricing, and competitive positioning, influence customer loyalty. A strong brand reputation can be instrumental in building customer trust and perceived value, leading to high levels of loyalty. Competitively priced services combined with high-quality services can ensure repeat-purchase behavior and retention. Additionally, the strategic positioning of smart hotels in terms of location, unique features, and target market can significantly influence customer loyalty, as differentiation and unique value propositions can lead to high customer loyalty levels and long-term success (Zumente & Bistrova, 2021).

Characteristics of demographic types such as age, sex, income level, education, and occupational fields have been proven to be the imperative variables for the customer's expectations and choice. These factors affect the customers' segment and how they perceive and value smart hotels' services. For instance, young "techno customers" may prioritize technological innovation and seamless digital interaction, whereas old customers may prefer traditional hospitality elements such as personalized attention and physical convenience.

Perceived value has emerged as a crucial construct in understanding consumer behavior in the smart hotels industry, particularly in rapidly developing markets like Yunnan, China. It goes beyond the traditional quality-price relationship to encompass a multidimensional assessment of the benefits and sacrifices associated with the hotel experience (Gallarza et al., 2020). In the context of smart hotels, perceived value takes on added complexity due to integrating advanced technologies. The five dimensions of perceived value - functional, emotional, social, monetary, and epistemic - offer a comprehensive framework for understanding how customers evaluate their smart hotel experiences (Shen, 2016). Functional value relates to the practical benefits of smart technologies, such as improved efficiency and convenience. Emotional value stems from the feelings and affective states generated by the high-tech environment. Social value is associated with the prestige or status of staying in a technologically advanced hotel. The monetary value represents the perceived worth relative to the cost, while epistemic value relates to smart hotel technologies' novelty and learning experiences (Jiang & Kim, 2015; Wu & Cheng, 2018).

The current smart hotels' literature emphasizes its research on techno-socio integration features, personalized services, and operational efficiency. The primary research has focused on AI-driven concierge services, IoT-based room control systems, and data analytics regarding the guest experience. View of the relationship between customer loyalty in smart hotels and factors (in Yunnan, China) However, the influence factor analysis model about consumer trust may still have a broad space requirement. The research gaps that have not yet been clarified include the influence of demographic features on smart hotel preference and the partially mediated effect among service quality through technology enablers to customer loyalty. In addition, the interaction between traditional care and high tech in building customer loyalty is an inadequately explored area. This research gap presents an opportunity to investigate how demographic variables and multidimensional service quality influence customer loyalty in the unique setting of smart hotels in Yunnan, potentially revealing insights crucial for the region's rapidly evolving hospitality sector.

Research Hypothesis

H1: Differences in demographic factors generate differences in customer loyalty in smart hotels in Yunnan, China.

H2: Service quality influences customer loyalty in smart hotels in Yunnan, China.

H3: Perceived value influences customer loyalty in Yunnan, China.

Research Objective

1. To study the demographic factors that generate differences in customer loyalty in smart hotels in Yunnan, China.
2. To study the influence of service quality on customer loyalty in smart hotels in Yunnan, China.

3. To study the influence of perceived value on customer loyalty in smart hotels in Yunnan, China.

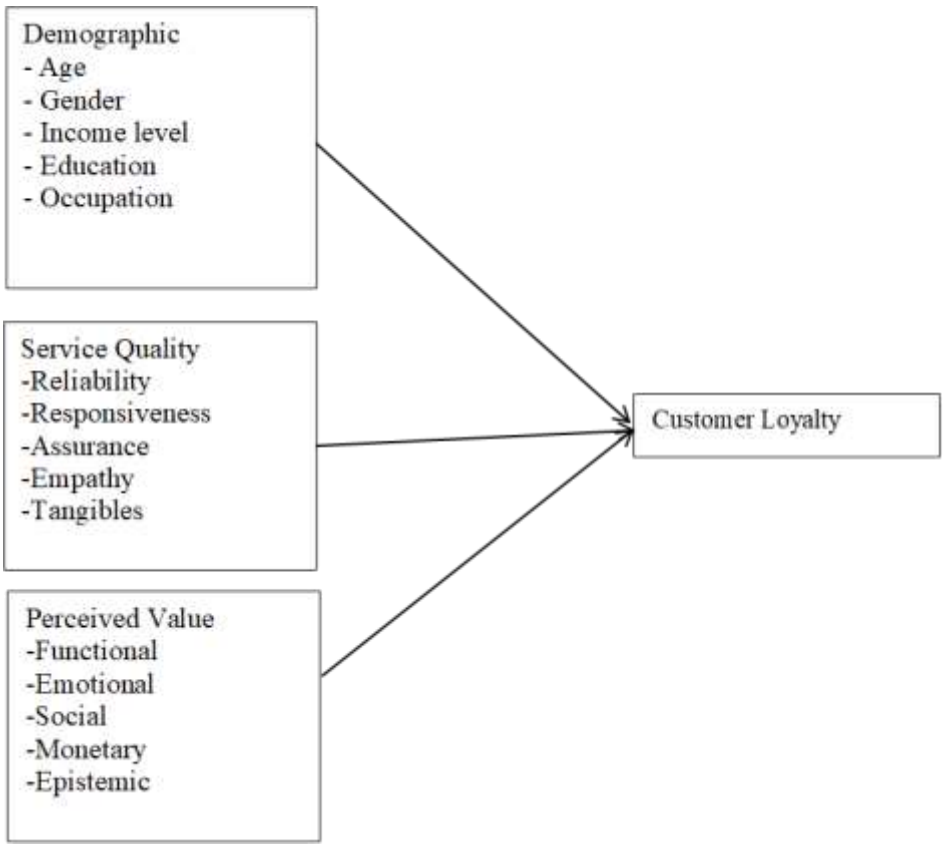

Figure 1. Research Framework

REVIEW OF LITERATURE

Demographic factors

In today's highly competitive hotel industry, customer loyalty is crucial for sustained growth and competitive advantage. This is particularly true in smart hotels, where understanding and meeting the diverse needs of customers is vital for enhancing loyalty. Demographic variables play a significant role in customer loyalty research. Numerous scholars have explored the influence of variables such as age, gender, income level, education, and occupational field on customer loyalty (Wang, 2023; Zou and Lin, 2024; Brown, 2019).

Service Quality

Service quality is a multifaceted concept encompassing various dimensions that contribute to the overall customer evaluation of a service experience. In the context of this research, service quality is conceptualized through five key dimensions: functional, emotional, social, monetary, and epistemic (Seo & Um, 2023). Similarly, service quality brings engagement into actions that foster compassion and loyalty (Margulies, 2024). These dimensions collectively shape customers' perception of service quality and are crucial in determining their satisfaction and loyalty toward a service provider. Ultimately, Margulies (2024) argues for a holistic understanding of Service quality, asserting that true enlightenment manifests through good practice. By examining these dimensions within the service quality framework, this study aims to gain a deeper understanding of how they influence customer loyalty, particularly in the context of smart hotels in Yunnan province.

Other scholars' research further supports the significant influence of service quality on customer loyalty. For example, Luo (2022) emphasizes the central role of service quality in forming customer loyalty. Zhang (2022) discovered that customers are more likely to form

long-term loyalty when they perceive higher service quality. Cai's (2022) research also indicates that service quality is one of the determinant factors affecting customer loyalty. In recent studies, Xu et al. (2022) also confirmed the significant positive influence of service quality on customer loyalty and emphasized the importance of service quality in enhancing customer loyalty. Lastly, Yang's (2022) research further explored the relationship between service quality and customer loyalty and found that service quality significantly positively influences customer loyalty.

Perceived Value

The concept of perceived value is a multifaceted construct that plays a pivotal role in understanding consumer behavior and loyalty. In the context of this research, perceived value is conceptualized through five key dimensions: reliability, responsiveness, assurance, empathy, and tangibles (Jiang, Jun & Yang, 2016). These dimensions collectively shape customers' overall value perception, influencing their satisfaction and subsequent loyalty toward a service provider. By examining these dimensions within the framework of perceived value, this study aims to gain a deeper understanding of how they contribute to customer loyalty, particularly in the context of smart hotels in Yunnan province.

Perceived value, as conceptualized by Tang et al. (2024), refers to the overall evaluation of a product or service based on the trade-off between the benefits received and the costs incurred. In the context of smart hotels, customers perceive value in tangible services such as room amenities and in the intangible experiences facilitated by technology. Multiple studies have confirmed the pivotal role of perceived value in fostering customer loyalty. Li (2024) researched the service industry and found that customer loyalty is strongly influenced by the perceived value experienced during the purchase process. Similarly, Mei and Zhao (2024) emphasized that understanding and meeting customers' actual needs, which directly relate to their perceived value, is essential for cultivating loyalty. These findings align with the argument that perceived value acts as a driving force behind customer loyalty.

In the hospitality sector, Mei and Zhao(2024) examined the relationship between perceived value and customer loyalty among tourists and concluded that perceived value notably influences loyalty. Specifically, tourists who perceive higher value from their travel experiences tend to exhibit greater loyalty to the destination and associated services. This finding resonates with the notion that smart hotels in Yunnan can enhance customers' overall satisfaction and loyalty by offering innovative and value-added services.

Customer Loyalty

Customer loyalty is the tendency of consumers to buy products or services from the same brand. Building customer loyalty is very important to reduce the company's costs. As we know, retaining existing customers is cheaper than getting new customers (Zineldin, 2006). With the widespread application of smart technology in the hotel industry, customer loyalty has become a crucial indicator for measuring the success of smart hotels. Customer loyalty is not only related to the sustained revenue of hotels but also directly influences their brand image and market competitiveness (Karim & Rabiul, 2024).

METHODOLOGY

Population and Sample

Population

The population of this study is the one who has stayed at Huaikun Platinum Port Hotel, Kunming Chengji Dianzhong Hotel, Huagu Hotel, Qingtian Xinyue Hotel, Kunming Ranlian Hotel, Shizong Wenbi Boutique Hotel, Wanhua International Hotel, Baiman Waterscape Hotel and Xishuangbanna Jixianggu Hotel. The number of population is unknown. So, it is unlimited.

Sample

The determination of the sample size in this research follows the Yamane Sampling Sample Size Scale, a recognized statistical method for ascertaining the requisite sample size (Samar, 2017). Pursuant to the Taro Yamane Sample Size Table, considering an unlimited

population, an error probability of 0.05 or 5% (at a 95% confidence level), the minimum sample size is calculated to be 400.

Sampling Method

Due to the infinite population, the sampling method in this study is based on non-probability sampling, which is particularly convenient.

Research Instrument

Part 1: Demographic Factors: This section includes basic personal information about the participants, such as gender, age, income level, educational background, and occupational field. The questionnaire is close-ended.

Part 2: Perceived Value and Service Quality: This section aims to gather the participants' opinions on perceived value and service quality in the context of smart hotels in Yunnan. The questionnaires are designed to collect the respondents' opinions using a 5-point Likert scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree).

Part 3: Customer Loyalty: This section aims to ascertain the participant's level of customer loyalty towards smart hotels in Yunnan. The surveys are structured to use a 5-point Likert scale to get respondents' opinions on their loyalty towards these hotels.

Content Validity and Reliability

IOC (Item Objective Congruence Index) content validity. To address the issues with the research, three specialists in developing research tools assessed the questions' content and measurement. These specialists evaluated the surveys in accordance with predetermined standards.

Therefore, projects with an IOC index of 0.5 or higher in this study will be considered effective and consistent with the research objectives.

The constructs are related to the service quality, which exhibited high reliability. The Cronbach's alpha values for reliability, responsiveness, assurance, empathy, and tangibles were 0.839, 0.805, 0.794, 0.802, and 0.801. similarly, perceived value with Cronbach's alpha values for functional, emotional, social, monetary, and epistemic were 0.813, 0.790, 0.831, 0.846, and 0.834. finally, the construct measuring customer loyalty achieved a Cronbach's alpha of 0.796.

As all Cronbach's alpha values exceeded the threshold of 0.70, the questionnaire demonstrates strong reliability and is appropriate for collecting future empirical data.

Data Collection

In this study, the method of data collection was using the questionnaires. The researcher has sent questionnaires to samples "Wenjuanxing". The researcher has collected 400 questionnaires from the samples.

Data Analysis

Descriptive Statistics:

The researcher will use frequency and percentage to analyze respondent demographics using descriptive statistics, including age, gender, income level, educational background, and occupational field. This summary will also encompass the independent variables, namely perceived value and service quality, and the dependent variable, customer loyalty. The statistical summary will include measures such as means, standard deviations, and ranges to describe the study's various aspects comprehensively.

Inferential statistics:

The following inferential statistics were applied to the data analysis and hypothesis testing at a 0.05 level of statistical significance.

H1: Differences in demographic factors generate differences in customer loyalty in smart hotels in Yunnan, China.

Independent Sample t-test (Gender) and the One-way ANOVA (Age, Income level, Education, and Occupational) were applied.

H2: Service quality influences customer loyalty in smart hotels in Yunnan, China.

The statistics used is multiple linear regression to analyze perceived value's influence on customer loyalty.

H3: Perceived value influences customer loyalty.
Similarly, multiple linear regression examines the influence of service quality and customer loyalty.

RESULT AND ANALYSIS

Descriptive Analysis

Table 4.1 The Frequency and Percent Frequency Classified by Demographic Factor

		Frequency	Percent
Age	26-30 years old	7	1.75
	31-40 years old	46	11.50
	41-50 years old	61	15.25
	51-60years old	128	32.00
	Above 61 years old	158	39.50
Gender	Male	211	52.75
	Female	189	47.25
Income Level	Below 3000 yuan	25	6.25
	3000-5000 yuan	26	6.50
	5001-8000 yuan	82	20.50
	8001-12000 yuan	100	25.00
	Above 12001 yuan	167	41.75
Educational	Junior high school or below	64	16
	High school/technical secondary school	160	40
	Bachelor's degree/college	120	30
	Master's degree or above	56	14
Occupational	Enterprise/company employee	21	5.25
	Freelancer	35	8.75
	Government official	104	26.00
	Student	98	24.50
	Other	142	35.50
Total		400	100

Demographic Factors

Based on Table 4.1, the respondents in this survey are primarily concentrated in the older age group, with those aged 51-60 and above 61 years old accounting for 71.5% of the sample, indicating a high representation of older individuals. Conversely, the representation of younger groups is relatively low, with only 13.25% coming from the 26-40 age range. Regarding gender distribution, male respondents constitute 52.75%, while female respondents comprise 47.25%, showing a slight male advantage. Regarding income, 41.75% of respondents earn over 12,001 yuan per month, indicating that the overall sample leans toward a middle-to-high income level, with low-income respondents (earning below 3,000 yuan) comprising only 6.25%. Regarding education level, 40% of respondents have a high school or technical secondary school education, while 30% have a bachelor's degree, reflecting a generally high level of education. In the occupational field, respondents from the "Other" category account for 35.5%, while government officers and students comprise 26% and 24.5%, respectively, with a relatively low proportion of enterprise employees at only 5.25%.

Service Quality

Table 4.2 The Descriptive Statistics of Service Quality

	Mean	S.D	Meaning	RANK
Reliability	3.9650	0.91699	Agree	3
Responsiveness	3.8300	0.91279	Agree	5
Assurance	4.0300	0.91990	Agree	1
Empathy	4.0000	0.95513	Agree	2
Tangibles	3.9375	1.07307	Agree	4
Service Quality	3.9950	0.81648	Agree	

Based on the descriptive statistics presented in Table 4.2, the overall mean score for service quality is 3.9950, with a standard deviation of 0.81648, indicating that respondents generally agree on the quality of service provided. Among the five service quality dimensions, Assurance has the highest mean value of 4.0300, indicating that the customer's opinion on assurance is at an agreed level, ranking first. Empathy follows closely with a mean of 4.0000, indicating that the customer's opinion on empathy is agreed upon. Reliability and tangibles rank third and fourth, with mean scores of 3.9650 and 3.9375, indicating that the opinion of the customer on reliability and tangibles are at an agreed level, respectively. Responsiveness ranks last with a mean of 3.8300, indicating that customer opinion on responsiveness is at an agreed level.

Perceived Value

Table 4.3 The Descriptive Statistics of Perceived Value

	Mean	S.D	Meaning	RANK
Functional	3.9000	1.04534	Agree	4
Emotional	4.0000	1.02353	Agree	2
Social	3.8900	1.11400	Agree	5
Monetary	4.0050	1.02597	Agree	1
Epistemic	3.9650	1.03269	Agree	3
Perceived Value	3.9600	0.90024	Agree	

Table 4.3 presents the descriptive statistics for perceived value, with an overall mean of 3.9600 and a standard deviation of 0.90024, suggesting that respondents generally agree on the value they perceive from the service. Among the five dimensions of perceived value, Monetary value ranks highest with a mean score of 4.0050, indicating that the customer's opinion on monetary is at an agreed level. Emotional value is closely followed by a mean of 4.0000, indicating that customer opinion on emotions is at an agreed level. Epistemic value ranks third with a mean of 3.9650, indicating that the customer's opinion on epistemic is at an agreed level. Functional value ranks fourth with a mean of 3.9000, indicating that the customer's opinion on functional is at an agreed level. Social value ranks lowest at 3.8900, indicating that customer opinion on social is at an agreed level.

Customer Loyalty

Table 4.4 The Descriptive Statistics of Customer Loyalty

	Mean	S.D	Meaning
Customer Loyalty	3.9825	1.014775	Agree

The descriptive statistics in Table 4.4 show that the mean score for customer loyalty is 3.9825, with a standard deviation of 1.014775, indicating that respondents generally agree on their loyalty to smart hotels in Yunnan, China.

Inferential Statistics

Differences in Demographic Factors Generate Differences in Customer Loyalty

Inferential statistics were employed to test the hypotheses at a statistical significance level of 0.05. The analysis evaluated the influence of the dependent variable on independent variables under the following hypotheses.

Table 4.5: Summary Result on Hypothesis 1

Demographic	**Customer Loyalty**
Age	√
Gender	√
Income level	√
Education	√
Occupation	√

The mean difference has a significant value of more than 0.05.

The mean difference has a significant value less than the level of 0.05.

As can be seen from Table 4.5, this study finds that age ($F = 98.147$, $p = 0.000$), gender($t(398) = -8.565$, $p = 0.000$), income level ($F = 24.250$, $p = 0.000$), education ($F = 29.436$, $p = 0.000$) and occupation($F = 17.945$, $p = 0.000$) have a significant influence on customer loyalty.

Overall, the LSD approach is used to examine the influence of age, gender, educational level, and Occupation on customer loyalty.

Service Quality Influence on Customer Loyalty

H2: Service quality influences customer loyalty in smart hotels in Yunnan, China.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

Where Y = Customer Loyalty

X_1 = Reliability

X_2 = Responsiveness

X_3 = Assurance

X_4 = Empathy

X_5 = Tangibles

Table 4.6: Summarize the Model of Service Quality Influence on Customer Loyalty

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
5	.878	.771	.768	0.48835

e.Predictors: (Constant), Assurance, Responsiveness, Empathy, Tangibles, Reliability

table 4.6 presents the results of a multiple linear regression analysis examining the influence of service quality dimensions—namely assurance, responsiveness, empathy, tangibles, and

reliability—on customer loyalty with a multiple correlation(R) of 0.878 at a significant level of 0.05, the predictive analysis equation's capability is 76.8%.

Table 4.7:The Multiple Linear Regression Coefficients for Service Quality Influence on Customer Loyalty

Model	Coefficient[a]				
	Unstandardized Coefficients		Standardized Coefficients Beta	t	sig
	B	Std.Error			
Constant	-.398	.136		-2.926	0.004*
Reliability	.437	.051	.396	8.603	0.000*
Responsiveness	.306	.038	.275	7.975	0.000*
Assurance	.165	.041	.156	4.045	0.000*
Empathy	.120	.037	.127	3.249	0.001*
Tangibles	.079	.029	.071	2.679	0.008*

a.Dependent Variable: Customer Loyalty

Equation 1: Y= -0.398 +0.437X1 +0.306X2+0.165X3+0.120X4+0.079X5

(0.004)* (0.000) * (0.000) * (0.000) * (0.001) * (0.008) *

FOR Y=Customer Loyalty

X1= Reliability, X2= Responsiveness,X3= Assurance,X4= Empathy,X5= Tangibles

From Table 4.7, in terms of the Standardized Coefficients, it can be observed that Reliability is the most critical variable influencing customer loyalty, and the regression coefficients are 0.396, followed by Responsiveness, Assurance, and Empathy with coefficients 0.275， 0.156 and 0.127, respectively. The less influence is tangible, whose coefficient is 0.071.

Perceived Value Influence on Customer Loyalty

H3: Perceived value influences customer loyalty in Yunnan, China.

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3$

Where Y = Customer Loyalty

X1 = Functional

X2 = Emotional

X3 = Social

X4=Monetary

X5=Epistemic

Table 4.8: Summarize the Model of Perceived Value Influence on Customer Loyalty

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
3	.937	.878	.877	.35571

c.Predictors: (Constant), Emotional, Social, Functional

Table 4.8 presents the results of a multiple linear regression analysis examining the influence of service quality dimensions—namely Functional, Emotional, Social, Monetary, and Epistemic—on customer loyalty with a multiple correlation(R) of 0.937 at a significant level of 0.05, the predictive analysis equation's capability is 87.7%.

Table 4.9:The Multiple Linear Regression Analysis of Perceived Value Influence on Customer Loyalty

Coefficienta						
Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	sig
		B	Std.Error			
1	(Constant)	.077	.078		.990	0.323
	Emotional	.652	.028	.658	23.269	0.000*
	Social	.215	.026	.237	8.237	0.000*
	Functional	.118	.023	.121	5.073	0.000*

a. Dependent Variable: Customer Loyalty

Equation 2: $Y= 0.077 +0.652X_2+0.215X_3+0.118X_1$

(0.323) (0.000)* (0.000)* (0.000)*

FOR Y = Customer Loyalty

X_1 = Functional, X_2 = Emotional, X_3 = Social, X4=Monetary, X5=Epistemic

From Table 4.9, in terms of the Standardized Coefficients, it can be observed that Emotional is the most critical variable influence on customer loyalty, and the regression coefficients are 0.658 and, followed by Social and Functional with coefficients 0.237 and 0.121, respectively.

DISCUSSION AND CONCLUSIONS

Demographic

The study examined demographic characteristics and their influence on customer loyalty, and 400 valid responses were collected. Most participants were above 61 years old(39.5%). In terms of gender, most respondents were male, 52.75%. Regarding income, 41.75% of respondents earn over 12,001 yuan per month. Regarding education level, 40% of respondents have a high or technical secondary school education. In the occupational field, most participants were Other(35.5%).

This study found that age ($F = 98.147$, $p = 0.000$), gender($t(398) =-8.565$, $p = 0.000$), income level($F = 24.250$, $p = 0.000$), education ($F = 29.436$, $p = 0.000$) and occupation($F = 17.945$, $p = 0.000$) have significant influence on customer loyalty.

Overall, the LSD approach examines the influence of Age, Gender, Occupational，Educational, and Income Level on customer loyalty.

Service Quality

Based on the results of a multiple linear regression analysis examining the influence of service quality dimensions—namely assurance, responsiveness, empathy, tangibles, and reliability—on customer loyalty with a multiple correlation(R) of 0.878 at a significant level of 0.05, the predictive analysis equation's capability is 76.8%.

Regarding the Standardized Coefficients, Reliability is the most critical variable influencing customer loyalty, and the regression coefficients is 0.396, followed by Responsiveness, Assurance, and Empathy with coefficients of 0.275， 0.156 and 0.127, respectively. The less influence is tangible, whose coefficient is 0.071.

Perceived Value

Based on the results of a multiple linear regression analysis examining the influence of service quality dimensions—namely Functional, Emotional, Social, Monetary, and

Epistemic—on customer loyalty with a multiple correlation(R) of 0.937 at a significant level of 0.05, the predictive analysis equation's capability is 87.7%.

Regarding the Standardized Coefficients, it can be observed that Emotional is the most critical variables influence on customer loyalty, and the regression coefficients is 0.658, followed by Social and Functional with coefficients of 0.237 and 0.121, respectively.

DISCUSSION

Demographic

This study found that age, gender, income level, education, and occupation significantly influence customer loyalty. These results, consistent with Wang (2023), found that demographic factors generate differences in customer loyalty. These results are also consistent with Zou and Lin (2024), who found that demographic factors generate differences in customer loyalty.

Service Quality Influence on Customer Loyalty

The study found that all dimensions of service quality significantly influence customer loyalty. This result, consistent with Dam and Dam (2021), indicates that all aspects of service quality significantly influence customer loyalty. This aligns with the findings of Nguyen et al. (2020), who discovered that service quality, customer satisfaction, and switching costs jointly influence customer loyalty. These results are also consistent with Zhao, Wang & Xu (2024); the integration of smart technologies in hotels can lead to improved customer satisfaction and loyalty by enhancing the overall perceived value of the stay.

Perceived Value Influence on Customer Loyalty

The analysis also revealed that emotional, social, and functional values significantly influence customer loyalty. These results are consistent with El-Adly's (2019) study, Modelling the Relationship between hotel perceived value, customer satisfaction, and customer loyalty. The result found that perceived value influences customer loyalty. These results are consistent with Phiphopaekasit & Anunthawichak's (2022) study Path Analysis to Identify Factors Influencing Customer Loyalty of Green Hotels and Resorts in Thailand. The results found that perceived value influences customer loyalty to Green Hotel and Resort in Thailand.

Implication for Practice

The findings of the influence of service quality and perceived value on smart hotels' customer loyalty can provide some implications for practice, as shown below.

The study determined that age, gender, income level, education, and occupation significantly influence customer loyalty. Different age groups may have different needs and preferences for smart hotels. Young people may be more inclined to experience high-tech smart devices and innovative services, while older people may attach more importance to personalized and convenient traditional service methods. Male and female customers may perceive hotel services differently. Female customers may pay more attention to ambiance and detailed service, while male customers may prefer convenience and technological innovation. Smart hotels can design services and facilities with gender differences in mind.

Regarding career and income, high-income customers tend to pay more attention to personalized, luxurious, intelligent services, while low - and middle-income customers may value cost performance and essential services more. The hotel can provide hierarchical intelligent services according to the customers' income level and professional background. Customers with higher education levels are generally more receptive to innovative technology and can adapt and enjoy the services provided by smart hotels more quickly. In contrast, less-educated customers may feel strange and uneasy about smart services. In order to increase the loyalty of different customer groups, smart hotels can provide easy-to-operate equipment and help customers better use smart facilities through guidance. In short, according to different demographic factors, smart hotels should flexibly adjust their service content and strategies to

meet the needs of various customers, improve their perceived value and service quality satisfaction, and effectively enhance customer loyalty.

The study found that reliability is the most critical variable influencing customer loyalty, so smart hotels should pay attention to innovative and differentiated services and ensure the long-term reliability of their service quality when promoting customer loyalty. By ensuring the stable operation of technical equipment, standardizing service processes, strengthening staff training, optimizing customer feedback mechanisms, and other measures, smart hotels can enhance customer trust and loyalty and stand out in the fierce market competition.

The study found that emotional factors are also important factors influencing customer loyalty. The smart hotel can combine Yunnan's traditional culture and natural landscape to design smart service projects with local characteristics. For example, smart tour guides can provide customers cultural explanations of Yunnan's scenic spots through virtual reality technology. The smart room can show the local characteristics of the elements (such as Yunnan's special fragrance folk music) through automatic adjustment so that customers enjoy the smartness and convenience and feel the strong cultural atmosphere. Further deepen the emotional connection between customers and the hotel, increasing customer loyalty.

Recommendation for Future Research

This study discusses the influence of service quality and perceived value of smart hotels in Yunnan on customer loyalty, but it has certain limitations. Here are some suggestions for future research on the limitations of this study:

First of all, this study only focuses on smart hotels in Yunnan. Future studies can expand the sample from smart hotels in Yunnan to more extensive areas, such as smart hotels in regions with different economic development levels and tourism resource characteristics, and compare the differences in service quality, perceived value, and loyalty of customers in different regions to get more generalizable conclusions. It can also be extended to international countries with characteristics and representatives in developing smart hotels to study the interaction mechanism between these factors under different cultural backgrounds and consumption habits and enrich the research results' application scenarios.

Second, this study adopts quantitative research based on a data survey. Future studies can use qualitative research methods such as in-depth interviews and focus groups to deeply understand the real thoughts and feelings of customers and dig out some details that are difficult to reach in quantitative methods such as questionnaire surveys, such as the unique cognition of customers on the promotion of loyalty of a certain feature service of smart hotels to provide more powerful explanations and supplements for quantitative research results.

Finally, this study discusses service quality and perceived value. Future studies can add variables such as the digital marketing effect of hotels, technological acceptance degree of customers, environmental protection measures of hotels, in-depth analysis of how these new factors and original factors synergistic influence customer loyalty, and build a more realistic comprehensive impact model.

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