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

LIYANG OU

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
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of the Requirements for the Master's Degree

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Date..…Month..…Year……

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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 customers who had stayed at Smart Hotels in Yunnan, China. 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 0.05 significance level. The results showed that most respondents were over 61 years old, primarily male, had a high school or technical secondary education, had a monthly income of more than 12,001 yuan, and had 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 (reliability, responsiveness, assurance, empathy, and tangibles) significantly influences customer loyalty. For the last hypothesis tested, the service quality (functional, emotional, and social value) also positively and significantly influences customers.

Keywords: Smart Hotel, Service Quality, Perceived Value, Customer Loyalty

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Furthermore, I am indebted to the survey participants who kindly shared their time and experiences by completing the questionnaire. Their insightful responses were the cornerstone of this research, providing a rich dataset that enabled the examination of key factors influencing customer loyalty in smart hotels. Without their cooperation, this study's findings would not have been possible.

I also wish to acknowledge the support of various institutions and organizations that facilitated this research. Their infrastructure, resources, and administrative support played a vital role in ensuring the study's smooth progress.

Finally, I am grateful for the unwavering support and understanding of my family and friends, who have been a constant source of encouragement and motivation throughout this endeavor. Their belief in my abilities and their willingness to provide emotional support during challenging times were instrumental in helping me navigate the research journey.

In conclusion, this research is a testament to the collaborative efforts of many individuals and institutions. I am humbled by the support I have received and committed to applying the insights from this study to advance knowledge in the field of innovative hotel management and customer loyalty.

Liyang OU

CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER I

INTRODUCTION

1.1 Background and Rationale

An important area of research has become the influential factors on customer loyalty in the case of smart hotels, especially in China's Yunnan province. The rapid development of technology and the growing importance of personalized customer services have transformed the entire 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 growth and hotel profitability in an ultra-competitive hotel market (Sagar, 2024).

Customer loyalty is also heavily influenced by the quality of service. Service quality refers to the extent to which the service provided meets or exceeds customers' expectations. It manifests in five basic dimensions: Reliability, Responsiveness, Assurance, Empathy, and Tangibles. Reliability refers to a company's ability to deliver accurate, error-free service on schedule. Responsiveness is the act of promptly and willingly responding to customer needs. Assurance builds trust among service providers by emphasizing competence, courtesy, credibility, and security. Empathy involves all employees showing caring, individualized attention to customers' needs and concerns. Tangibles are the evidence of service, e.g., physical facilities, equipment used to deliver the service, and the appearance of personnel. With high quality, especially in hotels that incorporate advanced technologies, customer satisfaction and loyalty will increase significantly. This leads to the only conclusion: high service quality positively affects customer loyalty across many industries, such as banking 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, intelligent room control, and personalized recommendations to ameliorate the overall guest experience and foster long-term loyalty (Rane et al., 2023).

Customer loyalty is a complex, multifaceted phenomenon that refers to a customer's propensity to continue purchasing or patronizing a particular brand or service over an extended period. It involves multiple behaviors, such as repeat purchases, positive word of mouth, and a high Net Promoter Score. Various factors, including quality of service, trust, and perceived value, influence customer loyalty. Satisfactory experiences are more likely to generate customer loyalty because customers would see their expectations being met or even exceeded. Trust is critical because customers should be confident that the hotel services they pay for are consistently delivered reliably and credibly. Perceived value is important because customers evaluate the benefits derived from a product or service in relation to the costs and psychological costs incurred. Customer satisfaction and trust have consistently been found to be key drivers of customer loyalty across industries. For smart hotels, maintaining customer satisfaction and building trust through reliable and personalized services are vital antecedents of customer loyalty (Agha et al., 2021).

The combination of sophisticated technologies in smart hotels offers ample opportunities to enhance customer satisfaction and service quality. For example, a big data platform could analyze customers' preferences and behaviors, helping hotels provide tailor-made services and offers to guests. AI technologies provide personalized recommendations, anticipate guests' needs, and automate mundane tasks, enhancing the guest experience. Additionally, equipment such as a voice-activated assistant and automatic lighting and temperature adjustment in bright rooms can also increase guests' convenience and comfort. These high-techs not only improve service quality but also increase customer satisfaction and loyalty (Heiets et al., 2022).

In addition, one cannot overstate the significance of demographic factors in influencing customer loyalty. Diverse demographic groups have different choices and

prospects, as these disparities can profoundly influence an individual's perception of service quality and likelihood of brand loyalty. For example, younger, tech-savvy consumers can appreciate the convenience and innovation of smart hotels. At the same time, older individuals who may be less digital will expect personalized service and comfort from hotels. Understanding these kinds of differences in smart hotels is necessary to tailor their services and marketing strategies to different customer segments. By leveraging demographic data, smart hotels can develop tailored marketing campaigns and individualized service offerings and enhance core processes to meet guests' needs better. Therefore, they can prosper in forming brand-loyal guests (Buhalis et al., 2023).

Alongside demographic factors and service quality, brand reputation, pricing, and competitive positioning also significantly 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 ones, can drive repeat purchases and customer 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 a unique value proposition can lead to high customer loyalty levels and, consequently, long-term success (Zumente & Bistrova, 2021).

Customer loyalty is a key strategy for businesses to grow and achieve success. Smart hotels need to consolidate their brand by leveraging advanced technology to deliver personalized experiences to their customers in the hospitality industry. Nevertheless, there are still insufficient studies on the factors that affect customer loyalty in this industry, especially in Yunnan, China's dynamic and diversifying market. As advanced technology becomes increasingly integrated into the hospitality industry, smart hotels must understand how demographic characteristics and service quality influence customer loyalty. This understanding is crucial for maintaining market survival in a rapidly evolving technological landscape by differentiating hotel

products and services, ultimately leading to long-term profitability. Smart hotels, which are considered to be an industry feature for delivering a dignified and technologically driven custom experience, so far have a noticeable lack of attention for a holistic understanding of the relationship between demographic characteristics, service quality, and customer loyalty, in the mentioned research background, and this specific area (Naini et al., 2022).

Characteristics of demographic types, such as age, gender, income level, education, and occupational fields, are imperative factors in shaping customers' expectations and choices. These factors influence how the customer segment perceives and values the services provided by smart hotels. For instance, young "techno customers" may prioritize technological innovation and seamless digital interaction, whereas older customers may prefer traditional hospitality elements, such as personalized attention and physical convenience.

Customer loyalty is determined not only by customer satisfaction but also by service quality. The five dimensions of service quality are reliability, responsiveness, assurance, empathy, and tangibles. High service quality, meeting and exceeding customer expectations, and providing satisfaction promote customer loyalty. However, in the context of smart hotels, integrating advanced technology presents both opportunities and challenges. Technological advancements can facilitate operations and deliver personalized services, but they require substantial capital investments and ongoing updates to maintain effectiveness and competitiveness. However, the existing literature focuses on traditional dimensions of service quality without considering the original consequences of technological innovation in the context of smart hotels. As a result, this shortcoming leads to a lack of deeper insights into service-quality effects in technologically advanced hospitality settings, particularly regarding customer loyalty.

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 becomes more complex due to the integration of advanced technologies. The five dimensions of perceived value — functional, emotional, social, monetary, and epistemic—offer a comprehensive framework for understanding how customers evaluate their innovative hotel experiences (Shen, 2016). Functional value refers to the practical benefits of smart technologies, including 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. Monetary value represents the perceived worth relative to the cost, while epistemic value relates to the novelty and learning experiences offered by innovative hotel technologies (Jiang & Kim, 2015; Wu & Cheng, 2018).

The significance of perceived value in fostering customer loyalty cannot be overstated, especially in Yunnan's diverse and evolving market. As smart hotels in this region strive to differentiate themselves and cater to a mix of tech-savvy younger consumers and those who prioritize traditional hospitality elements, understanding the nuances of perceived value becomes crucial. The interplay between advanced technologies and perceived value adds a new dimension to the factors influencing customer loyalty in smart hotels (Buhalis & Leung, 2018). For instance, while AI-powered concierge services and IoT-enabled room controls may enhance functional and epistemic value for some guests, they might influence emotional value differently across demographic segments (Tussyadiah, 2020). Moreover, the perceived value of these technological advancements may vary based on factors such as the guest's level of tech-savviness, travel purpose, and cultural background - all of which are particularly relevant in Yunnan's diverse tourism landscape (Chen et al., 2022). By comprehensively examining perceived value alongside demographic characteristics and service quality, researchers can gain deeper insights into the dynamics of customer loyalty in smart

hotels, addressing the current gap in the literature and providing valuable guidance for the rapidly evolving hospitality sector in Yunnan and beyond (Kim & Han, 2020).

The current smart hotel literature emphasizes techno-socio integration features, personalized services, and operational efficiency. The primary focus of the research has been on AI-driven concierge services, IoT-based room control systems, and data analytics related to the guest experience—view of the relationship between customer loyalty in smart hotels and factors (in Yunnan, China). However, the influence factor analysis model of consumer trust may still have a wide range of requirements. The remaining research gaps include the influence of demographic features on smart hotel preferences and the partially mediated effect of service quality via technology enablers on customer loyalty. In addition, the interaction between traditional care and high-tech in building customer loyalty remains underexplored. This research gap presents an opportunity to investigate how demographic variables and multidimensional service quality specifically influence customer loyalty in the unique setting of smart hotels in Yunnan, potentially revealing insights crucial to the region's rapidly evolving hospitality sector.

1.2 Research Questions

The research questions are as follows:

1) How do the differences in demographic factors generate differences in customer loyalty in smart hotels in Yunnan, China?

2) How does service quality influence customer loyalty in smart hotels in Yunnan?

3) How does perceived value influence customer loyalty in smart hotels in Yunnan?

1.3 Research Hypotheses

Based on the research questions above, the following research hypotheses can be proposed:

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

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

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

1.4 Research Objectives

1. To study the differences in 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.

1.5 The Scope and Limitation of the Study

1.5.1 Content

This study aims to investigate the influence of service quality and perceived value on customer loyalty of smart hotels in Yunnan, China. Specifically, it focuses on three main variables: demographic variables, perceived value, and service quality. The research aims to investigate how these variables impact customer loyalty, the primary outcome variable of interest.

1.5.2 Area of Study

The study was conducted in the context of smart hotels located in Yunnan

province, China. Yunnan was chosen as the area of study due to its growing tourism industry and the increasing adoption of innovative hotel technologies. The findings of this study were expected to provide insights specifically relevant to the smart hotels sector in Yunnan.

1.5.3 Sample and Population

The population of interest for this study comprised customers of smart hotels in Yunnan province. Due to the specific context and practical constraints, it was not feasible to determine an exact numerical figure for the entire population without conducting a comprehensive survey or relying on up-to-date industry reports. Therefore, the population size remained unspecified numerically.

Since the exact number of the target population, which is the customers of smart hotels in Yunnan Province, is unknown, the sample size for this study was determined using the Yamane table at a 95% confidence level with a sampling error within 5%. Based on these calculations, the sample size of this study is at least 400 clients in Yunnan Province.

1.5.4 Sampling Method

This study employed convenience sampling to select participants. This method was chosen for its ability to ensure sample diversity and representativity, thereby enhancing the credibility and universality of the study.

1.5.5 Duration

The primary method of data collection for this study involved distributing questionnaires to the target population, which consisted of customers of smart hotels in Yunnan Province. The survey period was from October to November 2024.

1.6 Research Framework

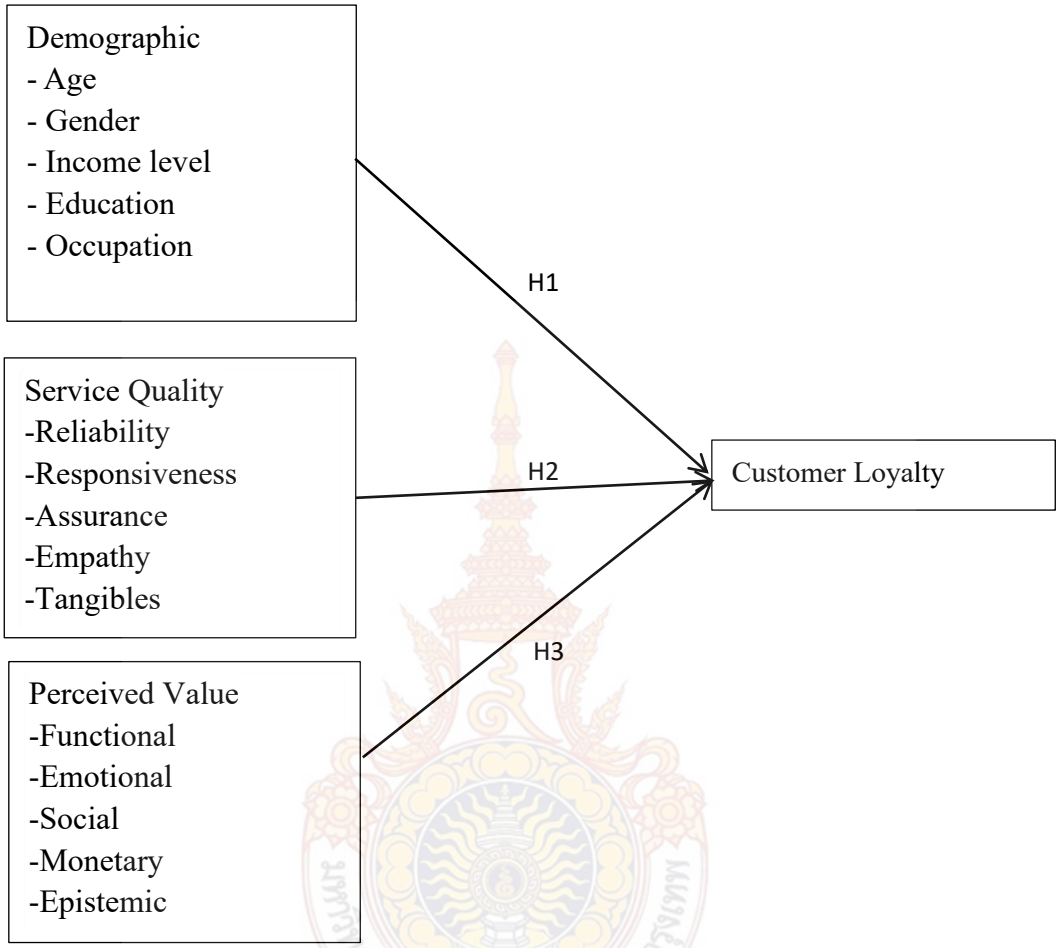


Figure 1.1 Conceptual Framework

1.7 Definition of Key Terms

Demographics refer to the numerical characteristics of a population, encompassing factors such as age, gender, income, education, and occupation.

Service Quality: Service quality refers to the degree of satisfaction a customer experiences with a service, relative to their expectations. Service quality is measured across five dimensions: functional, emotional, social, monetary, and epistemic. In the hotel sector, the quality service provided by technology-advanced hotels, in particular, has a long-term beneficial influence on customer satisfaction and

loyalty. According to several studies, service quality has a significant positive relationship with customer loyalty across various service sectors, including banking and hospitality (Khan et al., 2021).

Perceived Value: Perceived value refers to a customer's overall assessment of a product or service's utility, based on their perceptions of what is received and what is given. Perceived value is conceptualized through five key dimensions: reliability, responsiveness, assurance, empathy, and tangibles. These multidimensional aspects of perceived value significantly influence customer satisfaction and loyalty in the hospitality industry (Jiang & Kim, 2015).

Customer Loyalty: The likelihood that a customer will continue to purchase from or engage with a brand or service. Examples of this include repeat purchases, Net Promoter Score, and recommendations. Several factors, including satisfaction with the service, trust in the provider, and perceived value, influence loyalty. Several studies have demonstrated that customer satisfaction and trust are significant factors influencing loyalty in both the private and public sectors (Alkraiji & Ameen, 2022).

1.8 Benefits and Side Effects that will Occur to the Research Participants

1) In-depth understanding of customer needs and preferences

By studying the influence of service quality and perceived value on customer loyalty, study participants can gain insight into customer needs, expectations, and preferences. This understanding can help them design and optimize services more effectively in the bright hotel space, thereby increasing customer satisfaction and loyalty.

2) Improve the smart hotel service strategy.

The research results can provide strong support for the service strategy of

smart hotels. Participants can use these data to develop more effective service standards and improvement measures, thereby enhancing the hotel's service quality and improving customer loyalty.

3) Promote the development of the innovative hotel industry.

Research on the service quality and perceived value of Yunnan smart hotels can provide insights into industry trends and development directions. This will not only help promote the development of smart hotels but also provide a reference for the entire tourism and hospitality industry to drive innovation and progress.

4) Optimize resource allocation

By analyzing the relationship between service quality and customer loyalty, research participants can identify which service elements are most critical to customer loyalty, thereby optimizing resource allocation. This can help hotels allocate human, financial, and material resources more effectively, thereby improving overall operational efficiency.

5) Enhance market competitiveness

Understanding the specific influence of service quality and perceived value on customer loyalty can help smart hotels gain a competitive advantage. The study's results can help participants develop targeted marketing strategies to enhance the hotel's brand image and market share. In-depth understanding of customer needs and preferences

By studying the influence of service quality and perceived value on customer loyalty, study participants can gain insight into customer needs, expectations, and preferences. This understanding can help them design and optimize services more effectively in the bright hotel space, thereby increasing customer satisfaction and loyalty.

CHAPTER II

LITERATURE REVIEW

There are several smart hotels in the Kunming area, among which Kunming Chengji Dianzhong Hotel, Huaikun Platinum Port Hotel, and Huagu Hotel are the leading hotels for the intelligent solution of Future Residence Hotel. By introducing intelligent solutions, these hotels have improved operational efficiency, enhanced guest experience, and enhanced hotel competitiveness. In addition, there are other smart hotels in Yunnan, such as Qingtian Xinyue Hotel, Kunming Ranlian Hotel, Shizong Wenbi Boutique Hotel, Wanhua International Hotel, Baiman Waterscape Hotel, and Xishuangbanna Jixianggu Hotel. These hotels are located in various cities throughout Yunnan and have partnered with over 400 companies.

These data indicate that Yunnan has multiple smart hotels that have not only improved service quality and customer experience through intelligent solutions but also gained a favorable position in market competition.

Introducing the context of smart hotels in Yunnan, it is noteworthy that several establishments in the province embody the integration of technology and hospitality. These smart hotels in Yunnan utilize advanced technologies to enhance the guest experience, offering features such as automated check-in and check-out, personalized room settings controlled via smart devices, and AI-powered customer service for immediate assistance. By incorporating innovative elements, these hotels aim to provide a seamless, convenient stay for their patrons, aligning with the growing trend of brilliant hospitality in the region.

2.1 Related Theories

This section examines the impact of service quality and perceived value on

customer loyalty in smart hotels in Yunnan, China, with a specific focus on demographic variables.

2.1.1 Demographic

In today's highly competitive hotel industry, customer loyalty is considered essential for sustained growth and a competitive advantage. This is particularly true in the realm of smart hotels, where understanding and meeting customers' diverse needs is vital to enhancing loyalty. This study aims to explore the factors influencing customer loyalty in smart hotels in Yunnan, with special emphasis on demographic variables such as age, gender, income level, education, and occupational field.

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.

Age: Research indicates significant differences in customer loyalty across age groups. For instance, Wang (2023) found in his study that younger customers place greater emphasis on innovation and experience, demonstrating higher sensitivity to the technological features of smart hotels. Therefore, these technological factors may be more prone to influence their loyalty (Wang, 2023). By contrast, middle-aged and older customers may prioritize hotel stability and service quality, with these factors exerting a greater influence on their loyalty.

Gender is also a significant factor influencing customer loyalty. Research by Zou and Lin (2024) suggests that female customers tend to prioritize emotional connections and personalized services during the consumption decision-making process. Therefore, their loyalty to smart hotels may be more easily influenced by these aspects (Zou & Lin, 2024). Male customers, on the other hand, may prioritize service quality and perceived value, with these factors playing a more crucial role in their loyalty.

Income level, education, and occupational field: These variables also significantly influence customer loyalty. Brown (2019) demonstrated in his study that

high-income and highly educated customers often have higher expectations for service quality, which indirectly affects their loyalty (Brown, 2019). Meanwhile, customers from different occupational fields may exhibit significant differences in loyalty due to variations in work environments and social needs. The combined effect of these demographic variables influences customers' loyalty choices.

In summary, demographic variables, including age, gender, income level, education, and occupational field, have a significant influence on customer loyalty in smart hotels. To enhance customer loyalty, smart hotels should develop differentiated marketing strategies that target customers with diverse demographic characteristics, providing personalized services and experiences. Future research can further investigate the interactions between these demographic variables and their collective influence on customer loyalty.

2.1.2 Service Quality

Service quality is a multifaceted concept encompassing dimensions that contribute to customers' overall evaluation of a service experience. In this research, service quality is conceptualized as five key dimensions: functional, emotional, social, monetary, and epistemic. These dimensions collectively shape customers' perceptions of service quality and play a crucial role in determining their satisfaction and loyalty towards a service provider. 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.

In today's highly competitive hotel industry, customer loyalty is considered essential for sustained growth and a competitive advantage. Particularly in the realm of smart hotels, understanding and meeting customers' diverse needs is paramount to enhancing customer loyalty. This study aims to investigate the factors that influence customer loyalty in smart hotels in Yunnan, with a particular focus on service quality as a key explanatory variable. This paper analyzed the influence of service quality on customer loyalty and summarized the research findings of relevant scholars through a

literature review.

Service quality, as the overall evaluation and perception of the service provided by service providers, is widely recognized as a significant factor affecting customer loyalty. Multiple scholars have supported this viewpoint and delved into the relationship between service quality and customer loyalty. The influence of service quality on customer loyalty is widely acknowledged. Li (2023) proposed the SERVQUAL model, emphasizing the importance of service quality in achieving customer satisfaction and loyalty.

Furthermore, Chen's (2024) research indicates that service quality not only directly affects customer satisfaction but also indirectly influences customer loyalty through satisfaction (Chen, 2024). Wang (2024) also notes that service quality is a key factor affecting customer loyalty, and high-quality service can significantly enhance it. In the hotel industry, particularly in the realm of smart hotels, the importance of service quality has also been established. For instance, Niu's (2023) research found that hotel service quality has a significant positive influence on customer loyalty. Similarly, Xing (2022) notes that smart hotels can enhance customer satisfaction and loyalty by delivering high-quality service.

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 when customers perceive higher service quality, they are more likely to form long-term loyalty. Cai's (2022) research also suggests that service quality is a key factor influencing customer loyalty. In recent studies, Xu et al. (2022) also confirmed the significant positive influence of service quality on customer loyalty, underscoring its importance in enhancing customer loyalty. Lastly, Yang's (2022) research further explored the relationship between service quality and customer loyalty, finding that service quality has a significant positive influence on customer loyalty.

In summary, service quality, as the overall evaluation and perception of the

service provided by service providers, has a significant influence on customer loyalty. Research by multiple scholars supports this viewpoint and has explored the relationship between service quality and customer loyalty. To enhance customer loyalty, smart hotels should focus on improving service quality and meeting customers' diverse needs.

2.1.3 Perceived Value

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

In today's highly competitive hotel industry, customer loyalty is considered essential for sustainable growth and a competitive edge. Especially in the realm of smart hotels, understanding and meeting customers' diverse needs is crucial to enhancing customer loyalty. The influence of service quality and perceived value on customer loyalty of smart hotels in Yunnan, China, with a special focus on perceived value as an explanatory variable. This paper analyzed the influence of perceived value on customer loyalty and summarized the research findings of relevant scholars through a literature review.

Perceived value, defined as the trade-off between the overall value customers perceive from a product or service and the costs they incur, is widely recognized as a significant factor affecting customer loyalty. Multiple studies by scholars support this viewpoint, delving into the relationship between perceived value and customer loyalty. The influence of perceived value on customer loyalty is widely acknowledged. Wu (2024) notes that perceived value is a key determinant of customer loyalty, and when the value perceived by customers exceeds their expectations, they are

more likely to develop loyalty (Wu, 2024).

Furthermore, Fan's (2021) research indicates that perceived value not only directly affects customer satisfaction but also indirectly influences customer loyalty through satisfaction (Fan, 2021). The study by Wang et al. (2023) also supports this view, finding that perceived value has a significant positive influence on customer loyalty (Wang et al., 2023).In the hotel industry, particularly in the field of smart hotels, the importance of perceived value has also been verified. For instance, Chang (2023) finds that technological innovation and personalized services in smart hotels can enhance customers' perceived value, thereby strengthening their loyalty (Chang, 2023).

Similarly, Li (2023) notes that smart hotels can increase customers' perceived value by providing high-quality services and innovative facilities, thereby enhancing their loyalty (Li, 2023). Other scholars' research further supports the significant influence of perceived value on customer loyalty. Xu (2023) highlights the pivotal role of perceived value in shaping customer loyalty. Feng and Zuo (2023) discovered that when customers perceive higher value, they are more likely to develop long-term loyalty. Jin's (2023) research also suggests that perceived value is a key factor influencing customer loyalty. In recent research, Wen (2023) also confirms the significant positive influence of perceived value on customer loyalty. Zhou's (2023) study further highlights the significance of perceived value in fostering customer loyalty, particularly in the service sector.

In summary, perceived value, as the trade-off between the overall value customers perceive from a product or service and the costs they incur, has a significant influence on customer loyalty. Multiple studies by scholars support this viewpoint, delving into the relationship between perceived value and customer loyalty. To enhance customer loyalty, smart hotels should focus on and elevate customers' perceived value by providing high-quality services and innovative facilities to meet their diverse needs.

2.1.4 Customer Loyalty

With the widespread adoption of innovative technology in the hotel industry,

customer loyalty has become a crucial indicator of the success of smart hotels. Customer loyalty is not only related to hotel revenue but also directly influences their brand image and market competitiveness. Therefore, exploring the factors that influence customer loyalty in Yunnan's smart hotels is particularly important. This paper reviews the research findings of relevant scholars from three dimensions: perceived value, service quality, and demographic variables, to provide theoretical support for this study.

When discussing the factors that affect customer loyalty, perceived value and service quality are two key explanatory variables that cannot be ignored. Meanwhile, demographic variables, as control factors, may also significantly influence customer loyalty. Regarding the influence of perceived value on customer loyalty, numerous scholars have presented compelling evidence. Liu (2023) notes that customer-perceived value is the trade-off between the benefits and costs perceived by customers when evaluating products or services, and this trade-off directly influences customers' loyalty behavior (Liu, 2023). Zhao (2023) further emphasizes that when customers perceive the value of a product or service to exceed their expectations, they are more likely to exhibit high levels of loyalty.

Service quality, as another key explanatory variable, has also received extensive research support. Sun (2023) defines service quality as the overall evaluation of the service process by customers, which is directly related to customer satisfaction and loyalty. Liu (2023) states that the "Service Profit Chain" model clearly indicates that high-quality service can significantly enhance customer loyalty. Demographic variables such as age, gender, income level, education level, and occupational field may also significantly influence customer loyalty. Although research conclusions in this area are not entirely consistent, some scholars, such as Wang (2023), point out that customers with different demographic characteristics may exhibit differences in loyalty behavior. Therefore, when examining customer loyalty, it is crucial to consider the impact of demographic variables.

Specifically in the field of smart hotels, scholars have also begun to focus on the influence of these factors on customer loyalty. For example, He (2023) studied the application of innovative technology in the hotel industry and found that by enhancing customer perceived value and service quality, customer loyalty can be significantly strengthened. Similarly, domestic scholars such as Wang (2023) note that, in the context of smart hotels, customers' perceptions of service quality remain a crucial factor affecting loyalty.

In summary, perceived value, service quality, and demographic variables are all important factors affecting customer loyalty in Yunnan's smart hotels. Perceived value fosters loyalty by satisfying customer expectations and needs. Service quality enhances customer loyalty by improving overall customer satisfaction. Additionally, demographic variables should be included as control factors within the research scope to fully understand the mechanism underlying customer loyalty. Future research should further explore the interactions between these factors, providing more precise theoretical guidance and practical strategies for smart hotels to enhance customer loyalty.

2.2 Related Studies

2.2.1 Service Quality

Service quality, as a crucial factor influencing customer loyalty, has consistently been a focal point of attention in both academic and industry circles. Extensive research indicates that customers' perceptions of service quality directly influence their loyalty, which in turn affects the long-term success of businesses.

Zhao and Chen (2024) suggest that customer perception of service quality relates not only to service outcomes (technical quality) but also to the service process (functional quality). When customers have positive encounters during the service process, they are more likely to develop strong loyalty. This comprehensive perception

of service quality plays a significant role in enhancing customer loyalty. Tang et al. (2024) propose a service profit chain model based on empirical research, emphasizing that service quality indirectly affects customer loyalty through customer satisfaction. They find that high-quality service can significantly enhance customer satisfaction, thereby promoting customer loyalty.

Yang and Li (2024) elaborate on the dimensions of service quality in their study, including reliability, responsiveness, assurance, empathy, and tangibility. These dimensions collectively shape customers' overall perception of service quality, significantly influence their willingness to repurchase and recommend, i.e., customer loyalty. Lu and Leng (2024) note in their research on IT service management that customer perceptions of service quality in the software management industry significantly impact customer satisfaction and loyalty. They emphasize that the dual assurance of technical quality and service process is key to enhancing customer loyalty.

Ma and Gao (2024) define customer satisfaction as the difference between customer expectations and actual perceptions, noting that when customers perceive service quality exceeding expectations, they exhibit higher loyalty. This perspective highlights the pivotal role of service quality in shaping customer loyalty. Wei et al. (2024) further extend the research on the relationship between service quality and customer loyalty, noting that not only is the quality of the initial service experience important, but also that consistent service quality has a significant impact on customer loyalty. The stable perception of service quality formed by customers during long-term service encounters serves as an important foundation for their loyalty.

Tian (2024) finds, through empirical research, that service quality directly affects customer satisfaction, a crucial precursor to customer loyalty. He notes that enhancing service quality is an effective way to improve customer loyalty. Fu (2024) discusses the relationship between customer satisfaction and loyalty in her classic work. While there is less direct research focusing on service quality, her theoretical framework provides a solid foundation for understanding how service quality influences loyalty

through customer satisfaction. Fu believes that satisfied customers are more likely to exhibit loyal behavior.

Luo (2024) examines the relationship between service quality, customer satisfaction, and customer behavioral intentions, finding that high-quality service can significantly enhance customer satisfaction, thereby strengthening customers' willingness to repurchase and provide word-of-mouth recommendations, thereby fostering customer loyalty. Xu et al. (2024) examine the direct and indirect effects of service quality dimensions on customer loyalty using a structural equation model in their study of the relationships among multidimensional service quality, customer satisfaction, and loyalty. They find that all dimensions of service quality have a significant positive influence on customer loyalty.

In summary, research by multiple scholars consistently indicates that service quality significantly influences customer loyalty. From both technical and functional perspectives, customers' comprehensive perception of service quality serves as a crucial foundation for forming their loyalty.

2.2.2 Perceived Value

In hospitality and tourism, understanding the factors that influence customer loyalty is crucial to maintaining a competitive edge. Among these factors, perceived value has consistently emerged as a significant predictor of customer loyalty, particularly in the context of smart hotels in Yunnan. This section reviews the existing literature to establish the relationship between perceived value and customer loyalty, drawing upon the findings of ten scholars.

Perceived value, as conceptualized by Tang and Liu (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 not only in tangible services such as room amenities but also in intangible experiences enabled by technology. Multiple studies have confirmed the pivotal role of perceived value in fostering customer loyalty. Li (2024) conducted research in the service industry

and found that customer loyalty is strongly influenced by the perceived value experienced during the purchasing 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 drives 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 has a notable influence on loyalty. Specifically, tourists who perceive higher value from their travel experiences tend to exhibit greater loyalty to the destination and associated services. This finding aligns with the notion that smart hotels in Yunnan can enhance customer satisfaction and loyalty by offering innovative and value-added services.

Moreover, studies across various industries have consistently demonstrated the significant role of perceived value in fostering customer loyalty. For instance, Wang et al. (2024) investigated the influence of perceived value on consumer loyalty in the network economy and found a positive correlation. Similarly, Shu and Xu (2024) focused on private banking products and reported that perceived value significantly influences customers' purchase behavior and loyalty.

In the context of smart hotels, technology-driven services can enhance customers' perceived value by providing personalized experiences and delivering efficient service. As noted by Zhao et al. (2024), integrating innovative technologies in hotels can improve customer satisfaction and loyalty by enhancing the overall perceived value of the stay.

Additionally, studies examining the multidimensional nature of perceived value have further illuminated its influence on customer loyalty. For example, Li (2024) identified functional, emotional, procedural, and social value as key dimensions of perceived value, finding that each contributes to customer loyalty in different ways. In the smart hotel setting, these dimensions may manifest as convenient room controls,

personalized recommendations, seamless service interactions, and enhanced social experiences, respectively.

In summary, the existing literature overwhelmingly supports the notion that perceived value significantly impacts customer loyalty across industries, including the hospitality sector. The integration of innovative technologies in Yunnan's smart hotels presents an opportunity to elevate customers' perceived value through personalized experiences, efficient service delivery, and enhanced convenience. By addressing customers' needs and expectations, smart hotels can foster a sense of value that, in turn, leads to increased loyalty.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

This study adopted a quantitative research design, using a structured questionnaire to collect and analyze data to answer the research questions and test the research hypotheses. The questionnaire was composed of four main sections: title, introduction, body, and conclusion. The questionnaire included measurement items for the independent variables (perceived value and service quality) and the dependent variable (customer loyalty). All measurement items in this study's questionnaire used a five-point Likert scale, where 1 = "strongly disagree," 2 = "disagree," 3 = "neutral," 4 = "agree," and 5 = "strongly agree." Respondents are required to select their responses based on their own experiences and perceptions. And the demographic variables (age, gender, income level, education level, and occupation). The questionnaire is closed-ended.

The respondents for this study were consumers of smart hotels in Yunnan Province, representing various fields and classes. Relevant variables were organized to ensure comprehensive coverage of the research topic. In addition to the questionnaire body, the other three sections were equally significant as they greatly influence the response rate. The questionnaire title concisely summarized the survey's content, enabling respondents to understand its purpose quickly. The introductory statement served as a "letter of introduction" for the survey, providing information on the survey's objectives, significance, completion instructions, and a confidentiality statement to guide respondents and alleviate concerns about data security, thereby enhancing the reliability of the survey results. The concluding remarks, typically expressed in brief language, convey gratitude to the respondents for their cooperation and contribution to the study.

3.2 Research Population and Samples

3.2.1 Population

The research population for this study consisted of consumers of smart hotels in Yunnan Province. To ensure a comprehensive understanding of the influence of service quality and perceived value on customer loyalty of smart hotels in Yunnan, China. The study included a diverse range of individuals across age groups, genders, income levels, educational backgrounds, and occupational fields. The selection of this population was based on the recognition that smart hotels are becoming increasingly popular in Yunnan Province. Understanding the influence of service quality and perceived value on customer loyalty in smart hotels in Yunnan, China, was crucial to the sustained growth and success of these establishments. By examining a representative sample of the population, this study aimed to provide valuable insights into the key determinants of customer loyalty in smart hotels in Yunnan Province. The study population consisted of individuals who had stayed at the following hotels: 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 population was unknown. So it was unlimited.

3.2.2 Samples

The sample size determination in this research followed the Yamane Sampling Scale, a recognized statistical method for determining the required 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.

3.2.3 Sampling Methods

Due to the large population, the sampling method in this study was non-probability sampling, which is particularly convenient.

3.3 Data Collection

The primary method of data collection for this study involved distributing questionnaires to the target population, which consists of customers of smart hotels in Yunnan Province. The survey period was set from October to December 2024.

(1) Customized questionnaires for smart hotel customers in Yunnan Province, China, were created on the "Wenjuanxing" platform. The questionnaire can be customized to meet research needs, including various question types and branching logic, to effectively capture data on perceived value, service quality, customer loyalty, and demographic variables such as age, gender, income level, education, and occupational field.

(2) Distributing questionnaires through the online platform "Wenjuanxing" was an efficient, convenient, and advantageous method for collecting data from the target population. The specific plan for questionnaire distribution included:

(3) Sharing the link to the questionnaire with the target audience, which was the customers of smart hotels in Yunnan Province, China. "Wenjuanxing" offered various distribution methods, including email and social media, facilitating the rapid delivery of questionnaires to the target audience.

(4) Setting an appropriate deadline to ensure the collection of a sufficient number of valid questionnaires within a reasonable time frame. This helped ensure the reliability and validity of the data collected for the study, enabling accurate analysis and interpretation of the factors influencing customer loyalty in smart hotels within the specified context.

3.4 Research Instrument

This study employed a questionnaire survey as the primary research tool. A questionnaire survey is a research method in which researchers utilize controlled scales to investigate specific issues and acquire reliable information. The process involved

constructing the final questionnaire and distributing and collecting it through web links. The questionnaire comprised three main sections, each designed to capture specific aspects relevant to the study's objectives.

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 closed-ended.

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

Part 3: Perceived Value - This section aims to gather participants' opinions on the perceived value of smart hotels in Yunnan. The questionnaires are designed to collect respondents' opinions using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Part 4: Customer Loyalty - The purpose of this section is to determine the participant's level of customer loyalty towards smart hotels in Yunnan. The surveys used a 5-point Likert scale to elicit respondents' opinions on their loyalty to these hotels.

3.5 Reliability and Validity

3.5.1 Content Validity

The validity of the questionnaires was tested using IOC (item-objective congruence). This method quantitatively measured content expert judgments of items to evaluate the fit between test items and the research objectives. Three managers from the smart hotels industry in Yunnan examined the content validity. The content and measurement of the questions were evaluated to ensure they comprehensively cover the research issues. The experts were required to rate the questionnaires as having the following meaning:

+1: The question is consistent with the content of the measurement objective.

0: Not sure that the question is consistent with the content of the measurement objective.

-1: The question is not consistent with the content of the measurement objective.

The results of all expert evaluations were used to calculate the IOC index according to the formulas of Rovinelli and Hambleton (1977) as follows:

$IOC = \Sigma R/N$

ΣR = total rating score from all experts for each question

N = number of experts

If the calculated IOC index is greater than or equal to 0.5, the questions are considered to be measured in accordance with the research objectives. Therefore, the questions were chosen. If any question does not meet the 0.5 criterion and must be used, it was revised again based on the experts' advice.

Table 3.1 IOC on Likert Scale

IOC on Service Quality		**Expert 1**	**Expert 2**	**Expert 3**	**IOC Index**
Reliability	I believe the services provided by these smart hotels are reliable.	1	1	1	1.00
	This smart hotel demonstrates reliability in fulfilling its service commitments.	1	1	1	1.00
	I find the service quality of these smart hotels to be stable and trustworthy.	0	1	1	0.67
	This smart hotel is very reliable in addressing customer issues and needs.	1	1	1	1.00

IOC on Service Quality		Expert 1	Expert 2	Expert 3	IOC Index
Responsiveness	I believe these smart hotels respond promptly to customer needs and address issues effectively.	1	0	1	0.67
	The service staff at these smart hotels always resolve the issues I encounter promptly.	0	1	1	0.67
	I find these smart hotels very agile and efficient at handling customer requests.	1	1	1	1.00
	These smart hotels always respond to my needs and expectations within a reasonable timeframe.	0	1	1	0.67
Assurance	I believe this smart hotel provides services that give me a sense of security.	1	1	1	1.00
	The service staff at these smart hotels always gives me a feeling of trustworthiness.	1	1	1	1.00
	I find that these smart hotels do a good job of ensuring my rights during the service process.	1	0	1	0.67
	The service at these smart hotels makes me feel very secure, with no concerns about service quality issues.	0	1	1	0.67
Empathy	I believe this smart hotel understands my needs and expectations very well.	0	1	1	0.67
	The service staff at these smart hotels always consider things from my perspective.	1	1	1	1.00

IOC on Service Quality		Expert 1	Expert 2	Expert 3	IOC Index
	I find that this smart hotel is very attentive to my personal needs and preferences.	1	1	1	1.00
	The service provided by these smart hotels makes me feel that they genuinely care about my satisfaction.	0	1	1	0.67
Tangibles	I believe the physical facilities (such as guest rooms and public areas) at these smart hotels are of high quality.	1	0	1	0.67
	The physical environment (such as decoration, layout, and cleanliness) of these smart hotels has left a deep impression on me.	0	1	1	0.67
	I find the tangible displays (such as brand logos and promotional materials) at these smart hotels to be professional and attractive.	1	1	1	1.00
	The tangible elements (such as equipment, furniture, and decorations) at these smart hotels all reflect high-quality service.	1	1	1	1.00

IOC on Perceived Value		Expert 1	Expert 2	Expert 3	IOC Index
Functional	Smart hotels are equipped with voice-control features that enable guests to control room equipment, access hotel information, and request services. They are also capable of natural language processing, allowing them to understand and respond to guest needs.	1	1	1	1.00
	Smart hotels can use electronic keys generated via face or fingerprint recognition, or via a mobile application, for unlocking, providing high security and reducing the risk of traditional key loss.	0	1	1	0.67
	Smart hotels automatically adjust room temperature based on guests' personal preferences and environmental conditions, which can be set via a mobile app or a voice assistant.	1	0	1	0.67
Emotional	I feel that these smart hotels give me a sense of emotional belonging.	1	1	1	1.00
	The service at these smart hotels makes me feel valued and cared for.	0	1	1	0.67
	I find that my interactions with these smart hotels have led to positive emotional experiences.	1	1	1	1.00
	The service experience at these smart hotels has created emotional loyalty for me.	1	0	1	0.67

IOC on Perceived Value		Expert 1	Expert 2	Expert 3	IOC Index
Social	I believe these smart hotels offer a pleasant, comfortable social experience.	0	1	1	0.67
	The social environment and services provided by these smart hotels make me willing to share my experience with others.	0	1	1	0.67
	I find that these smart hotels do a good job in promoting social interaction among customers.	1	1	1	1.00
Monetary	I believe the monetary value these smart hotels provide fully justifies their pricing.	1	1	1	1.00
	The cost-effectiveness of this smart hotel's services meets my expectations.	1	1	1	1.00
	I find the monetary benefits offered by these smart hotels to be satisfactory.	0	1	1	0.67
	From a financial perspective, I believe this smart hotel offers excellent value for money.	0	1	1	0.67
Epistemic	I believe that the smart hotels provide me with valuable knowledge and insights through their services.	1	0	1	0.67
	The information and expertise offered by these smart hotels enhance my understanding and satisfaction with their services.	1	1	1	1.00

IOC on Perceived Value		Expert 1	Expert 2	Expert 3	IOC Index
	I find the epistemic value these smart hotels provide instrumental in my decision-making process.	1	0	1	0.67
	The smart hotel's ability to educate and inform me about its services contributes to my overall perception of its value.	0	1	1	0.67
IOC on Customer Loyalty					
Item	I am likely to choose these smart hotels for my future accommodations.	1	1	1	1.00
	I would recommend these smart hotels to others for their accommodation needs.	0	1	1	0.67
	I am willing to share my positive experiences with these smart hotels with others.	1	1	1	1.00
	I would praise these smart hotels to my friends and family.	1	1	1	1.00
	When discussing accommodation options, I would recommend these smart hotels to others.	0	0	1	0.33
	My positive experiences with these smart hotels have led me to recommend them to others.	0	1	1	0.67

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

3.5.2 Reliability

The reliability test for this study was conducted on 30 participants to evaluate the consistency and stability of the questionnaires employed. Cronbach's alpha

coefficient was calculated to assess the internal consistency of the scales. Following the guidelines of Hair et al. (2010), a Cronbach's alpha of 0.70 or higher is considered acceptable reliability.

The constructs related to the service quality 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, the Cronbach's alpha values for perceived value were 0.813, 0.790, 0.831, 0.846, and 0.834 for functional, emotional, social, monetary, and epistemic aspects, respectively. Finally, the construct measuring customer loyalty achieved a Cronbach's alpha of 0.796.

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

3.6 Data Analysis

3.6.1 Descriptive Statistics

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

Evaluative criteria for the question items with positive meaning, the interval for breaking the range in measuring each is calculated by

$$\text{N (Width of the range)} = \frac{\text{Maximum} - \text{Minimum}}{Level}$$

$$= \frac{5-1}{5}$$

$$=0.8$$

The researcher analyzed the opinion level of customer loyalty of smart hotels in Yunnan, China, by calculating the mean scores in the following ranges (Kooharatanachai, 1999)

4.21 – 5.00 is considered as strongly agree

3.41 – 4.20 are considered as agree

2.61 – 3.40 are considered neutral

1.81 – 2.60 are considered disagree

1.00 – 1.80 is considered as strongly disagree

3.6.2 Inferential Statistics

The following inferential statistics were used for data analysis and hypothesis testing at the 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 Occupation) were applied. The statistics used are an independent sample t-test and a one-way ANOVA. For one-way ANOVA results, if significant values are found, post hoc analysis using the Least Significant Difference (LSD) method is performed to investigate specific differences among groups further.

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

The statistics used are multiple linear regression to analyze the influence of service quality on customer loyalty.

H3: Perceived value influences customer loyalty.

Similarly, multiple linear regression was employed to examine the influence of perceived value and customer loyalty.

CHAPTER IV

ANALYSIS RESULT

The purpose of this study is to explore the influence of service quality and perceived value on customer loyalty in smart hotels in Yunnan, China. The research is conducted within the context of smart hotels located in Yunnan Province, China. Given an uncertain customer population, the goal is to ensure a representative sample of 400 respondents, as per Yamane (1973). According to advanced statistical procedures, the data analysis in this study is mainly divided into two categories: descriptive statistics and inferential statistics. The descriptive statistics presented in this chapter include absolute frequencies, percentage frequencies, the mean, and the standard deviation. Inferential statistics employ hypothesis-testing methods, including one-sample t-tests, independent-samples t-tests, one-way ANOVA, and multiple linear regression.

4.1 Descriptive Statistics

4.1.1 Demographic Factors

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 60 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

		Frequency	Percent
Educational	Above 12000 yuan	167	41.75
	Junior high school or below	64	16.00
	High school/technical secondary school	160	40.00
	Bachelor's degree/college	120	30.00
	Master's degree or above	56	14.00
Occupational	Enterprise/company employee	21	5.25
	Freelancer	35	8.75
	Government officer	104	26.00
	Student	98	24.50
	Other	142	35.50
Total		400	100.00

Based on Table 4.1, the respondents in this survey are primarily in the older age groups, with those aged 51-60 and 61+ 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. In terms of gender distribution, male respondents account for 52.75% and female respondents for 47.25%, indicating a slight male advantage. Regarding income, 41.75% of respondents earn over 12,001 yuan per month, indicating that the overall sample leans toward middle- to high-income levels, with low-income respondents (earning below 3,000 yuan) comprising only 6.25%. In terms of educational level, 40% of respondents hold a high school or technical secondary school education, while 30% hold a bachelor's degree, reflecting a generally high level of education. In the occupational field, respondents in the "Other" category account for 35.5%, while government officials and students account for 26% and 24.5%, respectively, with enterprise employees accounting for only 5.25%.

4.1.2 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

	Mean	S.D	Meaning	RANK
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 service quality score is 3.9950, with a standard deviation of 0.81648, indicating that respondents generally agree on the quality of service provided. Among the five dimensions of service quality, Assurance has the highest mean of 4.0300, indicating that customers' opinions on Assurance are at an agreeable level and rank first. Empathy has a mean of 4.0000, indicating that customers' opinions on empathy are at an agreeable level. Reliability and tangibles rank third and fourth, with mean scores of 3.9650 and 3.9375, respectively, indicating that customers' opinions on these attributes are at an agreeable level. Responsiveness ranks last with a mean of 3.8300, indicating that customers' opinions on responsiveness are at an agreeable level.

4.1.3 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 customers' opinions on monetary value are at an agreeable level. Emotional value has a mean of 4.0000, indicating that customers' opinions on emotional value are at an agreeable level. Epistemic value ranks third with a mean of 3.9650, indicating that customers' opinions on epistemic value are at an agreeable level. Functional value ranks fourth, with a mean of 3.9000, indicating that customers' opinions on functional value are at an agreeable level. Social value ranks lowest at 3.8900, indicating that customer opinions on social media are at an agreeable level.

4.1.4 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 the smart hotel in Yunnan, China.

4.2 Inferential Statistics

4.2.1 Differences in Demographic Factors Generate Differences in Customer Loyalty

4.2.1.1 Differences in Age: Generate Differences in Customer Loyalty

H0: $\mu 1 = \mu 2 = \mu 3 = \mu 4 = \mu 5$

Ha: $\mu i \neq \mu j$ at last one Pair where $i \neq j$.

Table 4.5 The One-way ANOVA of Age

Customer Loyalty		Sum of Squares	Df	Mean Square	F	Sig.
Age	Between Groups	204.809	4	51.202	98.147	.000*
	Within Groups	206.068	395	.522		
	Total	410.877	399			

The results of the One-way ANOVA, presented in Table 4.5, indicate significant differences in customer loyalty across different age groups ($F = 98.147$, $p < 0.001$).

Table 4.6 Multiple Comparisons of Age

Age	Group J	26-30	31-40	41-50	51-60	Above 61
Group I	**(I-J)**	2.4286	3.0435	3.2787	3.7188	4.8101
26-30	2.4286	-	-0.6149 (0.037)*	-0.8501 (0.003)*	-1.2902 (0.000)*	-2.3815 (0.000)*
31-40	3.0435		-	-0.2352 (0.096)	-0.6753 (0.000)*	-1.7666 (0.000*)
41-50	3.2787			-	-0.4401 (0.000)*	-1.5314 (0.000)*
51-60	3.7188				-	-1.0913 (0.000)*
Above 61	4.8101					-

** The mean difference is significant at the 0.05 level.*

Dependent Variable: Customer loyalty

Table 4.6 presents that the mean value of the 26-30 age group is lower than that of the 31-40 age group, the 41-50 age group, the 51-60 age group, and the above 61 age group, with significance levels of 0.037, 0.003, 0.000, and 0.000, respectively. The mean value for the 31-40 age group is lower than that for the 51-60 and 61+ age groups, with significance levels of 0.000 and 0.000, respectively. The mean value for the 41-50 age group is lower than that for the 51-60 and 61 age groups, with significant differences of 0.000 and 0.000, respectively.

The mean value for the 51-60 age group is lower than that for the 61+ age group, with a significance level of 0.000.

4.2.1.2 Differences in Gender Generate Differences in Customer Loyalty

H0: $\mu 1 = \mu 2$

Ha: $\mu 1 \neq \mu 2$

Table 4.7 The Independent Samples t-test of the Gender Factor

Items	What is your age?	N	Mean	S.D.	t	df	sig
Customer Loyalty	Male	211	3.6066	.99607	-8.565	398	0.0
	Female	189	4.4021	.86122			*

According to Table 4.7, the analysis of the influence of gender differences on customer loyalty employed a t-test with a significance level of 0.05. This study reveals a significant difference in customer loyalty based on gender ($t(398) = -8.565$, $p < 0.000$).

4.2.1.3 Differences in Monthly Income Level Generate Differences in Customer Loyalty

H0: $\mu1 = \mu2 = \mu3 = \mu4 = \mu5$

Ha: $\mu i \neq \mu j$ at last one Pair where $i \neq j$.

Table 4.8 The One-way ANOVA of Monthly Income Level

Customer Loyalty		Sum of Squares	Df	Mean Square	F	Sig.
Monthly income level	Between Groups	81.007	4	20.252	24.250	0.000*
	Within Groups	329.871	395	0.835		
	Total	410.877	399			

The results of the one-way ANOVA, as shown in Table 4.8, indicate significant differences in customer loyalty across monthly income levels ($F = 24.250$, $p < 0.000$). This suggests that income level significantly influences customer loyalty.

Table 4.9 Multiple Comparisons of Monthly Income Level

Income Level	Group J	Below 3000 yuan	3000-5000 yuan	5001-8000 yuan	8001-12000 yuan	Above 12001 yuan
Group I	**(I-J)**	3.040000	3.500000	3.524390	3.950000	4.443114
Below 3000 yuan	3.040000	-	-0.46 (0.073)	-0.48439 (0.021)*	-0.91 (0.000)*	-1.403114 (0.000)*
3000-5000 yuan	3.500000		-	-0.02439 (0.906)	-0.45 (0.026)*	-0.943114 (0.000*)
5001-8000 yuan	3.524390			-	-0.42561 (0.002)*	-0.918724 (0.000)*
8001-12000 yuan	3.950000				-	-0,493114 (0.000)*
Above 12001 yuan	4.443114					-

** The mean difference is significant at the 0.05 level.*

Dependent Variable: Customer loyalty

Table 4.9 shows that the mean income level for the below-3000 yuan group is lower than that for the 5001-8000 yuan, 8001-12000 yuan, and above-12001 yuan groups, with significant differences of 0.021, 0.000, and 0.000, respectively. The mean income level for the 3000-5000 yuan group is lower than that for the 8001-12000 yuan and 12001+ yuan groups, with significant differences of 0.026 and 0.000, respectively. The mean income level for the 5001-8000 yuan group is lower than that for the 8001-12000 yuan and 12001+ yuan groups, with significant differences of 0.002 and 0.000, respectively.

The mean income level for the 8001-12000 yuan group is lower than that for the 12001+ yuan group, with a significance of 0.000.

4.2.1.4 Differences in Educational Level: Generate Differences in Customer Loyalty

H0: $\mu 1 = \mu 2 = \mu 3 = \mu 4$

Ha: $\mu i \neq \mu j$ at last one Pair where $i \neq j$.

Table 4.10 The One-way ANOVA of Educational Level

Customer Loyalty		Sum of Squares	Df	Mean Square	F	Sig.
Educational level	Between Groups	74.919	3	24.973	29.436	0.000*
	Within Groups	335.958	396	.848		
	Total	410.878	399			

The one-way ANOVA results for educational level, presented in Table 4.10, show significant variations in customer loyalty across different educational groups ($F = 29.436$, $p < 0.001$). This finding suggests that education level has a significant impact on customer loyalty.

Table 4.11 Multiple Comparisons of Educational Level

Educational Level	Group J	Junior High School or Below	High School / Technical Secondary School	Bachelor's Degree / College	Master's Degree or Above
Group I	(I-J)	3.359375	3.85	4.066667	4.892857
Junior high school or below	3.359375	-	-0.490625 (0.000)*	-0.707292 (0.000)*	-1.533482 (0.000)*
High school / technical secondary school	3.85		-	-0.21666 (0.052)	-1.042857 (0.000)*
Bachelor's degree/college	4.066667			-	-0.826187 (0.000)*
Master's degree or above	4.892857				-

Table 4.11 presents the mean educational level. Junior high school or below is lower than the educational level of the high school/technical secondary school group, bachelor's degree/college, master's degree, or above, with significance levels of 0.000, 0.000, and 0.000, respectively. The mean educational level for high school/technical secondary school is lower than that for a master's degree or higher, with a significance level of 0.000. The mean educational level for a bachelor's degree/college is lower than

that for a master's degree or higher, with a significance level of 0.000.

4.2.1.5 Differences in Occupational Field: Generate Differences in Customer Loyalty

H0: μ1 =μ2=μ3=μ4=μ5

Ha: μi ≠ μj at last one Pair where i ≠j.

Table 4.12 The One-way ANOVA of Occupational Field

Customer Loyalty		Sum of Squares	Df	Mean Square	F	Sig.
Occupational field	Between Groups	63.184	4	15.796	17.945	0.000*
	Within Groups	347.694	395	0.880		
	Total	410.878	399			

The results of the one-way ANOVA for occupations in Table 4.12 indicate significant variation in customer loyalty across different occupational groups ($F = 17.945$, $p < 0.001$). This finding indicates that occupational influences on customer loyalty.

Table 4.13 Multiple Comparisons of Monthly Occupational Field

Occupational Field	Group J	Enterprise / Company Employee	Freelancer	Government Official	Student	Other
Group I	**(I-J)**	3.52381	3.34286	3.6923	3.897959	3.982500
Enterprise/company employee	3.52381	-	0.18095	-0.1685	-0.374149	-0.45869
			(0.485)	(0.483)	(0.57)	(0.003)*
Freelancer	3.342857		-	-0.3495	-0.555102	-0.639643
				(0.57)	(0.003)*	(0.000)*
Government official	3.692308			-	-0.205651	-0.23269
					(0.12)	(0.000)*
Student	3.897959				-	-0.08454
						(0.000)*

Occupational Field	Group J	Enterprise / Company Employee	Freelancer	Government Official	Student	Other
Other	3.982500					-

** The mean difference is significant at the 0.05 level.*
Dependent Variable: Customer loyalty

Table 4.13 shows that the mean value for the Enterprise/company employee group is lower than that for the Other group, with a significance level of 0.003. The mean value for the freelancer group is lower than that for the Student group, with significant differences of 0.003 and 0.000, respectively. The mean value of the government officer group is lower than that of others, with a significance of 0.000. The mean value for the student group is lower than that of the others, with a significance level of 0.000.

4.2.2 Service Quality Influence on Customer Loyalty

H2: Service quality influence on 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 4.14 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 4.14 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 4.15 The Multiple Linear Regression Coefficients for Service Quality on Customer Loyalty

	Model	Coefficienta				
		Unstandardized Coefficients		Standardized Coefficients Beta	t	sig
		B	Std.Error			
1	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: $Y= -0.398 +0.437X_1 +0.306X_2+0.165X_3+0.120X_4+0.079X_5$

(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 4.15, the Standardized Coefficients indicate that Reliability is the most critical variable influencing customer loyalty, with a regression coefficient of 0.396. This is followed by Responsiveness, Assurance, and Empathy, with coefficients of 0.275, 0.156, and 0.127, respectively. The less tangible influence has a coefficient of 0.071.

4.2.3 Perceived Value Influence on Customer Loyalty

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

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

Where Y = Customer Loyalty

X_1 = Functional

X_2 = Emotional

X_3 = Social

X4=Monetary

X5=Epistemic

Table 4.16 Summary of 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 4.16 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 4.17 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*

Model	Coefficienta				
	Unstandardized Coefficients		Standardized Coefficients Beta	t	sig
	B	Std.Error			
Social	.215	.026	.237	8.237	0.000*
Functional	.118	.023	.121	5.073	0.000*

a. Dependent Variable: Customer Loyalty

Equation 2: $Y= 0.077 + 0.652X2 + 0.215X3 + 0.118X_1$

(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 4.17, the Standardized Coefficients indicate that Emotional is the most critical variable influencing customer loyalty, with a regression coefficient of 0.658. Social and Functional follow with coefficients of 0.237 and 0.121, respectively.

Table 4.18 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 is significant at the 0.05 level.

As can be seen from Table 4.18, 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 significant influence on customer loyalty.

Table 4.19 Summary Result on Hypothesis 2

Service Quality	Customer Loyalty
Reliability	√
Responsiveness	√
Assurance	√
Empathy	√
Tangibles	√

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

√ The mean difference is significant at the 0.05 level.

Table 4.20 Summary Result on Hypothesis 2 on Equation

Customer Loyalty	Forecasting Equations
	$Y= -0.398 +0.437X_1 +0.306X_2+0.165X_3+0.120X_4+0.079X_5$
	(0.004)* (0.000) * (0.000) * (0.000) * (0.001) * (0.008) *

Y=Customer Loyalty

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

Table 4.20 shows that Reliability is the most critical variable influencing customer loyalty.

Table 4.21 Summary Result on Hypothesis 3

Perceived Value	Customer Loyalty
Functional	√
Emotional	√
Social	√
Monetary	-
Epistemic	-

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

√ The mean difference is significant at the 0.05 level.

Table 4.22 Summary Result on Hypothesis 3 on Equation

Customer Loyalty	Forecasting Equations
	$Y= 0.077 +0.652X_2+0.215X_3+0.118X_1$
	(0.323) (0.000)* (0.000)* (0.000)*

Y = Customer Loyalty

X1 = Functional, X2 = Emotional, X3 = Social, X4=Monetary, X5=Epistemic

Table 4.22 shows that Emotional is the most critical variable influencing customer loyalty

CHAPTER V

CONCLUSION AND DISCUSSION

This study aims to examine the impact of service quality and perceived value on customer loyalty in smart hotels in Yunnan, China. Based on the analysis results in Chapter 4, this chapter is divided into five parts.

5.1 Conclusion

5.1.1 Demographic Factors

The study examined the demographic characteristics and their influence on customer loyalty. A total of 400 valid responses were collected. The majority of participants were aged 61 years or older (39.5%). Regarding gender, the majority of 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 school or technical secondary education. In the occupational category, the majority of participants were classified as '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 is used to examine the influence of Age, Gender, Occupation， Education, and Income Level on customer loyalty.

5.1.2 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%.

In terms of the Standardized Coefficients, it can be observed that Reliability is the most critical variable influencing customer loyalty, with a regression coefficient of 0.396. The coefficients for responsiveness, Assurance, and empathy are 0.275, 0.156, and 0.127, respectively. The less tangible influence has a coefficient of 0.071.

5.1.3 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%.

In terms of the Standardized Coefficients, Emotional is the most critical variable influencing customer loyalty, with a regression coefficient of 0.658. This is followed by Social and Functional, with coefficients of 0.237 and 0.121, respectively.

5.2 Discussion

5.2.1 Demographic

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

5.2.2 Service Quality Influence on Customer Loyalty

The study found that all dimensions of service quality significantly influence customer loyalty. These results, consistent with those of Dam and Dam (2021), indicate that all aspects of service quality significantly impact 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 those of Zhao et al. (2024); integrating innovative

technologies in hotels can improve customer satisfaction and loyalty by enhancing the overall perceived value of the stay.

5.2.3 Perceived Value Influence on Customer Loyalty

The analysis also revealed that emotional, social, and functional value have a significant influence on customer loyalty. These results are consistent with El-Adly (2019), who studied the Modeling of the relationship between hotel perceived value, customer satisfaction, and customer loyalty. The result found that perceived value influences customer loyalty. These results are also consistent with Phiphopaekasit and Anunthawichak (2022), who used path analysis to identify factors influencing customer loyalty at green hotels and Resorts in Thailand. The results found that perceived value influences customer loyalty of Green Hotel and Resort in Thailand.

5.3 Implication for Practice

The findings on the influence of service quality and perceived value on customer loyalty in smart hotels can provide some practical implications as follows.

The study found that age, gender, income level, education, and occupation all 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 services and traditional, convenient methods. Male and female customers may perceive hotel services differently. Female customers may pay more attention to ambience and detailed service, while male customers may prefer convenience and technological innovation. Smart hotels can design services and facilities with gender differences in mind. In terms of career and income, high-income customers tend to prioritize personalized, luxurious, and intelligent services, while low- and middle-income customers may value cost-performance and basic services more. The hotel can provide personalized, intelligent services tailored to its customers' income

levels and professional backgrounds. Customers with higher levels of education are generally more receptive to innovative technology and can adapt to and enjoy the services provided by smart hotels more quickly.

In contrast, less educated customers may feel uncomfortable and even uneasy about innovative services. To increase loyalty among different customer groups, smart hotels can provide user-friendly equipment and offer guidance to help customers better utilize smart facilities. In short, depending on demographic factors, smart hotels should flexibly adjust their service offerings and strategies to ensure they meet the needs of different customers, improve perceived value and service quality satisfaction, and effectively enhance customer loyalty.

The study found that reliability is the most critical variable influencing customer loyalty; therefore, smart hotels should not only focus on innovative and differentiated services but also 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 taking other necessary measures, smart hotels can enhance customer trust in their services, foster customer loyalty, and differentiate themselves in the competitive market.

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 innovative service projects with local characteristics. For example, smart tour guides can provide customers with cultural explanations of Yunnan scenic spots through virtual reality technology; The bright room can show the local characteristics of the elements (such as Yunnan special fragrance, folk music, etc.) through automatic adjustment, so that customers enjoy the smart and convenient, but also feel the intense cultural atmosphere. Further deepen the emotional connection between customers and the hotel to increase customer loyalty.

5.4 Recommendation for Future Research

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

Firstly, this study focuses exclusively on smart hotels in Yunnan. Future studies can expand the sample to include smart hotels in more extensive areas, such as regions with different economic development levels and tourism resource characteristics, and compare differences in service quality, perceived value, and customer loyalty across regions. To get more generalizable conclusions. It can also be extended to international countries with characteristics and representatives in the development of smart hotels, to study the interaction mechanisms among these factors across different cultural backgrounds and consumption habits, and to enrich the application scenarios of the research results.

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

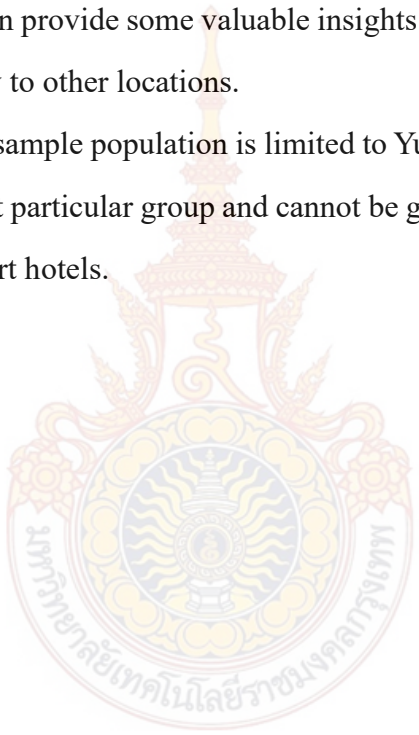
Finally, this study discusses service quality and perceived value. Future studies can incorporate variables such as the digital marketing impact of hotels, the technological acceptance level of customers, and environmental protection measures of hotels, among others, to provide an in-depth analysis of how these new factors and original factors synergistically influence customer loyalty. This will enable the development of a more realistic and comprehensive impact model.

5.5 Limitations of the Study

Firstly, this study was conducted within a specific time frame, collecting data from consumers of smart hotels in Yunnan Province from October to November 2024. Short-term research results may not fully account for customers' long-term perceptions of hotels and loyalty accumulation, leading to an incomplete understanding of the factors affecting loyalty.

Secondly, the research is limited to Yunnan as a key destination. However, the research results can provide some valuable insights for smart hotels in Yunnan. The finding may not apply to other locations.

The final sample population is limited to Yunnan Province; the conclusions may apply only to that particular group and cannot be generalized to other regions or to different types of smart hotels.



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APPENDICES

Questionnaire Survey

Dear Sir/Madam,

Hello! Thank you very much for participating in this questionnaire survey. The purpose of this questionnaire is to investigate "The influence of service quality and perceived value on customer loyalty of smart hotels in Yunnan, China" to provide valuable references for the smart hotels industry in enhancing customer loyalty. Your responses will have a significant impact on our research, so please complete the questionnaire based on your actual situation. This survey is anonymous and does not involve any personal information. The survey results will be used solely for academic research purposes.

I. Demographics

The following questions inquire about demographic variables, which are crucial for informing the analysis and research. Please fill them out carefully.

1. What is your age?
1) 26-30 years old
2)31-40 years old
3)41-50 years old
4)51-60years old
5)Above 61 years old

2. What is your gender?
1)Male
2)Female

3. What is your monthly income level?
1) Below 3000 yuan
2) 3000-5000 yuan
3) 5001-8000 yuan
4)8001-12000 yuan
5) Above 12001 yuan

4. What is your educational level?
1) Junior high school or below
2) High school/technical secondary school
3) Bachelor's degree/college
4) Master's degree or above

5. What is your occupational field?
1) Enterprise/company employee
2) Freelancer
3) Government officer
4)Student
5) Other

II. Service Quality

Please carefully read the following statements and indicate your level of agreement by marking the appropriate box. Use the following scale: 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 =Strongly Agree.

-Reliability	1	2	3	4	5
I believe the services provided by these smart hotels are reliable.					
This smart hotel demonstrates reliability in fulfilling its service commitments.					
I find the service quality of these smart hotels to be stable and trustworthy.					
This smart hotel is very reliable in addressing customer issues and needs.					
-Responsiveness	1	2	3	4	5
I believe these smart hotels respond promptly to customer needs and address issues effectively.					
The service staff at these smart hotels always resolve the issues I encounter promptly.					
I find these smart hotels to be very agile and efficient in handling customer requests.					
These smart hotels always respond to my needs and expectations within a reasonable timeframe.					
-Assurance	1	2	3	4	5
I believe these smart hotels provide services that give me a sense of security.					
The service staff at these smart hotels always gives me a feeling of trustworthiness.					
I find that these smart hotels do a good job of ensuring my rights during the service process.					
The service at these smart hotels makes me feel very secure, with no concerns about service quality issues.					

-Empathy	1	2	3	4	5
I believe this smart hotel understands my needs and expectations very well.					
The service staff at these smart hotels always consider things from my perspective.					
I find that this smart hotel is very attentive to my personal needs and preferences.					
The service provided by these smart hotels makes me feel that they genuinely care about my satisfaction.					
-Tangibles	1	2	3	4	5
I believe the tangible facilities (such as guest rooms, public areas, etc.) at these smart hotels are of high quality.					
The physical environment (such as decoration, layout, and cleanliness) of these smart hotels has left a deep impression on me.					
I find the tangible displays (such as brand logos, promotional materials, etc.) at these smart hotels to be professional and attractive.					
The tangible elements (such as equipment, furniture, and decorations) at these smart hotels all reflect high-quality service.					

III.Perceived Value

Please carefully read the following statements and indicate your level of agreement by marking the appropriate box. Use the following scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree.

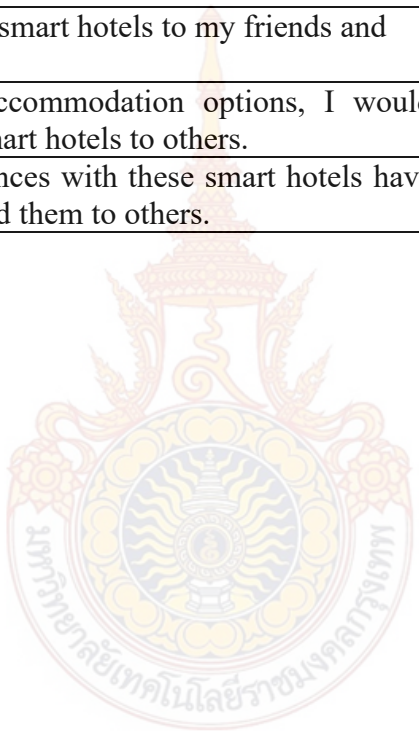
-Functional	1	2	3	4	5
Smart hotels are equipped with voice command functions, enabling guests to control room equipment, access hotel information, and request services. They are also capable of natural language processing, allowing them to understand and respond to guest needs.					
Smart hotels can use electronic keys generated via face or fingerprint recognition, or via a mobile application, for unlocking, providing high security and reducing the risk of traditional key loss.					
Smart hotels automatically adjust room temperature based on guests' personal preferences and environmental conditions, which can be set via a mobile app or a voice assistant.					

-Emotional	1	2	3	4	5
I feel that these smart hotels give me a sense of emotional belonging.					
The service at these smart hotels makes me feel valued and cared for.					
I find that my interactions with these smart hotels have led to positive emotional experiences.					
The service experience at these smart hotels has created emotional loyalty for me.					
-Social	1	2	3	4	5
I believe these smart hotels offer a pleasant, comfortable social experience.					
The social environment and services provided by these smart hotels make me willing to share my experience with others.					
I find that these smart hotels do a good job in promoting social interaction among customers.					
-Monetary	1	2	3	4	5
I believe the monetary value these smart hotels provide fully justifies their pricing.					
The cost-effectiveness of this smart hotel's services meets my expectations.					
I find the monetary benefits offered by these smart hotels to be satisfactory.					
From a financial perspective, I believe this smart hotel offers excellent value for money.					
-Epistemic	1	2	3	4	5
I believe that the smart hotels provide me with valuable knowledge and insights through their services.					
The information and expertise offered by these smart hotels enhance my understanding and satisfaction with their services.					
I find the epistemic value these smart hotels provide instrumental in my decision-making process.					
The smart hotel's ability to educate and inform me about its services contributes to my overall perception of its value.					

IV. Customer Loyalty

Please carefully read the following statements and indicate your level of agreement by marking the appropriate box. Use the following scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree.

Item	1	2	3	4	5
I am likely to choose these smart hotels for my future accommodations.					
I would recommend these smart hotels to others for their accommodation needs.					
I am willing to share my positive experiences with these smart hotels with others.					
I would praise these smart hotels to my friends and family.					
When discussing accommodation options, I would recommend these smart hotels to others.					
My positive experiences with these smart hotels have led me to recommend them to others.					



BIOGRAPHY

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